# ReglasAsociacion

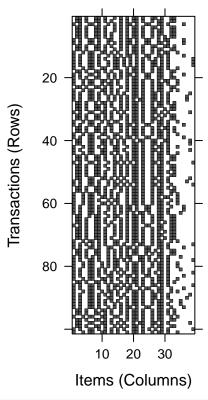
## FranciscoPérezHernández 16/3/2017

#### **Transparencias**

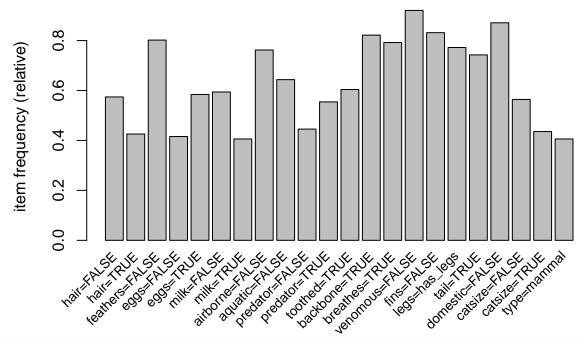
```
#Francisco Pérez Hernández
setwd("~/Dropbox/zMaster/zRStudio/Master-en-Ciencia-De-Datos-e-Ingeniería-de-Computadores/2 Mineria de
library(arules)
## Loading required package: Matrix
## Warning: package 'Matrix' was built under R version 3.3.2
##
## Attaching package: 'arules'
## The following objects are masked from 'package:base':
##
##
       abbreviate, write
library(mlbench)
#Cargamos la BD en nuestra zona de trabajo
data(Zoo)
#Consultamos sus dimensiones
dim(Zoo)
## [1] 101 17
#Vemos las 2 primeras filas para ver los atributos y sus tipos
Zoo[1:2,]
##
            hair feathers eggs milk airborne aquatic predator toothed
## aardvark TRUE
                    FALSE FALSE TRUE
                                        FALSE
                                                FALSE
                                                          TRUE
                                                                  TRUE
## antelope TRUE
                    FALSE FALSE TRUE
                                        FALSE
                                                FALSE
                                                         FALSE
                                                                  TRUE
            backbone breathes venomous fins legs tail domestic catsize
                         TRUE
                                 FALSE FALSE
                                                4 FALSE
## aardvark
                TRUE
                                                           FALSE
                                                                    TRUE
## antelope
                TRUE
                         TRUE
                                 FALSE FALSE
                                                4 TRUE
                                                           FALSE
                                                                    TRUE
##
## aardvark mammal
## antelope mammal
summary(Zoo)
##
      hair
                     feathers
                                                       milk
                                       eggs
##
   Mode :logical
                   Mode :logical
                                    Mode :logical
                                                    Mode :logical
##
  FALSE:58
                    FALSE:81
                                    FALSE:42
                                                    FALSE:60
##
  TRUE:43
                    TRUE:20
                                    TRUE:59
                                                    TRUE:41
##
  NA's :0
                    NA's :0
                                    NA's :0
                                                    NA's :0
##
##
##
##
                                     predator
                                                     toothed
    airborne
                     aquatic
## Mode :logical
                    Mode :logical
                                    Mode :logical
                                                    Mode :logical
```

```
FALSE:77
                    FALSE:65
                                     FALSE:45
                                                     FALSE:40
##
    TRUE : 24
                    TRUE:36
                                     TRUE:56
                                                     TRUE:61
                                     NA's :0
##
    NA's :0
                    NA's :0
                                                     NA's :0
##
##
##
##
     backbone
                     breathes
                                      venomous
                                                         fins
##
    Mode :logical
                    Mode :logical
                                     Mode :logical
                                                     Mode :logical
##
    FALSE:18
                    FALSE:21
                                     FALSE:93
                                                     FALSE:84
##
    TRUE :83
                    TRUE:80
                                     TRUE:8
                                                     TRUE :17
##
    NA's :0
                    NA's :0
                                     NA's :0
                                                     NA's :0
##
##
##
##
                                      domestic
         legs
                       tail
                                                      catsize
##
    Min.
           :0.000
                    Mode :logical
                                     Mode :logical
                                                     Mode :logical
    1st Qu.:2.000
                                     FALSE:88
##
                    FALSE:26
                                                     FALSE:57
    Median :4.000
                    TRUE :75
                                     TRUE:13
                                                     TRUE : 44
    Mean
           :2.842
                    NA's :0
                                     NA's :0
                                                     NA's :0
##
##
    3rd Qu.:4.000
##
    Max.
           :8.000
##
##
               type
##
    mammal
                 :41
   bird
                 :20
##
   reptile
                 : 5
                 :13
##
  fish
##
    amphibian
                 : 4
                 : 8
##
    insect
    mollusc.et.al:10
#Vemos que variables tenemos, donde tenemos: pelo, plumas, huevos, leche, aereo, acuatico,
#depredador, dentado, vertebrado, respira, venenoso, aletas, piernas, cola, domestico,
#"catsize", clase(mamifero,pajaro,reptil,pez,amfibio,insecto,molusco)
summary(Zoo$legs)
      Min. 1st Qu.
                    Median
                              Mean 3rd Qu.
                                               Max.
                              2.842
     0.000
             2.000
                     4.000
                                      4.000
                                              8.000
##
#Convertimos las variables booleanas a factor
Zoo[["hair"]] = as.factor(Zoo[["hair"]])
Zoo[["feathers"]] = as.factor(Zoo[["feathers"]])
Zoo[["eggs"]] = as.factor(Zoo[["eggs"]])
Zoo[["milk"]] = as.factor(Zoo[["milk"]])
Zoo[["airborne"]] = as.factor(Zoo[["airborne"]])
Zoo[["aquatic"]] = as.factor(Zoo[["aquatic"]])
Zoo[["predator"]] = as.factor(Zoo[["predator"]])
Zoo[["toothed"]] = as.factor(Zoo[["toothed"]])
Zoo[["backbone"]] = as.factor(Zoo[["backbone"]])
Zoo[["breathes"]] = as.factor(Zoo[["breathes"]])
Zoo[["venomous"]] = as.factor(Zoo[["venomous"]])
Zoo[["fins"]] = as.factor(Zoo[["fins"]])
Zoo[["tail"]] = as.factor(Zoo[["tail"]])
Zoo[["domestic"]] = as.factor(Zoo[["domestic"]])
Zoo[["catsize"]] = as.factor(Zoo[["catsize"]])
```

```
#De el único atributo continuo lo dividimos en intervalos
Zoo[[ "legs"]] = ordered( cut ( Zoo[[ "legs"]], c(-Inf,0,Inf) ) ,
                          labels = c ("no_legs", "has_legs"))
#Convertimos el data.frame en un conjunto de transacciones con la función as
ZooTrans <- as(Zoo, "transactions")</pre>
ZooTrans
## transactions in sparse format with
## 101 transactions (rows) and
## 39 items (columns)
#Por lo que tenemos un conjunto de transacciones de 101 transacciones y 39 items
\#Vemos\ el\ resumen\ de\ la\ BD\ de\ transacciones
summary(ZooTrans)
## transactions as itemMatrix in sparse format with
## 101 rows (elements/itemsets/transactions) and
## 39 columns (items) and a density of 0.4358974
## most frequent items:
## venomous=FALSE domestic=FALSE
                                     fins=FALSE backbone=TRUE feathers=FALSE
               93
##
                              88
                                             84
                                                             83
##
          (Other)
##
             1288
##
## element (itemset/transaction) length distribution:
## sizes
## 17
## 101
##
##
      Min. 1st Qu. Median
                              Mean 3rd Qu.
                                              Max.
        17
               17
                        17
                                17
                                        17
                                                 17
##
## includes extended item information - examples:
##
            labels variables levels
        hair=FALSE
                         hair FALSE
## 2
         hair=TRUE
                         hair
                               TRUE
## 3 feathers=FALSE feathers FALSE
##
## includes extended transaction information - examples:
   transactionID
## 1
         aardvark
## 2
          antelope
## 3
              bass
#Representar gráficamente la distribución de los items en las transacciones
image(ZooTrans)
```



#Para ver gráficamente que items son los más importantes: #donde el mínimo soporte será 0.4 y reducimos el tamaño de los títulos itemFrequencyPlot(ZooTrans, support = 0.4, cex.names=0.8)

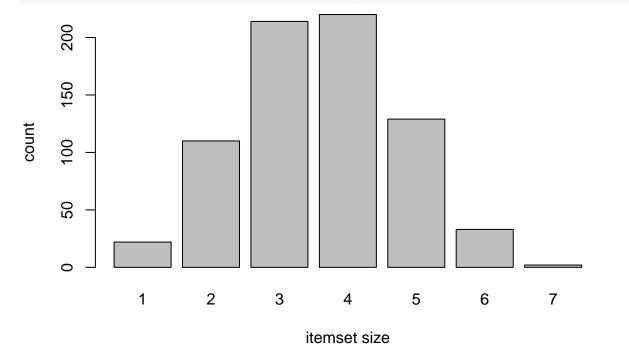


#Usamos apriori para extraer los itemsets frecuentes con minsop 0.4. iZoo <- apriori(ZooTrans, parameter = list(support = 0.4, target="frequent"))

## Apriori

##

```
## Parameter specification:
  confidence minval smax arem aval originalSupport maxtime support minlen
##
                               TRUE
##
           0.1
               1 none FALSE
##
  maxlen
              target
                   ext
##
     10 frequent itemsets FALSE
##
## Algorithmic control:
##
  filter tree heap memopt load sort verbose
##
    0.1 TRUE TRUE FALSE TRUE
                          TRUE
##
## Absolute minimum support count: 40
##
## set item appearances ...[0 item(s)] done [0.00s].
## set transactions ...[39 item(s), 101 transaction(s)] done [0.00s].
## sorting and recoding items ... [22 item(s)] done [0.00s].
## creating transaction tree ... done [0.00s].
## checking subsets of size 1 2 3 4 5 6 7 done [0.00s].
## writing ... [730 set(s)] done [0.00s].
## creating S4 object ... done [0.00s].
#Orenamos por el valor de soporte
iZoo <- sort(iZoo, by="support")</pre>
#Inspeccionamos los 10 primeros
inspect(head(iZoo, n=10))
##
     items
                         support
## [1]
     {venomous=FALSE}
                         0.9207921
## [2]
    {domestic=FALSE}
                         0.8712871
## [3]
    {fins=FALSE}
                         0.8316832
## [4]
     {backbone=TRUE}
                         0.8217822
## [5]
     {feathers=FALSE}
                         0.8019802
## [6]
    {venomous=FALSE,domestic=FALSE} 0.8019802
## [7]
    {breathes=TRUE}
                         0.7920792
    {backbone=TRUE, venomous=FALSE} 0.7821782
## [8]
## [9]
    {legs=has legs}
                         0.7722772
## [10] {airborne=FALSE}
                         0.7623762
#Podemos consultar el tamaño de los itemsets frecuentes
size(iZoo)
   [71] 2 2 2 3 3 3 3 3 3 4 1 2 2 2 3 3 3 3 4 4 4 4 4 1 2 2 3 3 3 3 4 4 1 2 2 3
## [106] 3 3 4 4 1 2 2 2 3 3 3 3 3 4 4 4 4 4 4 5 5 1 2 2 3 3 3 3 3 3 3 3 4 4 4
## [141] 4 4 4 4 5 5 2 2 3 3 3 3 3 4 4 4 4 5 5 5 5 6 2 2 2 2 2 3 3 3 3 4 2 2 2
## [211] 4 4 4 4 4 4 4 4 5 5 5 5 5 2 3 3 3 3 3 4 4 4 4 4 4 4 5 5 5 5 6 6 2 2 2
```



#Inspeccionamos los itemsets frecuentes de tamaño 1
inspect(iZoo[size(iZoo)==1])

```
##
        items
                         support
## [1]
        {venomous=FALSE} 0.9207921
## [2]
        {domestic=FALSE} 0.8712871
## [3]
        {fins=FALSE}
                         0.8316832
## [4]
        {backbone=TRUE}
                         0.8217822
## [5]
        {feathers=FALSE} 0.8019802
## [6]
        {breathes=TRUE}
                         0.7920792
## [7]
        {legs=has_legs}
                         0.7722772
## [8]
        {airborne=FALSE} 0.7623762
## [9]
        {tail=TRUE}
                         0.7425743
## [10] {aquatic=FALSE}
                         0.6435644
## [11] {toothed=TRUE}
                         0.6039604
## [12] {milk=FALSE}
                         0.5940594
## [13] {eggs=TRUE}
                         0.5841584
## [14] {hair=FALSE}
                         0.5742574
## [15] {catsize=FALSE}
                         0.5643564
## [16] {predator=TRUE}
                         0.5544554
## [17] {predator=FALSE} 0.4455446
## [18] {catsize=TRUE}
                         0.4356436
## [19] {hair=TRUE}
                         0.4257426
## [20] {eggs=FALSE}
                         0.4158416
```

```
## [21] {milk=TRUE}
                          0.4059406
                          0.4059406
## [22] {type=mammal}
#Sacamos un vector lógico indicando que itemsets es máximal
imaxZoo <- iZoo[is.maximal(iZoo)]</pre>
#Mostramos los 6 primeros ordenados por su valor de soporte
inspect(head(sort(imaxZoo, by="support")))
##
       items
                           support
##
   [1] {feathers=FALSE,
        airborne=FALSE,
##
##
        toothed=TRUE,
##
        backbone=TRUE,
##
        venomous=FALSE,
##
        tail=TRUE}
                         0.4653465
##
   [2] {hair=FALSE,
##
        eggs=TRUE,
##
        milk=FALSE,
##
        venomous=FALSE,
##
        domestic=FALSE} 0.4554455
   [3] {feathers=FALSE,
##
##
        airborne=FALSE,
##
        toothed=TRUE,
##
        backbone=TRUE.
##
        venomous=FALSE,
##
        domestic=FALSE} 0.4554455
##
   [4] {aquatic=FALSE,
##
        breathes=TRUE,
##
        venomous=FALSE,
##
        fins=FALSE,
##
        legs=has_legs,
##
        domestic=FALSE} 0.4554455
##
   [5] {aquatic=FALSE,
##
        backbone=TRUE,
##
        breathes=TRUE,
##
        venomous=FALSE,
##
        fins=FALSE,
##
        legs=has_legs,
##
        tail=TRUE}
                         0.4554455
##
   [6] {backbone=TRUE,
##
        breathes=TRUE,
##
        venomous=FALSE,
##
        fins=FALSE,
        legs=has_legs,
##
        tail=TRUE,
##
        domestic=FALSE} 0.4554455
#Sacamos un vector lógico indicando que itemsets es cerrado
icloZoo <- iZoo[is.closed(iZoo)]</pre>
#Mostramos los 6 primeros ordenados por su valor de soporte
inspect(head(sort(icloZoo, by="support")))
##
       items
                                         support
```

0.9207921

0.8712871

0.8316832

## [1] {venomous=FALSE}

## [2] {domestic=FALSE}

## [3] {fins=FALSE}

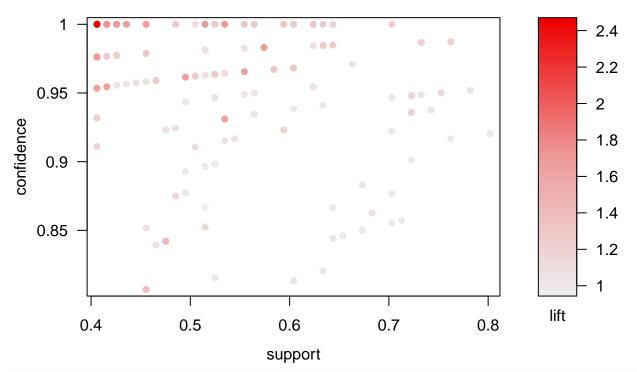
```
## [4] {backbone=TRUE}
                                       0.8217822
## [5] {feathers=FALSE}
                                       0.8019802
## [6] {venomous=FALSE,domestic=FALSE} 0.8019802
#Podemos pintar un gráfico de barras para ver la cantidad de itemsets frecuentes, cerrados
#y maximales que se han generado
barplot( c(frequent=length(iZoo), closed=length(icloZoo), maximal=length(imaxZoo)),
         ylab="count", xlab="itemsets")
     700
count
     300
                   frequent
                                            closed
                                                                   maximal
                                           itemsets
#Usamos apriori para extraer las reglas con mínimo soporte 0.4 y confianza 0.8
#con una longitud minima de 2
rules <- apriori(ZooTrans, parameter = list(support = 0.4, confidence = 0.8, minlen = 2))
## Apriori
##
## Parameter specification:
##
   confidence minval smax arem aval originalSupport maxtime support minlen
                         1 none FALSE
##
           0.8
                  0.1
                                                 TRUE
                                                                   0.4
##
   maxlen target
##
        10 rules FALSE
##
## Algorithmic control:
   filter tree heap memopt load sort verbose
       0.1 TRUE TRUE FALSE TRUE
                                         TRUE
##
##
## Absolute minimum support count: 40
##
## set item appearances ...[0 item(s)] done [0.00s].
## set transactions ...[39 item(s), 101 transaction(s)] done [0.00s].
## sorting and recoding items ... [22 item(s)] done [0.00s].
## creating transaction tree ... done [0.00s].
## checking subsets of size 1 2 3 4 5 6 7 done [0.00s].
## writing ... [1975 rule(s)] done [0.00s].
## creating S4 object ... done [0.00s].
```

```
#Obtenemos información resumida del conjunto
summary(rules)
## set of 1975 rules
##
## rule length distribution (lhs + rhs):sizes
##
       3 4 5 6
##
   98 407 685 579 192 14
##
##
     Min. 1st Qu. Median
                             Mean 3rd Qu.
                                             Max.
##
     2.000
           3.000
                   4.000
                            4.204
                                    5.000
                                            7.000
##
## summary of quality measures:
##
       support
                      confidence
                                          lift
                           :0.8000
##
  Min.
         :0.4059
                    Min.
                                     Min.
                                            :0.9182
  1st Qu.:0.4158 1st Qu.:0.8881
                                     1st Qu.:1.0602
## Median :0.4554
                    Median :0.9535
                                     Median: 1.1859
## Mean
         :0.4766
                    Mean
                          :0.9346
                                     Mean
                                            :1.1985
## 3rd Qu.:0.5149
                    3rd Qu.:1.0000
                                     3rd Qu.:1.2469
## Max.
                    Max. :1.0000
          :0.8020
                                     Max.
                                            :2.4634
##
## mining info:
##
        data ntransactions support confidence
                      101
                              0.4
                                         0.8
#Podemos ver las reglas (lhs es el antecedente y rhs el consecuente de la regla) y sus
#valores para las medidas soporte, confianza y lift
inspect(head(rules))
##
       lhs
                       rhs
                                        support
                                                  confidence lift
## [1] {milk=TRUE}
                    => {type=mammal}
                                        0.4059406 1
                                                             2.463415
## [2] {type=mammal} => {milk=TRUE}
                                        0.4059406 1
                                                             2.463415
## [3] {milk=TRUE}
                    => {breathes=TRUE} 0.4059406 1
                                                             1.262500
## [4] {milk=TRUE}
                    => {feathers=FALSE} 0.4059406 1
                                                             1.246914
## [5] {milk=TRUE}
                    => {backbone=TRUE} 0.4059406 1
                                                             1.216867
## [6] {milk=TRUE}
                    => {venomous=FALSE} 0.4059406 1
                                                             1.086022
#También podemos ver solo los valores de las medidas de calidad
quality(head(rules))
       support confidence
                             lift
## 1 0.4059406
                       1 2.463415
## 2 0.4059406
                       1 2.463415
## 3 0.4059406
                       1 1.262500
## 4 0.4059406
                       1 1.246914
## 5 0.4059406
                        1 1.216867
## 6 0.4059406
                       1 1.086022
#Podemos ordenar las reglas por el campo que más nos interese
rulesSorted = sort(rules, by="confidence")
inspect(head(rulesSorted))
##
      lhs
                       rhs
                                        support confidence lift
## [1] {milk=TRUE}
                    => {type=mammal}
                                        0.4059406 1
                                                             2.463415
                                        0.4059406 1
## [2] {type=mammal} => {milk=TRUE}
                                                             2.463415
## [3] {milk=TRUE}
                    => {breathes=TRUE} 0.4059406 1
```

```
## [4] {milk=TRUE}
                     => {feathers=FALSE} 0.4059406 1
                                                               1.246914
## [5] {milk=TRUE} => {backbone=TRUE} 0.4059406 1
                                                               1.216867
## [6] {milk=TRUE} => {venomous=FALSE} 0.4059406 1
                                                              1.086022
#Seleccionar un subconjunto de reglas que cumplan una condición. Por ejemplo, seleccionamos
#las reglas que tenga lift > 1.2 y que en el consecuente de la regla tengan el
#itemset feathers=FALSE
rulesNoFeathers <- subset(rules, subset = lhs %in% "feathers=FALSE" & lift > 1.2)
inspect(head(rulesNoFeathers))
##
       lhs
                                                        support
                                                                  confidence
                                       rhs
## [1] {feathers=FALSE,milk=TRUE}
                                    => {type=mammal}
                                                        0.4059406 1
## [2] {feathers=FALSE,type=mammal} => {milk=TRUE}
                                                        0.4059406 1
## [3] {feathers=FALSE,milk=TRUE}
                                    => {breathes=TRUE} 0.4059406 1
## [4] {feathers=FALSE,milk=TRUE}
                                    => {backbone=TRUE} 0.4059406 1
## [5] {feathers=FALSE,type=mammal} => {breathes=TRUE} 0.4059406 1
## [6] {feathers=FALSE,type=mammal} => {backbone=TRUE} 0.4059406 1
       lift
## [1] 2.463415
## [2] 2.463415
## [3] 1.262500
## [4] 1.216867
## [5] 1.262500
## [6] 1.216867
#Eliminar las reglas redundantes
subsetMatrix <- is.subset(rulesSorted, rulesSorted)</pre>
subsetMatrix[lower.tri(subsetMatrix, diag=T)] <- NA</pre>
redundant <- colSums(subsetMatrix, na.rm=T) >= 1
rulesPruned <- rulesSorted[!redundant] # remove redundant rules</pre>
inspect(head(rulesPruned))
##
       lhs
                                         support confidence lift
                        rhs
## [1] {milk=TRUE}
                     => {type=mammal}
                                         0.4059406 1
## [2] {milk=TRUE} => {breathes=TRUE} 0.4059406 1
                                                               1.262500
## [3] {milk=TRUE} => {feathers=FALSE} 0.4059406 1
                                                               1.246914
## [4] {milk=TRUE}
                    => {backbone=TRUE} 0.4059406 1
                                                               1.216867
## [5] {milk=TRUE}
                     => {venomous=FALSE} 0.4059406 1
                                                               1.086022
## [6] {type=mammal} => {breathes=TRUE} 0.4059406 1
                                                               1.262500
#También podemos calcular para itemsets o para reglas otras medidas de calidad
mInteres <- interestMeasure(rulesPruned, measure=c("hyperConfidence",
                    "leverage" , "phi", "gini"), transactions=ZooTrans)
#Podemos calcular estas medidas para nuestras reglas podadas y añadirselas a la sección
#quality para que los valores de las medidas nuevas salgan también cuando inspeccionamos
#las reglas:
copRulesPruned <- rulesPruned</pre>
quality(rulesPruned) <- cbind(quality(rulesPruned), mInteres)</pre>
inspect(head(sort(rulesPruned, by="phi")))
       lhs
                                                    support
                                                               confidence
                                   => {type=mammal} 0.4059406 1.0000000
## [1] {milk=TRUE}
## [2] {eggs=TRUE}
                                   => {milk=FALSE} 0.5742574 0.9830508
## [3] {hair=FALSE,eggs=TRUE}
                                   => {milk=FALSE} 0.5346535 1.0000000
## [4] {hair=FALSE}
                                   => {milk=FALSE} 0.5544554 0.9655172
## [5] {milk=FALSE,venomous=FALSE} => {eggs=TRUE} 0.5148515 1.0000000
```

```
## [6] {hair=FALSE}
                                   => {eggs=TRUE}
                                                    0.5346535 0.9310345
                                                    gini
##
       lift
                hyperConfidence leverage phi
  [1] 2.463415 1
                                0.2411528 1.0000000 0.4823057
  [2] 1.654802 1
                                0.2272326 0.9388479 0.4251212
  [3] 1.683333 1
                                0.2170375 0.8860623 0.3786612
  [4] 1.625287 1
                                0.2133124 0.8785027 0.3722276
## [5] 1.711864 1
                                0.2140967 0.8691651 0.3670228
## [6] 1.593805 1
                                0.1991962 0.8173815 0.3245923
library(arulesViz)
## Loading required package: grid
## Warning: failed to assign NativeSymbolInfo for lhs since lhs is already
## defined in the 'lazyeval' namespace
## Warning: failed to assign NativeSymbolInfo for rhs since rhs is already
## defined in the 'lazyeval' namespace
#Utilizar la función plot para representar las reglas en función de las medidas de calidad
plot(rulesPruned)
```

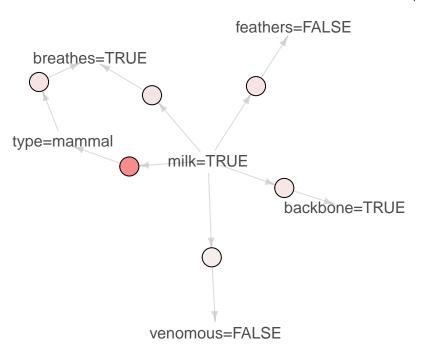
### Scatter plot for 135 rules



#Podemos modificar el tipo de gráfico generado cambiando el parámetro método de la función
#plot
plot(rulesPruned[1:6], method="graph", control=list(type="items"))

#### **Graph for 6 rules**

size: support (0.406 – 0.406) color: lift (1.086 – 2.463)



#Podemos visualizar las reglas como una matriz agrupada. Los antecedentes en las columnas son #agrupados usando clustering. En modo interactivo podemos hacer zoom del nodo que queramos #estudiar y acceder a las reglas que lo componen para inspeccionarlas. #try: plot(rulesPruned, method="grouped", interactive=TRUE)

### Análisis de reglas

```
####### ANÁLISIS DE REGLAS #######
#Vamos a analizar algunas reglas por soporte
inspect((sort(copRulesPruned, by="support"))[1:10])
##
                                         support
                                                  confidence lift
## [1]
       {domestic=FALSE} => {venomous=FALSE} 0.8019802 0.9204545 0.9996334
       {backbone=TRUE} => {venomous=FALSE} 0.7821782 0.9518072 1.0336831
## [2]
       {legs=has_legs} => {fins=FALSE}
## [3]
                                         0.7623762 0.9871795 1.1869658
       {fins=FALSE}
  ۲4٦
                       => {venomous=FALSE} 0.7623762 0.9166667 0.9955197
## [5]
       {breathes=TRUE} => {fins=FALSE}
                                         0.7524752 0.9500000 1.1422619
## [6]
       {breathes=TRUE} => {venomous=FALSE} 0.7425743 0.9375000 1.0181452
## [7]
       {tail=TRUE}
                       => {backbone=TRUE} 0.7326733 0.9866667
                                                            1.2006426
## [8]
       {legs=has_legs} => {venomous=FALSE} 0.7326733 0.9487179 1.0303281
       {airborne=FALSE} => {feathers=FALSE} 0.7227723 0.9480519 1.1821388
## [10] {legs=has_legs} => {breathes=TRUE} 0.7227723 0.9358974 1.1815705
#Vemos como esta regla, la 1, tiene un lift menor que 1, por lo que no se espera que sea de utilidad
```

#Veamos la confianza del consecuente, no es venenoso

```
inspect(iZoo[size(iZoo)==1])
##
        items
                         support
## [1]
        {venomous=FALSE} 0.9207921
## [2]
        {domestic=FALSE} 0.8712871
## [3]
        {fins=FALSE}
                         0.8316832
## [4]
        {backbone=TRUE}
                         0.8217822
## [5]
        {feathers=FALSE} 0.8019802
## [6]
        {breathes=TRUE}
                         0.7920792
## [7]
        {legs=has legs}
                         0.7722772
## [8]
        {airborne=FALSE} 0.7623762
## [9]
        {tail=TRUE}
                         0.7425743
## [10] {aquatic=FALSE}
                         0.6435644
## [11] {toothed=TRUE}
                         0.6039604
                         0.5940594
## [12] {milk=FALSE}
## [13] {eggs=TRUE}
                         0.5841584
## [14] {hair=FALSE}
                         0.5742574
## [15] {catsize=FALSE}
                         0.5643564
## [16] {predator=TRUE}
                         0.5544554
## [17] {predator=FALSE} 0.4455446
## [18] {catsize=TRUE}
                         0.4356436
## [19] {hair=TRUE}
                         0.4257426
## [20] {eggs=FALSE}
                         0.4158416
## [21] {milk=TRUE}
                         0.4059406
## [22] {type=mammal}
                         0.4059406
#Por lo que vamos a compararlas:
inspect((sort(copRulesPruned, by="support"))[1])
##
                           rhs
                                             support
                                                       confidence lift
## [1] {domestic=FALSE} => {venomous=FALSE} 0.8019802 0.9204545 0.9996334
inspect(iZoo[size(iZoo)==1][1])
##
       items
                        support
## [1] {venomous=FALSE} 0.9207921
#Vemos como la confianza de la regla y el soporte del consecuente son iguales, y al tener el lift
#menor que 1, tenemos una regla que no nos aporta nada. Por lo que ya tenemos un criterio para
#descartar reglas de utilidad.
#Seguimos analizando, ordenando por lift
inspect((sort(copRulesPruned, by="lift"))[1:10])
##
        lhs
                                        rhs
                                                      support
                                                                confidence
       {milk=TRUE}
## [1]
                                     => {type=mammal} 0.4059406 1.0000000
## [2]
        {milk=FALSE,backbone=TRUE}
                                     => {hair=FALSE} 0.4158416 1.0000000
## [3]
        {milk=FALSE, venomous=FALSE} => {eggs=TRUE}
                                                      0.5148515 1.0000000
## [4]
        {eggs=TRUE,backbone=TRUE}
                                     => {hair=FALSE}
                                                      0.4059406 0.9761905
## [5]
        {hair=FALSE,catsize=FALSE}
                                    => {milk=FALSE}
                                                      0.4356436 1.0000000
## [6]
        {eggs=TRUE,catsize=FALSE}
                                    => {milk=FALSE}
                                                      0.4554455 1.0000000
## [7]
        {hair=FALSE,eggs=TRUE}
                                     => {milk=FALSE}
                                                      0.5346535 1.0000000
## [8]
        {hair=FALSE,fins=FALSE}
                                     => {milk=FALSE}
                                                      0.4257426 1.0000000
        {eggs=TRUE}
##
  [9]
                                     => {milk=FALSE} 0.5742574 0.9830508
  [10] {hair=FALSE, venomous=FALSE} => {eggs=TRUE}
                                                      0.4950495 0.9615385
##
        lift
```

```
## [1]
        2.463415
## [2]
        1.741379
## [3]
        1.711864
## [4]
        1.699918
##
  [5]
        1.683333
## [6]
        1.683333
## [7]
        1.683333
## [8]
        1.683333
## [9]
        1.654802
## [10] 1.646023
#La regla 9 puede ser interesante, analicemos su consecuente
inspect(iZoo[size(iZoo)==1])
##
        items
                          support
## [1]
        {venomous=FALSE} 0.9207921
## [2]
        {domestic=FALSE} 0.8712871
        {fins=FALSE}
## [3]
                         0.8316832
## [4]
        {backbone=TRUE}
                         0.8217822
## [5]
        {feathers=FALSE} 0.8019802
## [6]
        {breathes=TRUE} 0.7920792
## [7]
        {legs=has_legs}
                         0.7722772
## [8]
        {airborne=FALSE} 0.7623762
## [9]
        {tail=TRUE}
                         0.7425743
## [10] {aquatic=FALSE}
                         0.6435644
## [11] {toothed=TRUE}
                         0.6039604
## [12] {milk=FALSE}
                         0.5940594
## [13] {eggs=TRUE}
                         0.5841584
## [14] {hair=FALSE}
                         0.5742574
## [15] {catsize=FALSE}
                         0.5643564
## [16] {predator=TRUE}
                         0.5544554
## [17] {predator=FALSE} 0.4455446
## [18] {catsize=TRUE}
                         0.4356436
## [19] {hair=TRUE}
                         0.4257426
## [20] {eggs=FALSE}
                         0.4158416
## [21] {milk=TRUE}
                         0.4059406
## [22] {type=mammal}
                         0.4059406
#Las comparamos:
inspect((sort(copRulesPruned, by="lift"))[9])
##
                                              confidence lift
                      rhs
                                    support
## [1] {eggs=TRUE} => {milk=FALSE} 0.5742574 0.9830508 1.654802
inspect(iZoo[size(iZoo)==1][12])
##
       items
                    support
## [1] {milk=FALSE} 0.5940594
#Tenemos un lift alto, un soporte en el consecuente del 0.59, y pasamos a una confianza de la regla del
#esta regla sería interesante. por lo que si pone huevos, no pone leche
#Veamos que animales podrían ser estos:
vector.pone.huevos.no.da.leche <- (Zoo[["eggs"]]==TRUE & Zoo[["milk"]]==FALSE)</pre>
valores.pone.huevos.no.da.leche <- (Zoo[vector.pone.huevos.no.da.leche,])</pre>
dim(valores.pone.huevos.no.da.leche)
```

```
head(valores.pone.huevos.no.da.leche)
            hair feathers eggs milk airborne aquatic predator toothed
##
                    FALSE TRUE FALSE
## bass
                                        FALSE
                                                  TRUE
                                                           TRUE
                                                                   TRUE
           FALSE
## carp
           FALSE
                    FALSE TRUE FALSE
                                        FALSE
                                                  TRUE
                                                          FALSE
                                                                   TRUE
## catfish FALSE
                    FALSE TRUE FALSE
                                        FALSE
                                                  TRUE
                                                           TRUE
                                                                   TRUE
## chicken FALSE
                     TRUE TRUE FALSE
                                         TRUE
                                                 FALSE
                                                          FALSE
                                                                  FALSE
## chub
                    FALSE TRUE FALSE
           FALSE
                                        FALSE
                                                  TRUE
                                                           TRUE
                                                                   TRUE
## clam
           FALSE
                    FALSE TRUE FALSE
                                        FALSE
                                                 FALSE
                                                           TRUE
                                                                  FALSE
##
           backbone breathes venomous
                                       fins
                                                 legs tail domestic catsize
                                FALSE TRUE no_legs TRUE
## bass
               TRUE
                       FALSE
                                                               FALSE
                                                                       FALSE
## carp
               TRUE
                       FALSE
                                FALSE TRUE no legs
                                                       TRUE
                                                                TRUE
                                                                       FALSE
                                FALSE TRUE no_legs
## catfish
               TRUE
                       FALSE
                                                       TRUE
                                                               FALSE
                                                                       FALSE
## chicken
               TRUE
                        TRUE
                                FALSE FALSE has_legs
                                                       TRUE
                                                                TRUE
                                                                       FALSE
               TRUE
                                FALSE TRUE
## chub
                       FALSE
                                             no_legs TRUE
                                                               FALSE
                                                                       FALSE
## clam
              FALSE
                       FALSE
                                FALSE FALSE no_legs FALSE
                                                               FALSE
                                                                       FALSE
##
                    type
## bass
                    fish
## carp
                    fish
## catfish
                    fish
## chicken
                    bird
## chub
                    fish
## clam
           mollusc.et.al
#Donde tenemos 58 animales que cumplen estas condiciones, como puede ser el pollo
#Seguimos analizando, ordenando por confidence
inspect((sort(copRulesPruned, by="confidence"))[1:10])
##
        lhs
                         rhs
                                           support
                                                     confidence lift
## [1]
       {milk=TRUE}
                      => {type=mammal}
                                           0.4059406 1
                                                                2.463415
## [2]
                      => {breathes=TRUE}
                                          0.4059406 1
        {milk=TRUE}
                                                                1.262500
## [3]
        {milk=TRUE}
                      => {feathers=FALSE} 0.4059406 1
                                                                1.246914
## [4]
                      => {backbone=TRUE} 0.4059406 1
        {milk=TRUE}
                                                                1.216867
## [5]
        {milk=TRUE}
                      => {venomous=FALSE} 0.4059406 1
                                                                1.086022
## [6]
        {type=mammal} => {breathes=TRUE} 0.4059406 1
                                                                1.262500
        {type=mammal} => {feathers=FALSE} 0.4059406 1
## [7]
                                                                1.246914
        {type=mammal} => {backbone=TRUE} 0.4059406 1
                                                                1.216867
## [9]
        {type=mammal} => {venomous=FALSE} 0.4059406 1
                                                                1.086022
## [10] {eggs=FALSE} => {feathers=FALSE} 0.4158416 1
                                                                1.246914
#Las 5 primeras reglas pueden ser interesantes, analicemos su consecuente
inspect(iZoo[size(iZoo)==1])
##
                         support
## [1]
        {venomous=FALSE} 0.9207921
## [2]
        {domestic=FALSE} 0.8712871
## [3]
        {fins=FALSE}
                         0.8316832
## [4]
        {backbone=TRUE}
                         0.8217822
## [5]
        {feathers=FALSE} 0.8019802
## [6]
        {breathes=TRUE}
                         0.7920792
## [7]
        {legs=has_legs}
                         0.7722772
## [8]
        {airborne=FALSE} 0.7623762
## [9]
        {tail=TRUE}
                         0.7425743
## [10] {aquatic=FALSE}
                         0.6435644
```

```
## [11] {toothed=TRUE}
                         0.6039604
## [12] {milk=FALSE}
                         0.5940594
## [13] {eggs=TRUE}
                         0.5841584
## [14] {hair=FALSE}
                         0.5742574
## [15] {catsize=FALSE}
                         0.5643564
## [16] {predator=TRUE}
                         0.5544554
## [17] {predator=FALSE} 0.4455446
## [18] {catsize=TRUE}
                         0.4356436
## [19] {hair=TRUE}
                         0.4257426
## [20] {eggs=FALSE}
                         0.4158416
## [21] {milk=TRUE}
                         0.4059406
## [22] {type=mammal}
                         0.4059406
#Las comparamos:
inspect((sort(copRulesPruned, by="lift"))[1:5])
##
       lhs
                                      rhs
                                                    support
                                                               confidence
## [1] {milk=TRUE}
                                   => {type=mammal} 0.4059406 1.0000000
## [2] {milk=FALSE,backbone=TRUE} => {hair=FALSE} 0.4158416 1.0000000
## [3] {milk=FALSE, venomous=FALSE} => {eggs=TRUE}
                                                    0.5148515 1.0000000
## [4] {eggs=TRUE,backbone=TRUE}
                                  => {hair=FALSE} 0.4059406 0.9761905
## [5] {hair=FALSE,catsize=FALSE} => {milk=FALSE} 0.4356436 1.0000000
##
       lift
## [1] 2.463415
## [2] 1.741379
## [3] 1.711864
## [4] 1.699918
## [5] 1.683333
inspect(iZoo[size(iZoo)==1][c(22,14,13,12)])
##
       items
                     support
## [1] {type=mammal} 0.4059406
## [2] {hair=FALSE} 0.5742574
## [3] {eggs=TRUE}
                     0.5841584
## [4] {milk=FALSE} 0.5940594
#Tenemos un lift alto, un soporte en el consecuente de entre el 0.40 y 0.59, y pasamos a una confianza
#estas reglas serán interesantes.
```

#### Análisis de reglas en grupos

```
Zoo[["toothed"]] = as.factor(Zoo[["toothed"]])
Zoo[["backbone"]] = as.factor(Zoo[["backbone"]])
Zoo[["breathes"]] = as.factor(Zoo[["breathes"]])
Zoo[["venomous"]] = as.factor(Zoo[["venomous"]])
Zoo[["fins"]] = as.factor(Zoo[["fins"]])
Zoo[["tail"]] = as.factor(Zoo[["tail"]])
Zoo[["domestic"]] = as.factor(Zoo[["domestic"]])
Zoo[["catsize"]] = as.factor(Zoo[["catsize"]])
#De el único atributo continuo lo dividimos en intervalos
Zoo[[ "legs"]] = ordered( cut ( Zoo[[ "legs"]], c(-Inf,0,Inf) ) ,
                          labels = c ("FALSE", "TRUE"))
#Convertimos el data frame en un conjunto de transacciones con la función as
ZooTrans <- as(Zoo, "transactions")</pre>
#Lo primero, vamos a realizar de nuevo apriori, pero cambiando los parámetros:
iZoo <- apriori(ZooTrans, parameter = list(support = 0.1, target="frequent", maxlen=2))
## Apriori
##
## Parameter specification:
  confidence minval smax arem aval original Support maxtime support minlen
##
                  0.1
                         1 none FALSE
                                                 TRUE
##
  maxlen
                      target
                               ext
##
         2 frequent itemsets FALSE
##
## Algorithmic control:
  filter tree heap memopt load sort verbose
       0.1 TRUE TRUE FALSE TRUE
                                         TRUE.
##
                                    2
## Absolute minimum support count: 10
## set item appearances ...[0 item(s)] done [0.00s].
## set transactions ...[39 item(s), 101 transaction(s)] done [0.00s].
## sorting and recoding items ... [34 item(s)] done [0.00s].
## creating transaction tree ... done [0.00s].
## checking subsets of size 1 2
## Warning in apriori(ZooTrans, parameter = list(support = 0.1, target =
## "frequent", : Mining stopped (maxlen reached). Only patterns up to a length
## of 2 returned!
## done [0.00s].
## writing ... [418 set(s)] done [0.00s].
## creating S4 object ... done [0.00s].
rules <- apriori(ZooTrans, parameter = list(support = 0.1, confidence = 0.1, minlen = 2, maxlen=3))
## Apriori
##
## Parameter specification:
  confidence minval smax arem aval originalSupport maxtime support minlen
##
           0.1
                  0.1
                         1 none FALSE
                                                 TRUE
                                                                   0.1
##
   maxlen target
                    ext
##
         3 rules FALSE
##
```

```
## Algorithmic control:
   filter tree heap memopt load sort verbose
       0.1 TRUE TRUE FALSE TRUE
##
##
## Absolute minimum support count: 10
##
## set item appearances ...[0 item(s)] done [0.00s].
## set transactions ...[39 item(s), 101 transaction(s)] done [0.00s].
## sorting and recoding items ... [34 item(s)] done [0.00s].
## creating transaction tree ... done [0.00s].
## checking subsets of size 1 2 3
## Warning in apriori(ZooTrans, parameter = list(support = 0.1, confidence =
\#\# 0.1, : Mining stopped (maxlen reached). Only patterns up to a length of 3
## returned!
## done [0.00s].
## writing ... [7500 rule(s)] done [0.00s].
## creating S4 object ... done [0.00s].
#De forma que queremos reglas que tengan longitud de 2 o 3, con un soporte del 0.4 y confianza del 0.6
#Ordenamos las reglas por lift
sortRules <- (sort(rules,by ="lift"))</pre>
#Eliminamos las reglas redundantes
subsetMatrix <- is.subset(sortRules, sortRules)</pre>
subsetMatrix[lower.tri(subsetMatrix, diag=T)] <- NA</pre>
redundant <- colSums(subsetMatrix, na.rm=T) >= 1
rulesPruned <- sortRules[!redundant] # remove redundant rules</pre>
#Vemos las primeras reglas ya "arregladas", con tamaño 2 para comenzar el análisis
inspect(head(rulesPruned[size(rulesPruned)==2]))
##
       lhs
                           rhs
                                             support
                                                       confidence lift
## [1] {type=fish}
                        => {fins=TRUE}
                                             0.1287129 1.0000000 5.941176
## [2] {type=bird}
                        => {feathers=TRUE} 0.1980198 1.0000000 5.050000
## [3] {type=fish}
                        => {breathes=FALSE} 0.1287129 1.0000000 4.809524
## [4] {type=fish}
                        => {legs=FALSE}
                                            0.1287129 1.0000000 4.391304
## [5] {fins=TRUE}
                        => {legs=FALSE}
                                             0.1584158 0.9411765 4.132992
## [6] {breathes=FALSE} => {fins=TRUE}
                                             0.1287129 0.6190476 3.677871
#De esta forma voy a analizar la regla 1:
consecuentePositivo <- subset(rulesPruned,subset = rhs %in% "fins=TRUE")</pre>
inspect(consecuentePositivo[size(consecuentePositivo)==2])
##
       lhs
                           rhs
                                        support
                                                  confidence lift
## [1] {type=fish}
                        => {fins=TRUE} 0.1287129 1.0000000 5.941176
## [2] {breathes=FALSE} => {fins=TRUE} 0.1287129 0.6190476 3.677871
## [3] {hair=FALSE}
                        => {fins=TRUE} 0.1485149 0.2586207 1.536511
inspect(iZoo[size(iZoo)==1][3])
##
       items
                   support
## [1] {fins=TRUE} 0.1683168
#Voy a buscar reglas que tenga el consecuente de esta regla negado:
consecuenteNegado <- subset(rulesPruned,subset = rhs %in% "fins=FALSE" )</pre>
inspect(consecuenteNegado)
```

rhs

support

confidence

##

lhs

```
## [1]
        {backbone=FALSE}
                                         => {fins=FALSE} 0.1782178 1.0000000
##
  [2]
                                         => {fins=FALSE} 0.1980198 1.0000000
        {type=bird}
##
  [3]
        {feathers=TRUE}
                                         => {fins=FALSE} 0.1980198 1.0000000
  [4]
##
        {airborne=TRUE}
                                         => {fins=FALSE} 0.2376238 1.0000000
##
   [5]
        {toothed=FALSE}
                                         => {fins=FALSE} 0.3960396 1.0000000
  [6]
                                         => {fins=FALSE} 0.1188119 1.0000000
##
        {predator=FALSE, tail=FALSE}
  [7]
        {legs=TRUE,tail=FALSE}
                                         => {fins=FALSE} 0.2079208 1.0000000
                                         => {fins=FALSE} 0.1881188 1.0000000
## [8]
        {milk=TRUE,predator=FALSE}
  [9]
        {predator=FALSE,type=mammal}
                                            {fins=FALSE} 0.1881188 1.0000000
  [10] {eggs=FALSE,predator=FALSE}
                                         => {fins=FALSE} 0.1881188 1.0000000
## [11] {eggs=FALSE,catsize=FALSE}
                                         => {fins=FALSE} 0.1089109 1.0000000
## [12] {hair=TRUE,catsize=FALSE}
                                         => {fins=FALSE} 0.1287129 1.0000000
## [13] {predator=FALSE,catsize=TRUE}
                                         => {fins=FALSE} 0.1584158 1.0000000
## [14] {legs=TRUE,catsize=FALSE}
                                         => {fins=FALSE} 0.4059406 1.0000000
## [15] {breathes=TRUE,catsize=FALSE}
                                         => {fins=FALSE} 0.4059406 1.0000000
## [16] {hair=FALSE,legs=TRUE}
                                         => {fins=FALSE} 0.3564356 1.0000000
                                         => {fins=FALSE} 0.3960396 1.0000000
  [17] {eggs=TRUE,legs=TRUE}
  [18] {eggs=TRUE,breathes=TRUE}
                                         => {fins=FALSE} 0.3861386 1.0000000
  [19] {milk=FALSE,legs=TRUE}
                                         => {fins=FALSE} 0.3960396 1.0000000
## [20] {milk=FALSE,breathes=TRUE}
                                         => {fins=FALSE} 0.3861386 1.0000000
## [21] {legs=TRUE}
                                         => {fins=FALSE} 0.7623762 0.9871795
## [22] {hair=TRUE}
                                         => {fins=FALSE} 0.4059406 0.9534884
## [23] {breathes=TRUE}
                                         => {fins=FALSE} 0.7524752 0.9500000
## [24] {domestic=TRUE}
                                            {fins=FALSE} 0.1188119 0.9230769
## [25] {predator=FALSE,domestic=FALSE} => {fins=FALSE} 0.3069307 0.9117647
  [26] {predator=FALSE}
                                         => {fins=FALSE} 0.4059406 0.9111111
## [27] {eggs=FALSE}
                                         => {fins=FALSE} 0.3762376 0.9047619
## [28] {milk=TRUE}
                                         => {fins=FALSE} 0.3663366 0.9024390
## [29] {type=mammal}
                                         => {fins=FALSE} 0.3663366 0.9024390
## [30] {catsize=FALSE}
                                         => {fins=FALSE} 0.4752475 0.8421053
## [31] {venomous=FALSE}
                                         => {fins=FALSE} 0.7623762 0.8279570
  [32]
       {catsize=TRUE}
                                         => {fins=FALSE} 0.3564356 0.8181818
## [33] {domestic=FALSE}
                                         => {fins=FALSE} 0.7128713 0.8181818
                                         => {fins=FALSE} 0.6534653 0.7951807
## [34] {backbone=TRUE}
## [35] {feathers=FALSE}
                                         => {fins=FALSE} 0.6336634 0.7901235
## [36] {tail=TRUE}
                                         => {fins=FALSE} 0.5841584 0.7866667
## [37] {eggs=TRUE}
                                         => {fins=FALSE} 0.4554455 0.7796610
## [38] {airborne=FALSE}
                                         => {fins=FALSE} 0.5940594 0.7792208
  [39] {predator=TRUE}
                                         => {fins=FALSE} 0.4257426 0.7678571
  [40] {hair=FALSE}
                                         => {fins=FALSE} 0.4257426 0.7413793
                                        => {fins=FALSE} 0.4356436 0.7213115
  [41] {toothed=TRUE}
##
   [42] {aquatic=TRUE}
                                        => {fins=FALSE} 0.1881188 0.5277778
        lift
##
  [1]
       1.2023810
  [2]
        1.2023810
## [3]
        1.2023810
##
  [4]
        1.2023810
  [5]
##
        1.2023810
  [6]
        1.2023810
##
  [7]
        1.2023810
##
  [8]
        1.2023810
## [9]
        1.2023810
## [10] 1.2023810
## [11] 1.2023810
```

```
## [12] 1.2023810
## [13] 1.2023810
## [14] 1.2023810
## [15] 1.2023810
## [16] 1.2023810
## [17] 1.2023810
## [18] 1.2023810
## [19] 1.2023810
## [20] 1.2023810
## [21] 1.1869658
## [22] 1.1464563
## [23] 1.1422619
## [24] 1.1098901
## [25] 1.0962885
## [26] 1.0955026
## [27] 1.0878685
## [28] 1.0850755
## [29] 1.0850755
## [30] 1.0125313
## [31] 0.9955197
## [32] 0.9837662
## [33] 0.9837662
## [34] 0.9561102
## [35] 0.9500294
## [36] 0.9458730
## [37] 0.9374496
## [38] 0.9369202
## [39] 0.9232568
## [40] 0.8914204
## [41] 0.8672912
## [42] 0.6345899
inspect(consecuentePositivo[size(consecuentePositivo)==2])
##
       lhs
                                        support
                                                  confidence lift
## [1] {type=fish}
                        => {fins=TRUE} 0.1287129 1.0000000 5.941176
## [2] {breathes=FALSE} => {fins=TRUE} 0.1287129 0.6190476 3.677871
## [3] {hair=FALSE}
                        => {fins=TRUE} 0.1485149 0.2586207 1.536511
consecuenteNegadoYRegla1 <- subset(consecuenteNegado, subset = lhs %in% "type=fish")</pre>
inspect(consecuenteNegadoYRegla1)
consecuenteNegadoYRegla2 <- subset(consecuenteNegado, subset = lhs %in% "breathes=FALSE")</pre>
inspect(consecuenteNegadoYRegla2)
consecuenteNegadoYRegla3 <- subset(consecuenteNegado, subset = lhs %in% "hair=FALSE")</pre>
inspect(consecuenteNegadoYRegla3[size(consecuenteNegadoYRegla3)==3])
##
                                                          confidence lift
                                  rhs
                                               support
## [1] {hair=FALSE,legs=TRUE} => {fins=FALSE} 0.3564356 1
                                                                     1.202381
inspect(iZoo[size(iZoo)==1][32])
       items
##
                    support
## [1] {fins=FALSE} 0.8316832
###FUNCIÓN CREADA
MiMetodo = function(fsoporte, fconfianza, fminlen, fmaxlen, limitelif, limiteconfianza, limitesoporte, tamasiz
```

```
#Inicializamos la variable de salida
misrules=NULL
#Realizamos a priori
rules <- apriori(ZooTrans, parameter = list(support = fsoporte, confidence = fconfianza, minlen = fmi
#Si queremos eliminar reglas por los valores de lift, confianza o soporte se podan
rulesLimiteLift <- subset(rules, lift > limitelif)
rulesLimiteConfianza <- subset(rulesLimiteLift, confidence <= limiteconfianza)</pre>
rulesLimiteSoporte <- subset(rulesLimiteConfianza, support < limitesoporte)</pre>
#Eliminamos las reglas redundantes
sortRules <- sort(rulesLimiteSoporte, by = "lift")</pre>
subsetMatrix <- is.subset(sortRules, sortRules)</pre>
subsetMatrix[lower.tri(subsetMatrix, diag=T)] <- NA</pre>
redundant <- colSums(subsetMatrix, na.rm=T) >= 1
rulesPruned <- sortRules[!redundant]</pre>
#Realizamos el inspect en función del tamaño deseado
salidaInspect <- inspect((rulesPruned[size(rulesPruned)==tamasize]))</pre>
numeroReglas <- dim(salidaInspect)[1]</pre>
#Divido la salida del inspect en reglas con type en el consecuente y reglas sin type:
#Nota: las reglas con type, no las he analizado, realizaría otra función
salidaInspectType=NULL;salidaInspectNoType=NULL
for (i in 1:(dim(salidaInspect)[1])){
  Cconsecuente <- salidaInspect[i,3];Cconsecuente <- as.character(Cconsecuente);tamachar <- nchar(Cconsecuente)
 Cconsecuente <- substr(Cconsecuente,start=2,stop=5)</pre>
 if (Cconsecuente=="type"){
    salidaInspectType = rbind(salidaInspectType,salidaInspect[i,])
 } else {
    salidaInspectNoType = rbind(salidaInspectNoType,salidaInspect[i,])
 }
}
#Me quedo con las reglas que no tienen type en el consecuente
salidaInspect <- salidaInspectNoType</pre>
tamaRecortado <- dim(salidaInspect)[1]</pre>
for (h in 1:tamaRecortado){
  #Sacar consecuente
 Cconsecuente <- salidaInspect[h,3];Cconsecuente <- as.character(Cconsecuente);tamachar <- nchar(Cconsecuente)</pre>
 Cconsecuente <- substr(Cconsecuente, start=2, stop=tamachar)</pre>
  consecuentePositivo <- subset(rulesPruned, subset = rhs %in% Cconsecuente)</pre>
 tamaconse <- nchar(Cconsecuente)</pre>
  #Niego el consecuente
 CconsecuenteNegado=NULL
 if ((substr(Cconsecuente,start=(tamaconse-4),stop = tamaconse))==FALSE){
    CconsecuenteNegado <- substr(Cconsecuente, start=1, stop=(tamaconse-5))</pre>
    CconsecuenteNegado <- paste(CconsecuenteNegado, "TRUE", sep = "")</pre>
  } else if ((substr(Cconsecuente, start=(tamaconse-3), stop = tamaconse))==TRUE){
    CconsecuenteNegado <- substr(Cconsecuente, start=1, stop=(tamaconse-4))</pre>
    CconsecuenteNegado <- paste(CconsecuenteNegado, "FALSE", sep = "")</pre>
 }
  consecuenteNegado <- subset(rulesPruned,subset = rhs %in% CconsecuenteNegado )</pre>
  print("Número de reglas con consecuente negado");length(consecuenteNegado)
  inspect(consecuenteNegado)
  inspectPositivas <- inspect(consecuentePositivo[size(consecuentePositivo)==2])</pre>
  #Busco reglas con el consecuente negado y que tengan el antecedente de las reglas con consecuente p
```

```
for ( j in 1:((dim(inspectPositivas)[1]))){
      misrulesNuevas=NULL
      Cantecedente <- inspectPositivas[j,1]; Cantecedente <- as.character(Cantecedente); tamachar <- ncha
      Cantecedente <- substr(Cantecedente, start=2, stop=tamachar)</pre>
      consecuenteNegadoYRegla <- subset(consecuenteNegado, subset = lhs %in% Cantecedente)
      misrulesNuevas = inspect(consecuenteNegadoYRegla[size(consecuenteNegadoYRegla)>2])
      misrulesNuevas = rbind(misrulesNuevas,misrulesNuevas)
      if(is.null(misrulesNuevas)){
      } else if ((dim(misrulesNuevas)[1])>0){
        misrules = rbind(misrules,inspectPositivas[j,])
        misrules = rbind(misrules,misrulesNuevas)
    if (is.null(misrules)){
   } else {
      #Elimino las reglas con lift menor de 1.2
      for (g in (dim(misrules)[1]):1){
        if (misrules[g,6]<1.2){
          misrules = misrules[-g,]
   }
  }
  return(misrules)
#Doy valores a los parámetros y ejecuto: NOTA: LA EJECUCIÓN PUEDE TARDAR VARIOS MINÚTOS
fsoporte = 0.1;fconfianza = 0.1;fminlen = 2;fmaxlen = 3;limitelif = 0;limiteconfianza=1;limitesoporte=1
rules1 <- MiMetodo(fsoporte, fconfianza, fminlen, fmaxlen, limitelif, limiteconfianza, limitesoporte, tamasize
## Apriori
##
## Parameter specification:
   confidence minval smax arem aval original Support maxtime support minlen
##
           0.1
                  0.1
                         1 none FALSE
                                                  TRUE
##
   maxlen target
##
         3 rules FALSE
##
## Algorithmic control:
## filter tree heap memopt load sort verbose
       0.1 TRUE TRUE FALSE TRUE
##
                                          TRUE
##
## Absolute minimum support count: 10
## set item appearances ...[0 item(s)] done [0.00s].
## set transactions ...[39 item(s), 101 transaction(s)] done [0.00s].
## sorting and recoding items ... [34 item(s)] done [0.00s].
## creating transaction tree ... done [0.00s].
## checking subsets of size 1 2 3
## Warning in apriori(ZooTrans, parameter = list(support = fsoporte,
## confidence = fconfianza, : Mining stopped (maxlen reached). Only patterns
```

```
## up to a length of 3 returned!
    done [0.00s].
   writing ... [7500 rule(s)] done [0.00s].
   creating S4 object
                        ... done [0.00s].
                              rhs
##
         lhs
                                                 support
                                                            confidence lift
##
   [1]
         {type=fish}
                              {fins=TRUE}
                                                 0.1287129 1.0000000
                                                                       5.9411765
                                                 0.1980198 1.0000000
##
   [2]
         {type=bird}
                              {feathers=TRUE}
                                                                       5.0500000
##
   [3]
         {type=fish}
                              {breathes=FALSE}
                                                 0.1287129 1.0000000
                                                                       4.8095238
   [4]
##
         {type=fish}
                              {legs=FALSE}
                                                 0.1287129 1.0000000
                                                                       4.3913043
##
   [5]
         {fins=TRUE}
                              {legs=FALSE}
                                                 0.1584158 0.9411765
                                                                       4.1329923
   [6]
##
         {breathes=FALSE} =>
                              {fins=TRUE}
                                                 0.1287129 0.6190476
                                                                       3.6778711
##
   [7]
         {backbone=FALSE} =>
                              {tail=FALSE}
                                                 0.1683168 0.9444444
                                                                       3.6688034
##
   [8]
         {type=bird}
                              {airborne=TRUE}
                                                 0.1584158 0.8000000
                                                                       3.3666667
   [9]
         {feathers=TRUE}
                              {airborne=TRUE}
                                                 0.1584158 0.8000000
                                                                       3.3666667
   [10]
                              {legs=FALSE}
##
         {breathes=FALSE} =>
                                                 0.1584158 0.7619048
                                                                       3.3457557
##
   [11]
         {type=fish}
                              {aquatic=TRUE}
                                                 0.1287129 1.0000000
                                                                       2.8055556
##
  [12]
         {fins=TRUE}
                              {aquatic=TRUE}
                                                 0.1683168 1.0000000
                                                                       2.8055556
##
  Γ13]
         {breathes=FALSE} =>
                              {aquatic=TRUE}
                                                 0.1980198 0.9523810
                                                                       2.6719577
## [14]
         {toothed=FALSE}
                              {backbone=FALSE} 0.1782178 0.4500000
                                                                       2.5250000
##
   Γ15]
         {type=bird}
                              {toothed=FALSE}
                                                 0.1980198 1.0000000
                                                                       2.5250000
   [16]
##
         {feathers=TRUE}
                              {toothed=FALSE}
                                                 0.1980198 1.0000000
                                                                       2.5250000
##
   [17]
         {milk=TRUE}
                              {type=mammal}
                                                 0.4059406 1.0000000
                                                                       2.4634146
##
   [18]
         {milk=TRUE}
                              {eggs=FALSE}
                                                 0.3960396 0.9756098
                                                                       2.3461092
##
   Г197
                              {eggs=FALSE}
         {type=mammal}
                                                 0.3960396 0.9756098
                                                                       2.3461092
##
  [20]
         {toothed=FALSE}
                              {airborne=TRUE}
                                                 0.2178218 0.5500000
                                                                       2.3145833
##
  [21]
         {milk=TRUE}
                              {hair=TRUE}
                                                 0.3861386 0.9512195
                                                                       2.2342598
##
   [22]
         {type=mammal}
                              {hair=TRUE}
                                                 0.3861386 0.9512195
                                                                       2.2342598
   [23]
##
         {legs=FALSE}
                              {aquatic=TRUE}
                                                 0.1782178 0.7826087
                                                                       2.1956522
   [24]
                                                 0.3762376 0.9047619
         {eggs=FALSE}
                              {hair=TRUE}
                                                                       2.1251384
   [25]
##
         {domestic=TRUE}
                              {predator=FALSE}
                                                 0.1089109 0.8461538
                                                                       1.8991453
##
   [26]
         {milk=TRUE}
                              {catsize=TRUE}
                                                 0.3168317 0.7804878
                                                                       1.7915743
   [27]
##
         {type=mammal}
                              {catsize=TRUE}
                                                 0.3168317 0.7804878
                                                                       1.7915743
   [28]
         {hair=FALSE}
                              {type=bird}
                                                 0.1980198 0.3448276
                                                                       1.7413793
   [29]
         {hair=FALSE}
##
                              {feathers=TRUE}
                                                 0.1980198 0.3448276
                                                                       1.7413793
   [30]
##
         {type=fish}
                              {hair=FALSE}
                                                 0.1287129 1.0000000
                                                                       1.7413793
   [31]
##
         {breathes=FALSE} =>
                              {hair=FALSE}
                                                 0.2079208 1.0000000
                                                                       1.7413793
   Γ321
         {type=fish}
                              {eggs=TRUE}
                                                 0.1287129 1.0000000
                                                                       1.7118644
   [33]
##
         {type=bird}
                              {eggs=TRUE}
                                                 0.1980198 1.0000000
                                                                       1.7118644
##
   [34]
         {feathers=TRUE}
                              {eggs=TRUE}
                                                 0.1980198 1.0000000
                                                                       1.7118644
  [35]
##
         {eggs=FALSE}
                              {catsize=TRUE}
                                                 0.3069307 0.7380952
                                                                       1.6942641
  [36]
##
         {type=fish}
                              {milk=FALSE}
                                                 0.1287129 1.0000000
                                                                       1.6833333
##
   [37]
         {backbone=FALSE} =>
                               {milk=FALSE}
                                                 0.1782178 1.0000000
                                                                       1.6833333
##
   [38]
         {type=bird}
                              {milk=FALSE}
                                                 0.1980198 1.0000000
                                                                       1.6833333
##
   [39]
         {feathers=TRUE}
                              {milk=FALSE}
                                                 0.1980198 1.0000000
                                                                       1.6833333
##
   [40]
         {breathes=FALSE} =>
                                                 0.2079208 1.0000000
                              {milk=FALSE}
                                                                       1.6833333
##
   [41]
         {backbone=FALSE}
                              {catsize=FALSE}
                                                 0.1683168 0.9444444
                                                                       1.6734893
   [42]
         {toothed=FALSE}
##
                              {eggs=TRUE}
                                                 0.3861386 0.9750000
                                                                       1.6690678
   [43]
         {legs=FALSE}
                              {hair=FALSE}
                                                 0.2178218 0.9565217
                                                                       1.6656672
  [44]
##
         {type=fish}
                              {toothed=TRUE}
                                                 0.1287129 1.0000000
                                                                       1.6557377
##
   [45]
         {fins=TRUE}
                              {toothed=TRUE}
                                                 0.1683168 1.0000000
                                                                       1.6557377
##
   [46]
         {eggs=TRUE}
                              {milk=FALSE}
                                                 0.5742574 0.9830508
                                                                       1.6548023
   [47]
         {tail=FALSE}
                              {toothed=FALSE}
                                                 0.1683168 0.6538462
                                                                       1.6509615
  [48]
         {milk=FALSE}
                              {toothed=FALSE}
                                                 0.3861386 0.6500000
##
                                                                       1.6412500
```

```
[49]
          {breathes=FALSE} =>
                              {eggs=TRUE}
                                                 0.1980198 0.9523810
                                                                        1.6303471
##
   [50]
         {hair=FALSE}
                               {milk=FALSE}
                                                 0.5544554 0.9655172
                                                                        1.6252874
         {eggs=TRUE}
##
   [51]
                               {backbone=FALSE}
                                                 0.1683168 0.2881356
                                                                        1.6167608
   [52]
         {eggs=FALSE}
                               {toothed=TRUE}
##
                                                 0.4059406 0.9761905
                                                                        1.6163154
##
   [53]
         {toothed=TRUE}
                               {milk=TRUE}
                                                 0.3960396 0.6557377
                                                                        1.6153539
   [54]
##
         {toothed=TRUE}
                               {type=mammal}
                                                 0.3960396 0.6557377
                                                                        1.6153539
   [55]
##
          {hair=TRUE}
                               {catsize=TRUE}
                                                 0.2970297 0.6976744
                                                                        1.6014799
##
   [56]
         {hair=FALSE}
                               {eggs=TRUE}
                                                 0.5346535 0.9310345
                                                                        1.5938048
##
   [57]
         {airborne=TRUE}
                               {predator=FALSE} 0.1683168 0.7083333
                                                                        1.5898148
##
   [58]
         {airborne=TRUE}
                               {eggs=TRUE}
                                                 0.2178218 0.9166667
                                                                        1.5692090
   [59]
         {airborne=TRUE}
                               {catsize=FALSE}
                                                 0.2079208 0.8750000
                                                                        1.5504386
   [60]
##
         {aquatic=TRUE}
                               {hair=FALSE}
                                                 0.3168317 0.8888889
                                                                        1.5478927
##
   [61]
         {airborne=TRUE}
                               {milk=FALSE}
                                                 0.2178218 0.9166667
                                                                        1.5430556
   [62]
##
         {hair=FALSE}
                               {fins=TRUE}
                                                 0.1485149 0.2586207
                                                                        1.5365112
##
   [63]
         {toothed=FALSE}
                            =>
                               {hair=FALSE}
                                                 0.3465347 0.8750000
                                                                        1.5237069
##
   [64]
         {legs=FALSE}
                               {milk=FALSE}
                                                 0.1980198 0.8695652
                                                                        1.4637681
   [65]
##
         {toothed=TRUE}
                               {hair=TRUE}
                                                 0.3762376 0.6229508
                                                                        1.4632101
##
   [66]
         {breathes=FALSE} =>
                               {predator=TRUE}
                                                 0.1683168 0.8095238
                                                                        1.4600340
   [67]
         {aquatic=TRUE}
##
                               {predator=TRUE}
                                                 0.2871287 0.8055556
                                                                        1.4528770
##
   [68]
         {domestic=TRUE}
                               {aquatic=FALSE}
                                                 0.1188119 0.9230769
                                                                        1.4343195
##
   [69]
          {aquatic=TRUE}
                               {eggs=TRUE}
                                                 0.2970297 0.8333333
                                                                        1.4265537
   [70]
##
          {milk=FALSE}
                               {catsize=FALSE}
                                                 0.4752475 0.8000000
                                                                        1.4175439
   [71]
##
         {legs=FALSE}
                               {eggs=TRUE}
                                                 0.1881188 0.8260870
                                                                        1.4141489
   [72]
##
          {hair=TRUE}
                               {aquatic=FALSE}
                                                 0.3861386 0.9069767
                                                                        1.4093023
##
   [73]
          {aquatic=TRUE}
                               {milk=FALSE}
                                                 0.2970297 0.8333333
                                                                        1.4027778
   [74]
         {eggs=TRUE}
                               {catsize=FALSE}
                                                 0.4554455 0.7796610
                                                                        1.3815046
   [75]
         {fins=TRUE}
##
                               {predator=TRUE}
                                                 0.1287129 0.7647059
                                                                        1.3792017
##
   [76]
         {catsize=FALSE}
                               {toothed=FALSE}
                                                 0.3069307 0.5438596
                                                                        1.3732456
##
   [77]
         {legs=FALSE}
                               {toothed=TRUE}
                                                 0.1881188 0.8260870
                                                                        1.3677833
##
   [78]
         {tail=FALSE}
                               {catsize=FALSE}
                                                 0.1980198 0.7692308
                                                                        1.3630229
##
   [79]
         {backbone=FALSE} =>
                               {hair=FALSE}
                                                 0.1386139 0.7777778
                                                                        1.3544061
##
   [80]
         {breathes=FALSE} =>
                               {catsize=FALSE}
                                                 0.1584158 0.7619048
                                                                        1.3500418
##
   [81]
         {type=fish}
                               {tail=TRUE}
                                                 0.1287129 1.0000000
                                                                        1.3466667
   [82]
##
         {type=bird}
                                                 0.1980198 1.0000000
                              {tail=TRUE}
                                                                        1.3466667
##
   [83]
         {feathers=TRUE}
                               {tail=TRUE}
                                                 0.1980198 1.0000000
                                                                        1.3466667
   [84]
         {catsize=FALSE}
##
                              {hair=FALSE}
                                                 0.4356436 0.7719298
                                                                        1.3442226
##
   [85]
          {predator=TRUE}
                               {legs=FALSE}
                                                 0.1683168 0.3035714
                                                                        1.3330745
##
   [86]
         {eggs=FALSE}
                               {aquatic=FALSE}
                                                 0.3564356 0.8571429
                                                                        1.3318681
   [87]
         {milk=TRUE}
##
                               {aquatic=FALSE}
                                                 0.3465347 0.8536585
                                                                        1.3264540
   [88]
         {type=mammal}
##
                               {aquatic=FALSE}
                                                 0.3465347 0.8536585
                                                                        1.3264540
   [89]
         {catsize=TRUE}
                               {toothed=TRUE}
                                                 0.3465347 0.7954545
                                                                        1.3170641
   [90]
         {tail=FALSE}
                               {eggs=TRUE}
##
                                                 0.1980198 0.7692308
                                                                        1.3168188
##
   Г917
         {predator=FALSE} =>
                               {aquatic=FALSE}
                                                 0.3762376 0.8444444
                                                                        1.3121368
   [92]
##
         {type=fish}
                               {airborne=FALSE} 0.1287129 1.0000000
                                                                        1.3116883
   [93]
##
         {fins=TRUE}
                               {airborne=FALSE} 0.1683168 1.0000000
                                                                        1.3116883
   [94]
         {breathes=FALSE} =>
##
                               {airborne=FALSE} 0.2079208 1.0000000
                                                                        1.3116883
##
   [95]
         {legs=FALSE}
                               {airborne=FALSE} 0.2277228 1.0000000
                                                                        1.3116883
   [96]
##
         {fins=TRUE}
                               {eggs=TRUE}
                                                 0.1287129 0.7647059
                                                                        1.3090728
##
   [97]
         {airborne=TRUE}
                               {hair=FALSE}
                                                 0.1782178 0.7500000
                                                                        1.3060345
##
   [98]
         {type=bird}
                               {legs=TRUE}
                                                 0.1980198 1.0000000
                                                                        1.2948718
   [99]
##
          {feathers=TRUE}
                               {legs=TRUE}
                                                 0.1980198 1.0000000
                                                                        1.2948718
   [100] {airborne=TRUE}
                               {legs=TRUE}
                                                 0.2376238 1.0000000
                                                                        1.2948718
   [101] {tail=FALSE}
                               {milk=FALSE}
                                                 0.1980198 0.7692308
                                                                        1.2948718
  [102] {fins=TRUE}
                               {milk=FALSE}
                                                 0.1287129 0.7647059
                                                                        1.2872549
```

```
## [103] {toothed=TRUE}
                           => {airborne=FALSE} 0.5841584 0.9672131
                                                                     1.2686821
  [104] {fins=TRUE}
                             {tail=TRUE}
                                               0.1584158 0.9411765
                                                                     1.2674510
  [105] {hair=TRUE}
                             {legs=TRUE}
                                               0.4158416 0.9767442
                                                                     1.2647585
  [106] {type=bird}
                             {breathes=TRUE}
                                               0.1980198 1.0000000
                                                                     1.2625000
  [107] {feathers=TRUE}
                             {breathes=TRUE}
                                               0.1980198 1.0000000
                                                                     1.2625000
  [108] {airborne=TRUE}
                             {breathes=TRUE}
                                               0.2376238 1.0000000
                                                                     1.2625000
  [109] {milk=TRUE}
                             {breathes=TRUE}
                                               0.4059406 1.0000000
                                                                     1.2625000
  [110] {type=mammal}
                             {breathes=TRUE}
                                               0.4059406 1.0000000
                                                                     1.2625000
   [111] {hair=TRUE}
                              {breathes=TRUE}
                                               0.4257426 1.0000000
                                                                     1.2625000
  [112] {eggs=FALSE}
                             {airborne=FALSE} 0.3960396 0.9523810
                                                                     1.2492270
  [113] {milk=TRUE}
                             {airborne=FALSE} 0.3861386 0.9512195
                                                                     1.2477035
  [114] {type=mammal}
                             {airborne=FALSE} 0.3861386 0.9512195
                                                                     1.2477035
  [115] {feathers=FALSE} =>
                             {milk=TRUE}
                                               0.4059406 0.5061728
                                                                     1.2469136
                                               0.4059406 0.5061728
  [116] {feathers=FALSE} =>
                             {type=mammal}
                                                                     1.2469136
  [117] {feathers=FALSE} =>
                             {toothed=TRUE}
                                               0.6039604 0.7530864
                                                                     1.2469136
   [118] {type=fish}
                             {feathers=FALSE} 0.1287129 1.0000000
                                                                     1.2469136
   [119] {fins=TRUE}
                             {feathers=FALSE} 0.1683168 1.0000000
                                                                     1.2469136
   [120] {backbone=FALSE} =>
                             {feathers=FALSE} 0.1782178 1.0000000
                                                                     1.2469136
  [121] {breathes=FALSE} =>
                             {feathers=FALSE} 0.2079208 1.0000000
                                                                     1.2469136
  [122] {legs=FALSE}
                             {feathers=FALSE} 0.2277228 1.0000000
                                                                     1.2469136
## [123] {tail=FALSE}
                             {feathers=FALSE} 0.2574257 1.0000000
                                                                     1.2469136
  [124] {eggs=FALSE}
                             {feathers=FALSE} 0.4158416 1.0000000
                                                                     1.2469136
  [125] {hair=TRUE}
                             {feathers=FALSE} 0.4257426 1.0000000
                                                                     1.2469136
##
  [126] {aquatic=FALSE}
                              {breathes=TRUE}
                                               0.6336634 0.9846154
                                                                     1.2430769
  [127] {type=bird}
                             {catsize=FALSE}
                                               0.1386139 0.7000000
                                                                     1.2403509
  [128] {feathers=TRUE}
                             {catsize=FALSE}
                                               0.1386139 0.7000000
                                                                     1.2403509
  [129] {type=bird}
                             {predator=FALSE} 0.1089109 0.5500000
                                                                     1.2344444
  [130] {feathers=TRUE}
                             {predator=FALSE} 0.1089109 0.5500000
                                                                     1.2344444
                             {catsize=FALSE}
  [131] {legs=FALSE}
                                               0.1584158 0.6956522
                                                                     1.2326468
  [132] {eggs=FALSE}
                             {breathes=TRUE}
                                               0.4059406 0.9761905
                                                                     1.2324405
  [133] {aquatic=FALSE}
                              {airborne=TRUE}
                                               0.1881188 0.2923077
                                                                     1.2301282
   [134] {catsize=TRUE}
                              {airborne=FALSE} 0.4059406 0.9318182
                                                                     1,2222550
   [135] {type=fish}
                             {backbone=TRUE}
                                               0.1287129 1.0000000
                                                                     1.2168675
  [136] {fins=TRUE}
                             {backbone=TRUE}
                                               0.1683168 1.0000000
                                                                     1.2168675
   [137] {type=bird}
                              {backbone=TRUE}
                                               0.1980198 1.0000000
                                                                     1.2168675
  [138] {feathers=TRUE}
                             {backbone=TRUE}
                                               0.1980198 1.0000000
                                                                     1.2168675
  [139] {milk=TRUE}
                             {backbone=TRUE}
                                               0.4059406 1.0000000
                                                                     1.2168675
  [140] {type=mammal}
                             {backbone=TRUE}
                                               0.4059406 1.0000000
                                                                     1.2168675
  [141] {toothed=TRUE}
                              {backbone=TRUE}
                                               0.6039604 1.0000000
                                                                     1.2168675
  [142] {fins=FALSE}
                             {aquatic=FALSE}
                                               0.6435644 0.7738095
                                                                     1.2023810
  [143] {backbone=FALSE} =>
                             {fins=FALSE}
                                               0.1782178 1.0000000
                                                                     1.2023810
   [144] {type=bird}
                             {fins=FALSE}
                                               0.1980198 1.0000000
                                                                     1.2023810
  [145] {feathers=TRUE}
                             {fins=FALSE}
                                               0.1980198 1.0000000
                                                                     1.2023810
  [146] {airborne=TRUE}
                             {fins=FALSE}
                                               0.2376238 1.0000000
                                                                     1.2023810
  [147] {toothed=FALSE}
                             {fins=FALSE}
                                               0.3960396 1.0000000
                                                                     1.2023810
## [148] {tail=TRUE}
                             {backbone=TRUE}
                                               0.7326733 0.9866667
                                                                     1.2006426
  [149] {predator=FALSE} =>
                              {hair=TRUE}
                                               0.2277228 0.5111111
                                                                     1.2005168
  [150] {milk=TRUE}
                             {legs=TRUE}
                                               0.3762376 0.9268293
                                                                     1.2001251
  [151] {type=mammal}
                             {legs=TRUE}
                                               0.3762376 0.9268293
                                                                     1.2001251
   [152] {domestic=TRUE}
                             {legs=TRUE}
                                               0.1188119 0.9230769
                                                                     1.1952663
                             {legs=TRUE}
  [153] {aquatic=FALSE}
                           =>
                                               0.5940594 0.9230769
                                                                     1.1952663
## [154] {catsize=TRUE}
                             {backbone=TRUE}
                                               0.4257426 0.9772727
                                                                     1.1892114
## [155] {backbone=TRUE}
                             {eggs=FALSE}
                                               0.4059406 0.4939759
                                                                     1.1878944
## [156] {legs=TRUE}
                             {fins=FALSE}
                                               0.7623762 0.9871795
                                                                     1.1869658
```

```
## [157] {airborne=FALSE} => {feathers=FALSE} 0.7227723 0.9480519
                                                                     1.1821388
  [158] {legs=TRUE}
                             {breathes=TRUE}
                                               0.7227723 0.9358974
                                                                     1.1815705
                             {predator=FALSE} 0.2079208 0.5250000
  [159] {toothed=FALSE}
                                                                     1.1783333
   [160] {eggs=FALSE}
                             {legs=TRUE}
                                               0.3762376 0.9047619
                                                                     1.1715507
   [161] {domestic=TRUE}
                             {breathes=TRUE}
                                               0.1188119 0.9230769
                                                                     1.1653846
  [162] {toothed=FALSE}
                                               0.3564356 0.9000000
                             {legs=TRUE}
                                                                     1.1653846
  [163] {catsize=TRUE}
                             {tail=TRUE}
                                               0.3762376 0.8636364
                                                                     1.1630303
  [164] {fins=FALSE}
                             {tail=FALSE}
                                               0.2475248 0.2976190
                                                                     1.1561355
   [165] {eggs=FALSE}
                             {tail=TRUE}
                                               0.3564356 0.8571429
                                                                     1.1542857
   [166] {predator=FALSE}
                             {breathes=TRUE}
                                               0.4059406 0.9111111
                                                                     1.1502778
   [167] {milk=TRUE}
                             {tail=TRUE}
                                               0.3465347 0.8536585
                                                                     1.1495935
   [168] {type=mammal}
                             {tail=TRUE}
                                               0.3465347 0.8536585
                                                                     1.1495935
   [169] {tail=TRUE}
                                               0.5148515 0.6933333
                             {toothed=TRUE}
                                                                     1.1479781
   [170] {catsize=TRUE}
                             {predator=TRUE}
                                               0.2772277 0.6363636
                                                                     1.1477273
  [171] {predator=TRUE}
                             {airborne=FALSE} 0.4851485 0.8750000
                                                                     1.1477273
         {hair=TRUE}
                              {fins=FALSE}
                                               0.4059406 0.9534884
   [172]
                                                                     1.1464563
                             {fins=FALSE}
                                               0.7524752 0.9500000
   [173] {breathes=TRUE}
                                                                     1.1422619
   [174] {catsize=FALSE}
                             {predator=FALSE} 0.2871287 0.5087719
                                                                     1.1419103
                             {catsize=FALSE}
  [175] {aquatic=TRUE}
                                               0.2277228 0.6388889
                                                                     1.1320663
  [176] {aquatic=TRUE}
                             {airborne=FALSE} 0.3069307 0.8611111
                                                                     1.1295094
##
  [177] {hair=TRUE}
                             {airborne=FALSE} 0.3663366 0.8604651
                                                                     1.1286620
  [178] {domestic=TRUE}
                             {backbone=TRUE}
                                               0.1188119 0.9230769
                                                                     1.1232623
  [179] {predator=FALSE} =>
                             {legs=TRUE}
                                               0.3861386 0.8666667
                                                                     1.122222
   [180] {predator=TRUE}
                             {hair=FALSE}
                                               0.3564356 0.6428571
                                                                     1.1194581
  [181] {catsize=TRUE}
                           => {breathes=TRUE}
                                               0.3861386 0.8863636
                                                                     1.1190341
  [182] {aquatic=TRUE}
                             {domestic=FALSE} 0.3465347 0.9722222
                                                                     1.1158460
  [183] {domestic=TRUE}
                             {fins=FALSE}
                                               0.1188119 0.9230769
                                                                     1.1098901
  [184] {predator=TRUE}
                             {domestic=FALSE} 0.5346535 0.9642857
                                                                     1.1067370
                           =>
  [185] {breathes=FALSE} =>
                             {toothed=TRUE}
                                               0.1386139 0.6666667
                                                                     1.1038251
  [186] {backbone=TRUE}
                             {hair=TRUE}
                                                                     1.1036705
                                               0.3861386 0.4698795
  [187] {legs=FALSE}
                             {domestic=FALSE} 0.2178218 0.9565217
                                                                     1.0978261
  [188] {predator=FALSE} =>
                             {fins=FALSE}
                                               0.4059406 0.9111111
                                                                     1.0955026
   [189] {aquatic=FALSE}
                             {catsize=TRUE}
                                               0.3069307 0.4769231
                                                                     1.0947552
  [190] {predator=TRUE}
                                               0.3663366 0.6607143
                           =>
                             {toothed=TRUE}
                                                                     1.0939696
   [191] {breathes=FALSE} =>
                             {domestic=FALSE}
                                               0.1980198 0.9523810
                                                                     1.0930736
  [192] {catsize=TRUE}
                           => {legs=TRUE}
                                               0.3663366 0.8409091
                                                                     1.0888695
  [193] {eggs=FALSE}
                             {fins=FALSE}
                                               0.3762376 0.9047619
                                                                     1.0878685
  [194] {aquatic=FALSE}
                           =>
                             {type=bird}
                                               0.1386139 0.2153846
                                                                     1.0876923
  [195] {aquatic=FALSE}
                             {feathers=TRUE}
                                               0.1386139 0.2153846
                                                                     1.0876923
  [196] {venomous=FALSE} =>
                             {type=bird}
                                               0.1980198 0.2150538
                                                                     1.0860215
  [197] {venomous=FALSE} =>
                             {feathers=TRUE}
                                               0.1980198 0.2150538
                                                                     1.0860215
  [198] {milk=TRUE}
                             {venomous=FALSE} 0.4059406 1.0000000
                                                                     1.0860215
  [199] {type=mammal}
                             {venomous=FALSE} 0.4059406 1.0000000
                                                                     1.0860215
   [200] {milk=TRUE}
                             {fins=FALSE}
                                               0.3663366 0.9024390
                                                                     1.0850755
  [201] {type=mammal}
                             {fins=FALSE}
                                               0.3663366 0.9024390
                                                                     1.0850755
  [202] {backbone=FALSE} =>
                              {domestic=FALSE} 0.1683168 0.9444444
                                                                     1.0839646
   [203] {fins=TRUE}
                              {domestic=FALSE} 0.1584158 0.9411765
                                                                     1.0802139
  [204] {catsize=TRUE}
                             {feathers=FALSE} 0.3762376 0.8636364
                                                                     1.0768799
  [205] {tail=FALSE}
                             {hair=FALSE}
                                               0.1584158 0.6153846
                                                                     1.0716180
   [206] {hair=FALSE}
                              {domestic=FALSE} 0.5346535 0.9310345
                                                                     1.0685737
  [207] {catsize=TRUE}
                             {venomous=FALSE} 0.4257426 0.9772727
                                                                     1.0613392
## [208] {type=fish}
                             {domestic=FALSE} 0.1188119 0.9230769
                                                                     1.0594406
## [209] {aquatic=TRUE}
                           =>
                             {toothed=TRUE}
                                               0.2277228 0.6388889
                                                                     1.0578324
## [210] {legs=FALSE}
                             {tail=TRUE}
                                               0.1782178 0.7826087
                                                                     1.0539130
```

```
## [211] {milk=FALSE}
                          => {domestic=FALSE} 0.5445545 0.9166667
                                                                     1.0520833
  [212] {eggs=TRUE}
                             {domestic=FALSE} 0.5346535 0.9152542
                                                                     1.0504622
  [213] {breathes=TRUE}
                             {backbone=TRUE}
                                               0.6831683 0.8625000
                                                                     1.0495482
  [214] {toothed=FALSE}
                             {aquatic=FALSE}
                                               0.2673267 0.6750000
                                                                     1.0488462
  [215] {predator=TRUE}
                             {feathers=FALSE} 0.4653465 0.8392857
                                                                     1.0465168
  [216] {tail=FALSE}
                             {legs=TRUE}
                                               0.2079208 0.8076923
                                                                     1.0458580
  [217] {toothed=FALSE}
                             {breathes=TRUE}
                                               0.3267327 0.8250000
                                                                     1.0415625
## [218] {milk=TRUE}
                             {predator=FALSE} 0.1881188 0.4634146
                                                                     1.0401084
  [219] {type=mammal}
                             {predator=FALSE} 0.1881188 0.4634146
                                                                     1.0401084
  [220] {aquatic=TRUE}
                             {feathers=FALSE} 0.2970297 0.8333333
                                                                     1.0390947
  [221] {predator=FALSE} =>
                             {venomous=FALSE} 0.4257426 0.9555556
                                                                     1.0377539
  [222] {aquatic=FALSE}
                             {backbone=FALSE} 0.1188119 0.1846154
                                                                     1.0358974
  [223] {tail=FALSE}
                             {predator=FALSE} 0.1188119 0.4615385
                                                                     1.0358974
  [224] {hair=TRUE}
                             {venomous=FALSE} 0.4059406 0.9534884
                                                                     1.0355089
  [225] {eggs=FALSE}
                                                                     1.0343062
                             {venomous=FALSE} 0.3960396 0.9523810
   [226] {backbone=TRUE}
                             {venomous=FALSE} 0.7821782 0.9518072
                                                                     1.0336831
   [227] {hair=TRUE}
                             {tail=TRUE}
                                               0.3267327 0.7674419
                                                                     1.0334884
   [228] {toothed=FALSE}
                             {domestic=FALSE} 0.3564356 0.9000000
                                                                     1.0329545
                             {venomous=FALSE} 0.7326733 0.9487179
   [229] {legs=TRUE}
                                                                     1.0303281
   [230] {tail=TRUE}
                             {venomous=FALSE} 0.7029703 0.9466667
                                                                     1.0281004
                             {airborne=FALSE} 0.6435644 0.7831325
  [231] {backbone=TRUE}
                                                                     1.0272258
  [232] {tail=TRUE}
                             {breathes=TRUE} 0.6039604 0.8133333
                                                                     1.0268333
                             {venomous=FALSE} 0.1584158 0.9411765
##
  [233] {fins=TRUE}
                                                                     1.0221379
  [234] {predator=TRUE}
                             {milk=FALSE}
                                               0.3366337 0.6071429
                                                                     1.0220238
  [235] {backbone=TRUE}
                             {predator=TRUE}
                                               0.4653465 0.5662651
                                                                     1.0212995
  [236] {aquatic=FALSE}
                             {venomous=FALSE} 0.6039604 0.9384615
                                                                     1.0191894
  [237] {breathes=TRUE}
                             {venomous=FALSE} 0.7425743 0.9375000
                                                                     1.0181452
  [238] {eggs=FALSE}
                             {predator=FALSE} 0.1881188 0.4523810
                                                                     1.0153439
  [239] {domestic=FALSE} =>
                             {tail=FALSE}
                                               0.2277228 0.2613636
                                                                     1.0152972
  [240] {aquatic=FALSE}
                             {tail=TRUE}
                                               0.4851485 0.7538462
                                                                    1.0151795
  [241] {toothed=TRUE}
                             {venomous=FALSE} 0.5643564 0.9344262
                                                                     1.0148070
  [242] {backbone=TRUE}
                             {aquatic=TRUE}
                                               0.2970297 0.3614458
                                                                     1.0140562
  [243] {airborne=FALSE} =>
                             {domestic=FALSE} 0.6732673 0.8831169
                                                                     1.0135773
  [244] {catsize=FALSE}
                          => {fins=FALSE}
                                               0.4752475 0.8421053
                                                                     1.0125313
   [245] {airborne=TRUE}
                             {tail=TRUE}
                                               0.1782178 0.7500000
                                                                     1.0100000
  [246] {predator=TRUE}
                             {tail=TRUE}
                                               0.4158416 0.7500000
                                                                    1.0100000
  [247] {tail=FALSE}
                             {airborne=FALSE} 0.1980198 0.7692308
                                                                     1.0089910
                             {eggs=TRUE}
  [248] {predator=TRUE}
                          =>
                                               0.3267327 0.5892857
                                                                     1.0087772
   [249] {backbone=FALSE}
                             {legs=TRUE}
                                               0.1386139 0.7777778
                                                                     1.0071225
  [250] {catsize=FALSE}
                             {domestic=FALSE} 0.4950495 0.8771930
                                                                     1.0067783
                             {domestic=FALSE} 0.7029703 0.8765432
   [251] {feathers=FALSE} =>
                                                                     1.0060325
  [252] {legs=FALSE}
                             {backbone=TRUE} 0.1881188 0.8260870
                                                                     1.0052383
  [253] {domestic=TRUE}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                     1.0024814
  [254] {type=fish}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                     1.0024814
  [255] {airborne=FALSE} =>
                             {venomous=FALSE} 0.7029703 0.9220779
                                                                     1.0013965
  [256] {domestic=FALSE} =>
                             {venomous=FALSE} 0.8019802 0.9204545
                                                                     0.9996334
  [257] {legs=TRUE}
                             {backbone=TRUE}
                                               0.6336634 0.8205128
                                                                     0.9984554
  [258] {tail=TRUE}
                             {airborne=FALSE} 0.5643564 0.7600000
                                                                     0.9968831
  [259] {venomous=FALSE} => {airborne=TRUE}
                                               0.2178218 0.2365591
                                                                     0.9955197
  [260] {venomous=FALSE} =>
                             {fins=FALSE}
                                               0.7623762 0.8279570
                                                                     0.9955197
  [261] {domestic=FALSE} => {tail=TRUE}
                                               0.6435644 0.7386364
                                                                     0.9946970
## [262] {aquatic=FALSE}
                          => {backbone=TRUE}
                                               0.5247525 0.8153846
                                                                     0.9922150
## [263] {catsize=TRUE}
                          => {domestic=FALSE} 0.3762376 0.8636364
                                                                     0.9912190
## [264] {eggs=TRUE}
                          => {predator=FALSE} 0.2574257 0.4406780
```

```
## [265] {eggs=FALSE}
                           => {predator=TRUE}
                                               0.2277228 0.5476190
                                                                     0.9876701
   [266] {predator=FALSE} =>
                             {tail=TRUE}
                                               0.3267327 0.7333333
                                                                     0.9875556
   [267] {tail=TRUE}
                             {legs=TRUE}
                                               0.5643564 0.7600000
                                                                     0.9841026
   [268] {catsize=TRUE}
                             {fins=FALSE}
                                               0.3564356 0.8181818
                                                                     0.9837662
   [269] {domestic=FALSE} =>
                             {fins=FALSE}
                                               0.7128713 0.8181818
                                                                     0.9837662
   [270] {backbone=TRUE}
                          => {domestic=FALSE} 0.7029703 0.8554217
                                                                     0.9817908
   [271] {feathers=FALSE} => {venomous=FALSE} 0.7227723 0.9012346
                                                                     0.9787601
  [272] {domestic=FALSE} =>
                             {toothed=TRUE}
                                               0.5148515 0.5909091
                                                                     0.9783905
   [273] {aquatic=FALSE}
                           =>
                             {feathers=FALSE} 0.5049505 0.7846154
                                                                     0.9783476
   [274] {toothed=FALSE}
                             {venomous=FALSE} 0.3564356 0.9000000
                                                                     0.9774194
   [275] {eggs=TRUE}
                             {venomous=FALSE} 0.5247525 0.8983051
                                                                     0.9755786
   [276] {domestic=FALSE} =>
                             {type=bird}
                                               0.1683168 0.1931818
                                                                     0.9755682
   [277] {domestic=FALSE} => {feathers=TRUE}
                                               0.1683168 0.1931818
                                                                     0.9755682
   [278] {domestic=FALSE} =>
                             {breathes=TRUE}
                                               0.6732673 0.7727273
                                                                     0.9755682
                             {tail=TRUE}
  [279] {hair=FALSE}
                                               0.4158416 0.7241379
                                                                     0.9751724
   [280] {hair=FALSE}
                              {venomous=FALSE} 0.5148515 0.8965517
                                                                     0.9736745
   [281] {predator=FALSE} =>
                             {backbone=TRUE}
                                               0.3564356 0.8000000
                                                                     0.9734940
   [282] {breathes=TRUE}
                             {toothed=TRUE}
                                               0.4653465 0.5875000
                                                                     0.9727459
   [283] {tail=TRUE}
                             {aquatic=TRUE}
                                               0.2574257 0.3466667
                                                                     0.9725926
   [284] {milk=FALSE}
                             {predator=FALSE} 0.2574257 0.4333333
                                                                     0.9725926
##
  [285] {legs=TRUE}
                             {domestic=FALSE} 0.6534653 0.8461538
                                                                     0.9711538
  [286] {predator=TRUE}
                             {tail=FALSE}
                                               0.1386139 0.2500000
                                                                     0.9711538
   [287] {predator=TRUE}
                             {venomous=FALSE} 0.4950495 0.8928571
                           =>
                                                                     0.9696621
   [288] {toothed=TRUE}
                             {aquatic=FALSE}
                                               0.3762376 0.6229508
                                                                     0.9679697
  [289] {predator=TRUE}
                             {milk=TRUE}
                                               0.2178218 0.3928571
                                                                     0.9677700
   [290] {predator=TRUE}
                             {type=mammal}
                                               0.2178218 0.3928571
                                                                     0.9677700
                             {aquatic=TRUE}
   [291] {venomous=FALSE} =>
                                               0.3168317 0.3440860
                                                                     0.9653524
   [292] {airborne=TRUE}
                             {domestic=FALSE} 0.1980198 0.8333333
                                                                     0.9564394
  [293] {tail=FALSE}
                             {aquatic=FALSE}
                                               0.1584158 0.6153846
                                                                     0.9562130
   [294] {backbone=TRUE}
                             {fins=FALSE}
                                               0.6534653 0.7951807
                                                                     0.9561102
   [295] {catsize=FALSE}
                              {venomous=FALSE} 0.4950495 0.8771930
                                                                     0.9526504
   [296] {feathers=FALSE} =>
                             {fins=FALSE}
                                               0.6336634 0.7901235
                                                                     0.9500294
   [297] {feathers=FALSE} =>
                             {backbone=TRUE}
                                               0.6237624 0.7777778
                                                                     0.9464525
   [298] {tail=TRUE}
                                               0.5841584 0.7866667
                             {fins=FALSE}
                                                                     0.9458730
   [299] {predator=FALSE} =>
                             {feathers=FALSE}
                                               0.3366337 0.7555556
                                                                     0.9421125
##
   [300] {fins=FALSE}
                             {milk=FALSE}
                                               0.4653465 0.5595238
                                                                     0.9418651
   [301] {milk=FALSE}
                             {venomous=FALSE} 0.5148515 0.8666667
                                                                     0.9412186
                             {feathers=FALSE} 0.4257426 0.7543860
   [302] {catsize=FALSE}
                           =>
                                                                     0.9406541
                             {fins=FALSE}
##
   [303] {eggs=TRUE}
                                               0.4554455 0.7796610
                                                                     0.9374496
   [304] {airborne=FALSE} =>
                             {fins=FALSE}
                                               0.5940594 0.7792208
                                                                     0.9369202
   [305] {domestic=FALSE} =>
                             {aquatic=FALSE}
                                               0.5247525 0.6022727
                                                                     0.9358392
                             {feathers=FALSE} 0.5940594 0.7500000
   [306] {breathes=TRUE}
                           =>
                                                                     0.9351852
   [307] {catsize=FALSE}
                             {legs=TRUE}
                                               0.4059406 0.7192982
                                                                     0.9313990
   [308] {breathes=FALSE} =>
                             {venomous=FALSE} 0.1782178 0.8571429
                                                                     0.9308756
  [309] {eggs=FALSE}
                             {domestic=FALSE} 0.3366337 0.8095238
                                                                     0.9291126
   [310] {aquatic=FALSE}
                              {airborne=FALSE} 0.4554455 0.7076923
                                                                     0.9282717
   [311] {legs=TRUE}
                             {feathers=FALSE} 0.5742574 0.7435897
                                                                     0.9271921
   [312] {catsize=FALSE}
                             {aquatic=FALSE}
                                               0.3366337 0.5964912
                                                                     0.9268556
  [313] {milk=TRUE}
                             {domestic=FALSE} 0.3267327 0.8048780
                                                                     0.9237805
   [314] {type=mammal}
                             {domestic=FALSE} 0.3267327 0.8048780
                                                                     0.9237805
                          =>
   [315] {predator=TRUE}
                             {fins=FALSE}
                                               0.4257426 0.7678571
                                                                     0.9232568
  [316] {backbone=TRUE}
                             {hair=FALSE}
                                               0.4356436 0.5301205
                                                                     0.9231408
  [317] {tail=FALSE}
                           => {breathes=TRUE}
                                               0.1881188 0.7307692
                                                                     0.9225962
## [318] {venomous=FALSE} => {tail=FALSE}
                                               0.2178218 0.2365591
                                                                     0.9189413
```

```
[319] {airborne=FALSE} => {breathes=TRUE}
                                               0.5544554 0.7272727
                                                                      0.9181818
   [320] {feathers=FALSE} =>
                                                0.5445545 0.6790123
                             {tail=TRUE}
                                                                      0.9144033
   [321] {airborne=TRUE}
                             {backbone=TRUE}
                                                0.1782178 0.7500000
                                                                      0.9126506
   [322] {toothed=FALSE}
                           =>
                             {aquatic=TRUE}
                                                0.1287129 0.3250000
                                                                      0.9118056
   [323] {catsize=FALSE}
                           =>
                             {breathes=TRUE}
                                                0.4059406 0.7192982
                                                                      0.9081140
##
   [324] {airborne=FALSE} =>
                             {legs=TRUE}
                                                0.5346535 0.7012987
                                                                      0.9080919
   [325] {domestic=FALSE} =>
                             {hair=TRUE}
                                                0.3366337 0.3863636
                                                                      0.9075053
   [326] {hair=FALSE}
                           =>
                              {airborne=FALSE} 0.3960396 0.6896552
                                                                      0.9046126
##
   [327] {legs=TRUE}
                              {predator=TRUE}
                                                0.3861386 0.5000000
                                                                      0.9017857
   [328] {tail=TRUE}
                             {breathes=FALSE} 0.1386139 0.1866667
                                                                      0.8977778
   [329] {tail=TRUE}
                             {milk=FALSE}
                                                0.3960396 0.5333333
                                                                      0.8977778
   [330] {legs=FALSE}
                              {venomous=FALSE}
                                               0.1881188 0.8260870
                                                                      0.8971482
   [331] {toothed=TRUE}
                              {legs=TRUE}
                                                0.4158416 0.6885246
                                                                      0.8915511
   [332] {hair=FALSE}
                              {fins=FALSE}
                                                0.4257426 0.7413793
                                                                      0.8914204
   [333] {eggs=TRUE}
                              {tail=TRUE}
                                                0.3861386 0.6610169
                                                                      0.8901695
   [334] {predator=TRUE}
                                                0.2772277 0.5000000
                              {catsize=FALSE}
                                                                      0.8859649
   [335] {predator=FALSE} =>
                              {toothed=TRUE}
                                                0.2376238 0.5333333
                                                                      0.8830601
   [336] {predator=TRUE}
                              {breathes=TRUE}
                                                0.3861386 0.6964286
                                                                      0.8792411
                                                0.3960396 0.6779661
   [337] {eggs=TRUE}
                             {legs=TRUE}
                                                                      0.8778792
   [338] {backbone=FALSE} =>
                              {airborne=FALSE}
                                               0.1188119 0.6666667
                                                                      0.8744589
##
   [339] {catsize=FALSE}
                           =>
                             {tail=TRUE}
                                                0.3663366 0.6491228
                                                                      0.8741520
   [340] {toothed=TRUE}
                             {fins=FALSE}
                                                0.4356436 0.7213115
                                                                      0.8672912
   [341] {domestic=FALSE} =>
                              {predator=FALSE} 0.3366337 0.3863636
                                                                      0.8671717
##
   [342] {eggs=TRUE}
                              {backbone=TRUE}
                                                0.4158416 0.7118644
                                                                      0.8662446
   [343] {milk=FALSE}
                              {legs=TRUE}
                                                0.3960396 0.6666667
                                                                      0.8632479
   [344] {predator=TRUE}
                              {toothed=FALSE}
                                                0.1881188 0.3392857
                                                                      0.8566964
                              {backbone=TRUE}
   [345] {catsize=FALSE}
                                                0.3960396 0.7017544
                                                                      0.8539421
   [346] {backbone=TRUE}
                              {milk=FALSE}
                                                0.4158416 0.5060241
                                                                      0.8518072
   [347] {hair=FALSE}
                              {predator=FALSE} 0.2178218 0.3793103
                                                                      0.8513410
                              {venomous=FALSE} 0.1386139 0.7777778
   [348] {backbone=FALSE} =>
                                                                      0.8446834
   [349]
         {hair=TRUE}
                              {predator=TRUE}
                                                0.1980198 0.4651163
                                                                      0.8388704
##
   [350] {eggs=TRUE}
                              {breathes=TRUE}
                                               0.3861386 0.6610169
                                                                      0.8345339
   [351] {milk=FALSE}
                             {feathers=FALSE} 0.3960396 0.6666667
                                                                      0.8312757
   [352] {milk=FALSE}
                             {airborne=FALSE} 0.3762376 0.6333333
                                                                      0.8307359
   [353] {aquatic=TRUE}
                              {catsize=TRUE}
                                                0.1287129 0.3611111
                                                                      0.8289141
                              {catsize=FALSE}
##
   [354] {airborne=FALSE}
                                               0.3564356 0.4675325
                                                                      0.8284347
   [355] {eggs=TRUE}
                              {feathers=FALSE} 0.3861386 0.6610169
                                                                      0.8242310
##
   [356] {eggs=TRUE}
                              {airborne=FALSE} 0.3663366 0.6271186
                                                                      0.8225842
##
   [357] {milk=FALSE}
                              {breathes=TRUE}
                                                0.3861386 0.6500000
                                                                      0.8206250
##
   [358] {hair=FALSE}
                              {feathers=FALSE} 0.3762376 0.6551724
                                                                      0.8169434
   [359] {catsize=TRUE}
                              {predator=FALSE} 0.1584158 0.3636364
                                                                      0.8161616
                              {airborne=FALSE} 0.2772277 0.6222222
   [360] {predator=FALSE}
                                                                      0.8161616
   [361] {breathes=FALSE}
                              {backbone=TRUE}
                                               0.1386139 0.6666667
                                                                      0.8112450
   [362] {breathes=TRUE}
##
                             {hair=FALSE}
                                                0.3663366 0.4625000
                                                                      0.8053879
   [363] {legs=TRUE}
                             {hair=FALSE}
                                                0.3564356 0.4615385
                                                                      0.8037135
   [364] {aquatic=FALSE}
                              {milk=FALSE}
                                                0.2970297 0.4615385
                                                                      0.7769231
   [365] {toothed=FALSE}
                              {tail=TRUE}
                                                0.2277228 0.5750000
                                                                      0.7743333
   [366] {backbone=FALSE} =>
                              {breathes=TRUE}
                                                0.1089109 0.6111111
                                                                      0.7715278
   [367] {eggs=TRUE}
                              {aquatic=FALSE}
                                                0.2871287 0.4915254
                                                                      0.7637549
   [368] {catsize=FALSE}
                              {toothed=TRUE}
                                                0.2574257 0.4561404
                                                                      0.7552488
##
                           =>
   [369] {aquatic=FALSE}
                              {predator=TRUE}
                                                0.2673267 0.4153846
                                                                      0.7491758
  [370] {aquatic=FALSE}
                              {hair=FALSE}
                                                0.2574257 0.4000000
                                                                      0.6965517
  [371] {toothed=FALSE}
                             {backbone=TRUE}
                                                0.2178218 0.5500000
                                                                      0.6692771
## [372] {hair=FALSE}
                             {toothed=TRUE}
                                                0.2277228 0.3965517
```

```
## [373] {aquatic=TRUE}
                          => {legs=TRUE}
                                               0.1782178 0.5000000
                                                                     0.6474359
  [374] {aquatic=TRUE}
                             {fins=FALSE}
                                               0.1881188 0.5277778
                                                                     0.6345899
  [375] {toothed=FALSE}
                             {feathers=FALSE} 0.1980198 0.5000000
                                                                     0.6234568
                             {airborne=FALSE} 0.1782178 0.4500000
  [376] {toothed=FALSE}
                                                                     0.5902597
   [377] {toothed=TRUE}
                             {milk=FALSE}
                                               0.2079208 0.3442623
                                                                     0.5795082
  [378] {eggs=TRUE}
                          => {toothed=TRUE}
                                               0.1980198 0.3389831
                                                                     0.5612670
  [379] {breathes=TRUE}
                          => {aquatic=TRUE}
                                               0.1584158 0.2000000
                                                                     0.5611111
  [380] {hair=FALSE}
                          =>
                             {catsize=TRUE}
                                               0.1386139 0.2413793
                                                                     0.5540752
   [381] {hair=TRUE}
                             {catsize=FALSE}
                                               0.1287129 0.3023256
                                                                     0.5356997
  [382] {catsize=TRUE}
                             {eggs=TRUE}
                                               0.1287129 0.2954545
                                                                     0.5057781
  [383] {eggs=FALSE}
                             {catsize=FALSE}
                                               0.1089109 0.2619048
                                                                     0.4640769
   [384] {milk=FALSE}
                          => {catsize=TRUE}
                                               0.1188119 0.2000000
                                                                     0.4590909
##
   [1] "Número de reglas con consecuente negado"
##
                                                         support
                                                                    confidence
## [1]
        {backbone=FALSE}
                                         => {fins=FALSE} 0.1782178 1.0000000
##
   [2]
        {type=bird}
                                            {fins=FALSE} 0.1980198 1.0000000
   [3]
##
                                           {fins=FALSE} 0.1980198 1.0000000
        {feathers=TRUE}
##
   [4]
        {airborne=TRUE}
                                           {fins=FALSE} 0.2376238 1.0000000
   [5]
                                           {fins=FALSE} 0.3960396 1.0000000
##
        {toothed=FALSE}
##
   [6]
        {predator=FALSE,tail=FALSE}
                                            {fins=FALSE} 0.1188119 1.0000000
##
   [7]
        {legs=TRUE,tail=FALSE}
                                           {fins=FALSE} 0.2079208 1.0000000
        {milk=TRUE, predator=FALSE}
                                           {fins=FALSE} 0.1881188 1.0000000
##
  [8]
                                           {fins=FALSE} 0.1881188 1.0000000
  [9]
        {predator=FALSE, type=mammal}
##
##
  [10] {eggs=FALSE,predator=FALSE}
                                            {fins=FALSE} 0.1881188 1.0000000
  [11] {eggs=FALSE,catsize=FALSE}
                                           {fins=FALSE} 0.1089109 1.0000000
  [12] {hair=TRUE,catsize=FALSE}
                                           {fins=FALSE} 0.1287129 1.0000000
  [13] {predator=FALSE,catsize=TRUE}
                                           {fins=FALSE} 0.1584158 1.0000000
  [14] {legs=TRUE,catsize=FALSE}
                                           {fins=FALSE} 0.4059406 1.0000000
  [15] {breathes=TRUE, catsize=FALSE}
                                         => {fins=FALSE} 0.4059406 1.0000000
  [16] {hair=FALSE,legs=TRUE}
                                           {fins=FALSE} 0.3564356 1.0000000
   [17] {eggs=TRUE,legs=TRUE}
                                            {fins=FALSE} 0.3960396 1.0000000
  [18] {eggs=TRUE,breathes=TRUE}
                                            {fins=FALSE} 0.3861386 1.0000000
  [19] {milk=FALSE,legs=TRUE}
                                            {fins=FALSE} 0.3960396 1.0000000
                                           {fins=FALSE} 0.3861386 1.0000000
  [20] {milk=FALSE,breathes=TRUE}
                                            {fins=FALSE} 0.7623762 0.9871795
   [21] {legs=TRUE}
                                           {fins=FALSE} 0.4059406 0.9534884
##
  [22] {hair=TRUE}
## [23] {breathes=TRUE}
                                           {fins=FALSE} 0.7524752 0.9500000
## [24] {domestic=TRUE}
                                           {fins=FALSE} 0.1188119 0.9230769
  [25] {predator=FALSE,domestic=FALSE} =>
                                            {fins=FALSE} 0.3069307 0.9117647
  [26] {predator=FALSE}
                                         => {fins=FALSE} 0.4059406 0.9111111
  [27] {eggs=FALSE}
                                           {fins=FALSE} 0.3762376 0.9047619
  [28] {milk=TRUE}
                                           {fins=FALSE} 0.3663366 0.9024390
  [29] {type=mammal}
                                         => {fins=FALSE} 0.3663366 0.9024390
  [30] {catsize=FALSE}
                                         => {fins=FALSE} 0.4752475 0.8421053
## [31] {venomous=FALSE}
                                         => {fins=FALSE} 0.7623762 0.8279570
                                           {fins=FALSE} 0.3564356 0.8181818
## [32] {catsize=TRUE}
  [33]
       {domestic=FALSE}
                                            {fins=FALSE} 0.7128713 0.8181818
  [34] {backbone=TRUE}
                                           {fins=FALSE} 0.6534653 0.7951807
  [35] {feathers=FALSE}
                                         => {fins=FALSE} 0.6336634 0.7901235
  [36] {tail=TRUE}
                                           {fins=FALSE} 0.5841584 0.7866667
                                         => {fins=FALSE} 0.4554455 0.7796610
##
  [37]
       {eggs=TRUE}
## [38] {airborne=FALSE}
                                         => {fins=FALSE} 0.5940594 0.7792208
## [39] {predator=TRUE}
                                         => {fins=FALSE} 0.4257426 0.7678571
## [40] {hair=FALSE}
                                           {fins=FALSE} 0.4257426 0.7413793
```

```
## [41] {toothed=TRUE}
                                        => {fins=FALSE} 0.4356436 0.7213115
## [42] {aquatic=TRUE}
                                        => {fins=FALSE} 0.1881188 0.5277778
##
        lift
## [1]
       1.2023810
## [2]
       1.2023810
## [3]
       1.2023810
## [4]
       1.2023810
## [5]
       1.2023810
## [6]
       1.2023810
## [7]
       1.2023810
## [8]
       1.2023810
## [9]
       1.2023810
## [10] 1.2023810
## [11] 1.2023810
## [12] 1.2023810
## [13] 1.2023810
## [14] 1.2023810
## [15] 1.2023810
## [16] 1.2023810
## [17] 1.2023810
## [18] 1.2023810
## [19] 1.2023810
## [20] 1.2023810
## [21] 1.1869658
## [22] 1.1464563
## [23] 1.1422619
## [24] 1.1098901
## [25] 1.0962885
## [26] 1.0955026
## [27] 1.0878685
## [28] 1.0850755
## [29] 1.0850755
## [30] 1.0125313
## [31] 0.9955197
## [32] 0.9837662
## [33] 0.9837662
## [34] 0.9561102
## [35] 0.9500294
## [36] 0.9458730
## [37] 0.9374496
## [38] 0.9369202
## [39] 0.9232568
## [40] 0.8914204
## [41] 0.8672912
## [42] 0.6345899
##
       lhs
                                        support
                                                confidence lift
## [1] {type=fish}
                        => {fins=TRUE} 0.1287129 1.0000000 5.941176
  [2] {breathes=FALSE} => {fins=TRUE} 0.1287129 0.6190476 3.677871
##
  [3] {hair=FALSE}
                        => {fins=TRUE} 0.1485149 0.2586207 1.536511
##
       lhs
                                 rhs
                                               support
                                                        confidence lift
## [1] {hair=FALSE,legs=TRUE} => {fins=FALSE} 0.3564356 1
                                                                     1.202381
## [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
## [1] {type=fish}
                                        => {feathers=FALSE} 0.1287129
```

```
## [2]
        {fins=TRUE}
                                         => {feathers=FALSE} 0.1683168
##
   [3]
                                         => {feathers=FALSE} 0.1782178
        {backbone=FALSE}
##
  [4]
        {breathes=FALSE}
                                            {feathers=FALSE} 0.2079208
  [5]
##
        {legs=FALSE}
                                            {feathers=FALSE} 0.2277228
##
   [6]
        {tail=FALSE}
                                            {feathers=FALSE} 0.2574257
  [7]
##
        {eggs=FALSE}
                                            {feathers=FALSE} 0.4158416
                                            {feathers=FALSE} 0.4257426
  [8]
        {hair=TRUE}
## [9]
        {airborne=FALSE, catsize=FALSE}
                                            {feathers=FALSE} 0.3465347
   [10] {airborne=FALSE,predator=FALSE} =>
                                            {feathers=FALSE} 0.2673267
  [11] {airborne=FALSE}
                                            {feathers=FALSE} 0.7227723
  [12] {catsize=TRUE}
                                            {feathers=FALSE} 0.3762376
                                            {feathers=FALSE} 0.4653465
  [13] {predator=TRUE}
  [14] {aquatic=TRUE}
                                         => {feathers=FALSE} 0.2970297
## [15] {aquatic=FALSE}
                                         => {feathers=FALSE} 0.5049505
                                         => {feathers=FALSE} 0.3366337
## [16] {predator=FALSE}
  [17] {catsize=FALSE}
                                            {feathers=FALSE} 0.4257426
  [18]
       {breathes=TRUE}
                                            {feathers=FALSE} 0.5940594
  [19] {legs=TRUE}
                                            {feathers=FALSE} 0.5742574
                                            {feathers=FALSE} 0.3960396
  [20] {milk=FALSE}
   [21] {eggs=TRUE}
                                            {feathers=FALSE} 0.3861386
##
  [22] {hair=FALSE}
                                         => {feathers=FALSE} 0.3762376
   [23] {toothed=FALSE}
                                         => {feathers=FALSE} 0.1980198
##
        confidence lift
##
  [1]
        1.0000000 1.2469136
   [2]
##
        1.0000000
                   1.2469136
  [3]
        1.0000000
                   1.2469136
  [4]
##
        1.0000000
                   1.2469136
##
   [5]
        1.0000000
                   1.2469136
##
  [6]
        1.0000000
                   1.2469136
                   1.2469136
  [7]
        1.0000000
## [8]
        1.0000000
                   1.2469136
##
  [9]
        0.9722222
                   1.2122771
  [10] 0.9642857
                   1.2023810
  [11] 0.9480519
                   1.1821388
                   1.0768799
   [12] 0.8636364
##
  [13] 0.8392857
                   1.0465168
  [14] 0.8333333
                   1.0390947
  [15] 0.7846154
                   0.9783476
   [16] 0.7555556
                   0.9421125
  [17] 0.7543860
                   0.9406541
  [18] 0.7500000
                   0.9351852
  [19] 0.7435897
                   0.9271921
  [20] 0.6666667
                   0.8312757
  [21] 0.6610169
                   0.8242310
  [22] 0.6551724
                   0.8169434
## [23] 0.5000000 0.6234568
##
       lhs
                                            support
                                                       confidence lift
##
  [1] {type=bird}
                        => {feathers=TRUE} 0.1980198 1.0000000
   [2] {hair=FALSE}
                        => {feathers=TRUE} 0.1980198 0.3448276
                                                                  1.7413793
   [3] {aquatic=FALSE}
                        => {feathers=TRUE} 0.1386139 0.2153846
   [4] {venomous=FALSE} => {feathers=TRUE} 0.1980198 0.2150538
                                                                  1.0860215
  [5] {domestic=FALSE} => {feathers=TRUE} 0.1683168 0.1931818
## [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
```

```
[1]
        {type=bird}
                                             {breathes=TRUE} 0.1980198
        {feathers=TRUE}
                                            {breathes=TRUE} 0.1980198
##
   [2]
        {airborne=TRUE}
##
   [3]
                                            {breathes=TRUE} 0.2376238
   [4]
##
        {milk=TRUE}
                                             {breathes=TRUE} 0.4059406
##
   [5]
        {type=mammal}
                                             {breathes=TRUE} 0.4059406
   [6]
        {hair=TRUE}
##
                                             {breathes=TRUE} 0.4257426
                                             {breathes=TRUE} 0.1188119
   [7]
        {fins=FALSE,domestic=TRUE}
##
  [8]
        {toothed=FALSE,tail=TRUE}
                                             {breathes=TRUE} 0.2277228
##
   [9]
        {toothed=FALSE,backbone=TRUE}
                                             {breathes=TRUE} 0.2178218
##
   [10] {eggs=FALSE,predator=FALSE}
                                            {breathes=TRUE} 0.1881188
  [11] {eggs=FALSE,legs=TRUE}
                                            {breathes=TRUE} 0.3762376
   [12] {predator=FALSE,catsize=TRUE}
                                            {breathes=TRUE} 0.1584158
##
   [13] {aquatic=FALSE, catsize=TRUE}
                                             {breathes=TRUE} 0.3069307
                                            {breathes=TRUE} 0.3861386
  [14] {predator=FALSE,legs=TRUE}
  [15] {predator=FALSE,fins=FALSE}
                                            {breathes=TRUE} 0.4059406
   [16] {aquatic=FALSE,toothed=TRUE}
                                         =>
                                             {breathes=TRUE} 0.3762376
                                             {breathes=TRUE} 0.4158416
       {toothed=TRUE,legs=TRUE}
   [17]
   [18] {aquatic=FALSE,tail=TRUE}
                                            {breathes=TRUE} 0.4851485
   [19] {aquatic=FALSE,backbone=TRUE}
                                            {breathes=TRUE} 0.5247525
   [20] {legs=TRUE,tail=TRUE}
                                             {breathes=TRUE} 0.5643564
##
  [21] {backbone=TRUE,legs=TRUE}
                                             {breathes=TRUE} 0.6336634
  [22] {backbone=TRUE,fins=FALSE}
                                             {breathes=TRUE} 0.6435644
                                             {breathes=TRUE} 0.6336634
##
  [23] {aquatic=FALSE}
   [24] {fins=FALSE,tail=TRUE}
                                             {breathes=TRUE} 0.5742574
   [25] {toothed=TRUE,fins=FALSE}
                                             {breathes=TRUE} 0.4257426
   [26] {eggs=FALSE}
                                            {breathes=TRUE} 0.4059406
   [27] {legs=TRUE,catsize=TRUE}
                                            {breathes=TRUE} 0.3564356
##
##
   [28] {fins=FALSE,catsize=TRUE}
                                             {breathes=TRUE} 0.3465347
  [29] {legs=TRUE}
                                            {breathes=TRUE} 0.7227723
  [30] {domestic=TRUE}
                                            {breathes=TRUE} 0.1188119
##
   [31]
        {venomous=FALSE,fins=FALSE}
                                             {breathes=TRUE} 0.7029703
   [32]
       {predator=FALSE,domestic=FALSE} =>
                                             {breathes=TRUE} 0.3069307
   [33] {predator=FALSE}
                                            {breathes=TRUE} 0.4059406
                                            {breathes=TRUE} 0.3861386
##
   [34] {catsize=TRUE}
       {toothed=FALSE, venomous=FALSE}
                                             {breathes=TRUE} 0.2970297
##
   [36] {toothed=FALSE}
                                             {breathes=TRUE} 0.3267327
   [37] {tail=TRUE}
                                             {breathes=TRUE} 0.6039604
  [38] {domestic=FALSE}
                                             {breathes=TRUE} 0.6732673
##
        {tail=FALSE}
                                             {breathes=TRUE} 0.1881188
   [39]
                                             {breathes=TRUE} 0.5544554
##
  [40] {airborne=FALSE}
                                            {breathes=TRUE} 0.4059406
  [41] {catsize=FALSE}
   [42] {predator=TRUE}
                                            {breathes=TRUE} 0.3861386
##
##
   [43]
       {eggs=TRUE}
                                            {breathes=TRUE} 0.3861386
##
   [44]
       {milk=FALSE}
                                            {breathes=TRUE} 0.3861386
                                         => {breathes=TRUE} 0.1089109
##
   [45] {backbone=FALSE}
##
        confidence lift
##
   [1]
        1.0000000
                   1.2625000
   [2]
##
        1.0000000
                   1.2625000
##
   [3]
        1.0000000
                   1.2625000
##
   [4]
        1.0000000
                   1.2625000
   [5]
##
        1.0000000
                   1.2625000
##
  [6]
        1.0000000
                   1.2625000
##
  [7]
        1.0000000
                   1.2625000
## [8]
        1.0000000
                   1.2625000
```

```
## [9]
       1.0000000
                  1.2625000
## [10] 1.0000000
                   1.2625000
                   1.2625000
## [11] 1.0000000
## [12] 1.0000000
                   1.2625000
## [13] 1.0000000
                   1.2625000
## [14] 1.0000000
                   1.2625000
## [15] 1.0000000
                   1.2625000
## [16] 1.0000000
                   1.2625000
## [17] 1.0000000
                   1.2625000
## [18] 1.0000000
                   1.2625000
## [19] 1.0000000
                   1.2625000
## [20] 1.0000000
                   1.2625000
## [21] 1.0000000
                   1.2625000
## [22] 0.9848485
                   1.2433712
## [23] 0.9846154
                   1.2430769
## [24] 0.9830508
                   1.2411017
## [25] 0.9772727
                   1.2338068
## [26] 0.9761905
                   1.2324405
## [27] 0.9729730
                   1.2283784
## [28] 0.9722222
                   1.2274306
## [29] 0.9358974
                   1.1815705
## [30] 0.9230769
                   1.1653846
## [31] 0.9220779
                   1.1641234
## [32] 0.9117647
                   1.1511029
## [33] 0.9111111
                   1.1502778
## [34] 0.8863636
                   1.1190341
## [35] 0.8333333
                   1.0520833
## [36] 0.8250000
                   1.0415625
## [37] 0.8133333
                   1.0268333
## [38] 0.7727273
                   0.9755682
## [39] 0.7307692
                   0.9225962
## [40] 0.7272727
                   0.9181818
## [41] 0.7192982
                   0.9081140
## [42] 0.6964286
                   0.8792411
## [43] 0.6610169
                   0.8345339
## [44] 0.6500000 0.8206250
## [45] 0.6111111
                  0.7715278
##
       lhs
                      rhs
                                        support
                                                  confidence lift
## [1] {type=fish} => {breathes=FALSE} 0.1287129 1.0000000 4.8095238
##
   [2] {tail=TRUE} => {breathes=FALSE} 0.1386139 0.1866667 0.8977778
##
                                    rhs
                                                     support
                                                               confidence
## [1] {toothed=FALSE,tail=TRUE} => {breathes=TRUE} 0.2277228 1.0000000
  [2] {aquatic=FALSE,tail=TRUE} => {breathes=TRUE} 0.4851485 1.0000000
  [3] {legs=TRUE,tail=TRUE}
                                 => {breathes=TRUE} 0.5643564 1.0000000
## [4] {fins=FALSE,tail=TRUE}
                                 => {breathes=TRUE} 0.5742574 0.9830508
##
       lift
## [1] 1.262500
## [2] 1.262500
## [3] 1.262500
## [4]
      1.241102
##
  [1]
       "Número de reglas con consecuente negado"
##
                                                       support
                                                                 confidence
## [1]
        {type=bird}
                                        => {legs=TRUE} 0.1980198 1.0000000
## [2]
       {feathers=TRUE}
                                        => {legs=TRUE} 0.1980198 1.0000000
```

```
[3]
        {airborne=TRUE}
                                        => {legs=TRUE} 0.2376238 1.0000000
                                        => {legs=TRUE} 0.1188119 1.0000000
##
   [4]
        {breathes=TRUE,domestic=TRUE}
        {fins=FALSE,domestic=TRUE}
   [5]
                                        => {legs=TRUE} 0.1188119 1.0000000
   [6]
        {toothed=FALSE,tail=TRUE}
                                        => {legs=TRUE} 0.2277228 1.0000000
##
                                        => {legs=TRUE} 0.2178218 1.0000000
##
   [7]
        {toothed=FALSE,backbone=TRUE}
   [8]
        {milk=TRUE, predator=FALSE}
                                        => {legs=TRUE} 0.1881188 1.0000000
##
  [9]
        {milk=TRUE,fins=FALSE}
                                        => {legs=TRUE} 0.3663366 1.0000000
  [10] {predator=FALSE,type=mammal}
                                        => {legs=TRUE} 0.1881188 1.0000000
   [11] {fins=FALSE,type=mammal}
                                        => {legs=TRUE} 0.3663366 1.0000000
   [12] {eggs=FALSE,predator=FALSE}
                                        => {legs=TRUE} 0.1881188 1.0000000
  [13] {hair=TRUE,catsize=FALSE}
                                        => {legs=TRUE} 0.1287129 1.0000000
                                        => {legs=TRUE} 0.4059406 1.0000000
   [14] {hair=TRUE,fins=FALSE}
  [15] {predator=FALSE,catsize=TRUE}
                                        => {legs=TRUE} 0.1584158 1.0000000
  [16] {fins=FALSE,catsize=TRUE}
                                        => {legs=TRUE} 0.3564356 1.0000000
## [17] {hair=TRUE}
                                        => {legs=TRUE} 0.4158416 0.9767442
        {eggs=FALSE,fins=FALSE}
                                        => {legs=TRUE} 0.3663366 0.9736842
  [18]
       {aquatic=FALSE,backbone=TRUE}
                                        => {legs=TRUE} 0.5049505 0.9622642
  [19]
       {backbone=TRUE,fins=FALSE}
                                        => {legs=TRUE} 0.6237624 0.9545455
  [20]
  [21] {predator=FALSE,fins=FALSE}
                                        => {legs=TRUE} 0.3861386 0.9512195
  [22] {fins=FALSE,tail=TRUE}
                                        => {legs=TRUE} 0.5544554 0.9491525
## [23] {venomous=FALSE,fins=FALSE}
                                        => {legs=TRUE} 0.7227723 0.9480519
  [24] {breathes=TRUE,fins=FALSE}
                                        => {legs=TRUE} 0.7128713 0.9473684
  [25] {toothed=FALSE,breathes=TRUE}
                                        => {legs=TRUE} 0.3069307 0.9393939
  [26] {aquatic=FALSE, venomous=FALSE}
                                        => {legs=TRUE} 0.5643564 0.9344262
  [27] {toothed=TRUE,fins=FALSE}
                                        => {legs=TRUE} 0.4059406 0.9318182
  [28] {milk=TRUE}
                                        => {legs=TRUE} 0.3762376 0.9268293
  [29] {type=mammal}
                                        => {legs=TRUE} 0.3762376 0.9268293
##
  [30] {domestic=TRUE}
                                        => {legs=TRUE} 0.1188119 0.9230769
                                        => {legs=TRUE} 0.5940594 0.9230769
  [31] {aquatic=FALSE}
  [32] {breathes=TRUE, venomous=FALSE} => {legs=TRUE} 0.6831683 0.9200000
  [33]
        {toothed=FALSE, venomous=FALSE} => {legs=TRUE} 0.3267327 0.9166667
##
  [34]
       {eggs=FALSE}
                                        => {legs=TRUE} 0.3762376 0.9047619
       {toothed=FALSE}
                                        => {legs=TRUE} 0.3564356 0.9000000
  [36] {predator=FALSE,backbone=TRUE} => {legs=TRUE} 0.3168317 0.8888889
   [37] {predator=FALSE}
                                        => {legs=TRUE} 0.3861386 0.8666667
##
  [38] {catsize=TRUE}
                                        => {legs=TRUE} 0.3663366 0.8409091
  [39] {venomous=FALSE,tail=FALSE}
                                        => {legs=TRUE} 0.1782178 0.8181818
  [40] {tail=FALSE}
                                        => {legs=TRUE} 0.2079208 0.8076923
                                        => {legs=TRUE} 0.1386139 0.7777778
  [41] {backbone=FALSE}
  [42] {tail=TRUE}
                                        => {legs=TRUE} 0.5643564 0.7600000
  [43] {catsize=FALSE}
                                        => {legs=TRUE} 0.4059406 0.7192982
                                        => {legs=TRUE} 0.5346535 0.7012987
  [44] {airborne=FALSE}
##
  [45] {toothed=TRUE}
                                        => {legs=TRUE} 0.4158416 0.6885246
                                        => {legs=TRUE} 0.3960396 0.6779661
##
  [46] {eggs=TRUE}
## [47] {milk=FALSE}
                                        => {legs=TRUE} 0.3960396 0.6666667
                                        => {legs=TRUE} 0.1782178 0.5000000
##
   [48] {aquatic=TRUE}
##
        lift
##
  [1]
        1.2948718
##
   [2]
        1.2948718
##
   [3]
        1.2948718
   [4]
##
        1.2948718
##
  [5]
        1.2948718
## [6]
        1.2948718
## [7]
        1.2948718
```

```
## [8]
        1.2948718
   [9]
        1.2948718
  [10] 1.2948718
  [11] 1.2948718
  [12] 1.2948718
  [13] 1.2948718
  [14] 1.2948718
## [15] 1.2948718
  [16] 1.2948718
  [17] 1.2647585
## [18] 1.2607962
## [19] 1.2460087
  [20] 1.2360140
## [21] 1.2317073
## [22] 1.2290309
## [23] 1.2276057
  [24] 1.2267206
  [25] 1.2163947
  [26] 1.2099622
  [27] 1.2065851
## [28] 1.2001251
  [29] 1.2001251
## [30] 1.1952663
  [31] 1.1952663
## [32] 1.1912821
  [33] 1.1869658
## [34] 1.1715507
  [35] 1.1653846
## [36] 1.1509972
  [37] 1.1222222
  [38] 1.0888695
   [39] 1.0594406
  [40] 1.0458580
  [41] 1.0071225
   [42] 0.9841026
  [43] 0.9313990
##
  [44] 0.9080919
  [45] 0.8915511
   [46] 0.8778792
  [47] 0.8632479
  [48] 0.6474359
##
                                                   confidence lift
       lhs
                           rhs
                                         support
                        => {legs=FALSE} 0.1287129 1.0000000 4.391304
## [1] {type=fish}
   [2] {fins=TRUE}
                        => {legs=FALSE} 0.1584158 0.9411765 4.132992
   [3] {breathes=FALSE} => {legs=FALSE} 0.1584158 0.7619048
                                                              3.345756
   [4] {predator=TRUE} => {legs=FALSE} 0.1683168 0.3035714 1.333075
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                           rhs
                                                       support
##
  [1]
        {type=bird}
                                        => {legs=TRUE} 0.1980198 1.0000000
##
   [2]
        {feathers=TRUE}
                                        => {legs=TRUE} 0.1980198 1.0000000
##
   [3]
                                        => {legs=TRUE} 0.2376238 1.0000000
        {airborne=TRUE}
  [4]
        {breathes=TRUE,domestic=TRUE}
                                        => {legs=TRUE} 0.1188119 1.0000000
## [5]
        {fins=FALSE,domestic=TRUE}
                                        => {legs=TRUE} 0.1188119 1.0000000
## [6]
        {toothed=FALSE,tail=TRUE}
                                        => {legs=TRUE} 0.2277228 1.0000000
```

```
{toothed=FALSE,backbone=TRUE}
                                        => {legs=TRUE} 0.2178218 1.0000000
                                        => {legs=TRUE} 0.1881188 1.0000000
  [8]
        {milk=TRUE, predator=FALSE}
  [9]
        {milk=TRUE,fins=FALSE}
                                        => {legs=TRUE} 0.3663366 1.0000000
  [10] {predator=FALSE,type=mammal}
                                        => {legs=TRUE} 0.1881188 1.0000000
  [11] {fins=FALSE,type=mammal}
                                        => {legs=TRUE} 0.3663366 1.0000000
  [12] {eggs=FALSE,predator=FALSE}
                                        => {legs=TRUE} 0.1881188 1.0000000
## [13] {hair=TRUE,catsize=FALSE}
                                        => {legs=TRUE} 0.1287129 1.0000000
## [14] {hair=TRUE,fins=FALSE}
                                        => {legs=TRUE} 0.4059406 1.0000000
  [15] {predator=FALSE,catsize=TRUE}
                                        => {legs=TRUE} 0.1584158 1.0000000
  [16] {fins=FALSE,catsize=TRUE}
                                        => {legs=TRUE} 0.3564356 1.0000000
  [17] {hair=TRUE}
                                        => {legs=TRUE} 0.4158416 0.9767442
   [18] {eggs=FALSE,fins=FALSE}
                                        => {legs=TRUE} 0.3663366 0.9736842
  [19] {aquatic=FALSE,backbone=TRUE}
                                        => {legs=TRUE} 0.5049505 0.9622642
       {backbone=TRUE,fins=FALSE}
                                        => {legs=TRUE} 0.6237624 0.9545455
                                        => {legs=TRUE} 0.3861386 0.9512195
## [21] {predator=FALSE,fins=FALSE}
        {fins=FALSE,tail=TRUE}
                                        => {legs=TRUE} 0.5544554 0.9491525
## [22]
  [23]
       {venomous=FALSE,fins=FALSE}
                                        => {legs=TRUE} 0.7227723 0.9480519
  [24] {breathes=TRUE,fins=FALSE}
                                        => {legs=TRUE} 0.7128713 0.9473684
  [25] {toothed=FALSE,breathes=TRUE}
                                        => {legs=TRUE} 0.3069307 0.9393939
  [26] {aquatic=FALSE, venomous=FALSE}
                                        => {legs=TRUE} 0.5643564 0.9344262
## [27] {toothed=TRUE,fins=FALSE}
                                        => {legs=TRUE} 0.4059406 0.9318182
## [28] {milk=TRUE}
                                        => {legs=TRUE} 0.3762376 0.9268293
## [29] {type=mammal}
                                        => {legs=TRUE} 0.3762376 0.9268293
  [30] {domestic=TRUE}
                                        => {legs=TRUE} 0.1188119 0.9230769
  [31] {aquatic=FALSE}
                                        => {legs=TRUE} 0.5940594 0.9230769
  [32] {breathes=TRUE, venomous=FALSE} => {legs=TRUE} 0.6831683 0.9200000
   [33] {toothed=FALSE,venomous=FALSE} => {legs=TRUE} 0.3267327 0.9166667
                                        => {legs=TRUE} 0.3762376 0.9047619
## [34] {eggs=FALSE}
                                        => {legs=TRUE} 0.3564356 0.9000000
## [35] {toothed=FALSE}
  [36] {predator=FALSE,backbone=TRUE} => {legs=TRUE} 0.3168317 0.8888889
   [37]
        {predator=FALSE}
                                        => {legs=TRUE} 0.3861386 0.8666667
##
  [38]
       {catsize=TRUE}
                                        => {legs=TRUE} 0.3663366 0.8409091
  [39] {venomous=FALSE,tail=FALSE}
                                        => {legs=TRUE} 0.1782178 0.8181818
  [40] {tail=FALSE}
                                        => {legs=TRUE} 0.2079208 0.8076923
                                        => {legs=TRUE} 0.1386139 0.7777778
   [41]
        {backbone=FALSE}
                                        => {legs=TRUE} 0.5643564 0.7600000
## [42] {tail=TRUE}
## [43] {catsize=FALSE}
                                        => {legs=TRUE} 0.4059406 0.7192982
## [44] {airborne=FALSE}
                                        => {legs=TRUE} 0.5346535 0.7012987
                                        => {legs=TRUE} 0.4158416 0.6885246
  [45] {toothed=TRUE}
                                        => {legs=TRUE} 0.3960396 0.6779661
  [46] {eggs=TRUE}
                                        => {legs=TRUE} 0.3960396 0.6666667
  [47] {milk=FALSE}
                                        => {legs=TRUE} 0.1782178 0.5000000
   [48] {aquatic=TRUE}
##
##
        lift
##
  [1]
        1.2948718
  [2]
##
        1.2948718
  [3]
##
        1.2948718
##
   [4]
        1.2948718
##
   [5]
        1.2948718
##
   [6]
        1.2948718
##
   [7]
        1.2948718
   [8]
##
        1.2948718
## [9]
        1.2948718
## [10] 1.2948718
## [11] 1.2948718
```

```
## [12] 1.2948718
## [13] 1.2948718
## [14] 1.2948718
## [15] 1.2948718
  [16] 1.2948718
## [17] 1.2647585
  [18] 1.2607962
## [19] 1.2460087
  [20] 1.2360140
  [21] 1.2317073
  [22] 1.2290309
## [23] 1.2276057
## [24] 1.2267206
## [25] 1.2163947
## [26] 1.2099622
## [27] 1.2065851
  [28] 1.2001251
  [29] 1.2001251
  [30] 1.1952663
  [31] 1.1952663
  [32] 1.1912821
  [33] 1.1869658
## [34] 1.1715507
  [35] 1.1653846
## [36] 1.1509972
  [37] 1.1222222
## [38] 1.0888695
  [39] 1.0594406
## [40] 1.0458580
## [41] 1.0071225
## [42] 0.9841026
  [43] 0.9313990
  [44] 0.9080919
  [45] 0.8915511
   [46] 0.8778792
##
  [47] 0.8632479
##
  [48] 0.6474359
##
       lhs
                                         support
                                                   confidence lift
                            rhs
                        => {legs=FALSE} 0.1287129 1.0000000 4.391304
  [1] {type=fish}
   [2] {fins=TRUE}
                         => {legs=FALSE} 0.1584158 0.9411765
                                                               4.132992
   [3] {breathes=FALSE} => {legs=FALSE} 0.1584158 0.7619048
                                                               3.345756
       {predator=TRUE} => {legs=FALSE} 0.1683168 0.3035714
                                                              1.333075
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                          support
                                                                    confidence
## [1]
        {backbone=FALSE}
                                         => {fins=FALSE} 0.1782178 1.0000000
  [2]
        {type=bird}
                                         => {fins=FALSE} 0.1980198 1.0000000
##
   [3]
##
        {feathers=TRUE}
                                         => {fins=FALSE} 0.1980198 1.0000000
  [4]
##
        {airborne=TRUE}
                                         => {fins=FALSE} 0.2376238 1.0000000
        {toothed=FALSE}
  [5]
                                         => {fins=FALSE} 0.3960396 1.0000000
##
   [6]
        {predator=FALSE, tail=FALSE}
                                         => {fins=FALSE} 0.1188119 1.0000000
                                         => {fins=FALSE} 0.2079208 1.0000000
##
   [7]
        {legs=TRUE,tail=FALSE}
## [8]
        {milk=TRUE, predator=FALSE}
                                         => {fins=FALSE} 0.1881188 1.0000000
## [9]
        {predator=FALSE,type=mammal}
                                         => {fins=FALSE} 0.1881188 1.0000000
## [10] {eggs=FALSE,predator=FALSE}
                                         => {fins=FALSE} 0.1881188 1.0000000
```

```
## [11] {eggs=FALSE,catsize=FALSE}
                                         => {fins=FALSE} 0.1089109 1.0000000
## [12] {hair=TRUE,catsize=FALSE}
                                         => {fins=FALSE} 0.1287129 1.0000000
## [13] {predator=FALSE,catsize=TRUE}
                                         => {fins=FALSE} 0.1584158 1.0000000
## [14] {legs=TRUE,catsize=FALSE}
                                         => {fins=FALSE} 0.4059406 1.0000000
## [15] {breathes=TRUE,catsize=FALSE}
                                         => {fins=FALSE} 0.4059406 1.0000000
## [16] {hair=FALSE,legs=TRUE}
                                         => {fins=FALSE} 0.3564356 1.0000000
  [17] {eggs=TRUE,legs=TRUE}
                                         => {fins=FALSE} 0.3960396 1.0000000
## [18] {eggs=TRUE,breathes=TRUE}
                                           {fins=FALSE} 0.3861386 1.0000000
  [19] {milk=FALSE,legs=TRUE}
                                            {fins=FALSE} 0.3960396 1.0000000
  [20] {milk=FALSE,breathes=TRUE}
                                         => {fins=FALSE} 0.3861386 1.0000000
  [21] {legs=TRUE}
                                         => {fins=FALSE} 0.7623762 0.9871795
## [22] {hair=TRUE}
                                         => {fins=FALSE} 0.4059406 0.9534884
## [23] {breathes=TRUE}
                                         => {fins=FALSE} 0.7524752 0.9500000
## [24] {domestic=TRUE}
                                         => {fins=FALSE} 0.1188119 0.9230769
## [25] {predator=FALSE,domestic=FALSE} => {fins=FALSE} 0.3069307 0.9117647
  [26] {predator=FALSE}
                                           {fins=FALSE} 0.4059406 0.9111111
                                         => {fins=FALSE} 0.3762376 0.9047619
  [27] {eggs=FALSE}
  [28] {milk=TRUE}
                                         => {fins=FALSE} 0.3663366 0.9024390
                                         => {fins=FALSE} 0.3663366 0.9024390
  [29] {type=mammal}
  [30] {catsize=FALSE}
                                         => {fins=FALSE} 0.4752475 0.8421053
## [31] {venomous=FALSE}
                                         => {fins=FALSE} 0.7623762 0.8279570
## [32] {catsize=TRUE}
                                         => {fins=FALSE} 0.3564356 0.8181818
                                         => {fins=FALSE} 0.7128713 0.8181818
## [33] {domestic=FALSE}
                                         => {fins=FALSE} 0.6534653 0.7951807
## [34] {backbone=TRUE}
## [35] {feathers=FALSE}
                                         => {fins=FALSE} 0.6336634 0.7901235
## [36] {tail=TRUE}
                                         => {fins=FALSE} 0.5841584 0.7866667
## [37] {eggs=TRUE}
                                         => {fins=FALSE} 0.4554455 0.7796610
## [38] {airborne=FALSE}
                                         => {fins=FALSE} 0.5940594 0.7792208
                                         => {fins=FALSE} 0.4257426 0.7678571
## [39] {predator=TRUE}
## [40] {hair=FALSE}
                                        => {fins=FALSE} 0.4257426 0.7413793
## [41] {toothed=TRUE}
                                         => {fins=FALSE} 0.4356436 0.7213115
##
   [42] {aquatic=TRUE}
                                        => {fins=FALSE} 0.1881188 0.5277778
##
        lift
  [1]
        1.2023810
##
##
   [2]
        1.2023810
##
   [3]
        1.2023810
## [4]
        1.2023810
## [5]
        1.2023810
  [6]
        1.2023810
##
  [7]
##
        1.2023810
  [8]
        1.2023810
  [9]
        1.2023810
  「10〕 1.2023810
## [11] 1.2023810
## [12] 1.2023810
## [13] 1.2023810
## [14] 1.2023810
## [15] 1.2023810
## [16] 1.2023810
## [17] 1.2023810
## [18] 1.2023810
## [19] 1.2023810
## [20] 1.2023810
## [21] 1.1869658
```

```
## [22] 1.1464563
  [23] 1.1422619
  [24] 1.1098901
  [25] 1.0962885
   [26] 1.0955026
  [27] 1.0878685
  [28] 1.0850755
## [29] 1.0850755
   [30] 1.0125313
   [31] 0.9955197
  [32] 0.9837662
   [33] 0.9837662
   [34] 0.9561102
  [35] 0.9500294
  [36] 0.9458730
   [37] 0.9374496
   [38] 0.9369202
   [39] 0.9232568
   [40] 0.8914204
   [41] 0.8672912
##
   [42] 0.6345899
##
       lhs
                           rhs
                                        support
                                                  confidence lift
##
                        => {fins=TRUE} 0.1287129 1.0000000 5.941176
   [1] {type=fish}
   [2] {breathes=FALSE} => {fins=TRUE} 0.1287129 0.6190476
                                                              3.677871
##
   [3] {hair=FALSE}
                        => {fins=TRUE} 0.1485149 0.2586207
                                                              1.536511
                                  rhs
                                               support
                                                          confidence lift
       {hair=FALSE,legs=TRUE} => {fins=FALSE} 0.3564356 1
##
   [1]
                                                                     1.202381
##
       "Número de reglas con consecuente negado"
##
                                                        support
                                                                   confidence
##
  [1]
                                         => {tail=TRUE} 0.1287129 1.0000000
        {type=fish}
##
   [2]
        {type=bird}
                                            {tail=TRUE} 0.1980198 1.0000000
##
   [3]
        {feathers=TRUE}
                                            {tail=TRUE} 0.1980198 1.0000000
##
   [4]
        {backbone=TRUE, breathes=FALSE}
                                            {tail=TRUE} 0.1386139 1.0000000
   [5]
##
        {airborne=TRUE, backbone=TRUE}
                                           {tail=TRUE} 0.1782178 1.0000000
   [6]
        {toothed=FALSE,backbone=TRUE}
                                            {tail=TRUE} 0.2178218 1.0000000
##
##
   [7]
        {backbone=TRUE,legs=FALSE}
                                           {tail=TRUE} 0.1782178 0.9473684
  [8]
        {fins=TRUE}
                                            {tail=TRUE} 0.1584158 0.9411765
  [9]
                                            {tail=TRUE} 0.1485149 0.9375000
##
        {predator=FALSE, catsize=TRUE}
   [10] {hair=FALSE,backbone=TRUE}
                                            {tail=TRUE} 0.4059406 0.9318182
  [11] {hair=FALSE,catsize=TRUE}
                                            {tail=TRUE} 0.1287129 0.9285714
                                            {tail=TRUE} 0.3861386 0.9285714
  [12] {eggs=TRUE,backbone=TRUE}
  [13] {milk=FALSE,backbone=TRUE}
                                           {tail=TRUE} 0.3861386 0.9285714
  [14] {eggs=TRUE,catsize=TRUE}
                                            {tail=TRUE} 0.1188119 0.9230769
  [15] {milk=FALSE,catsize=TRUE}
                                         => {tail=TRUE} 0.1089109 0.9166667
  [16] {predator=FALSE,backbone=TRUE}
                                         => {tail=TRUE} 0.3267327 0.9166667
   [17] {aquatic=FALSE,backbone=TRUE}
                                           {tail=TRUE} 0.4752475 0.9056604
   [18]
       {backbone=TRUE,domestic=FALSE}
                                           {tail=TRUE} 0.6336634 0.9014085
  [19] {backbone=TRUE,catsize=FALSE}
                                         => {tail=TRUE} 0.3564356 0.9000000
  [20] {eggs=FALSE,domestic=FALSE}
                                         => {tail=TRUE} 0.2970297 0.8823529
  [21] {milk=TRUE,domestic=FALSE}
                                           {tail=TRUE} 0.2871287 0.8787879
                                         => {tail=TRUE} 0.2871287 0.8787879
  [22] {domestic=FALSE,type=mammal}
## [23] {predator=FALSE, toothed=TRUE}
                                         => {tail=TRUE} 0.2079208 0.8750000
## [24] {hair=FALSE,toothed=TRUE}
                                         => {tail=TRUE} 0.1980198 0.8695652
## [25] {domestic=FALSE,catsize=TRUE}
                                           {tail=TRUE} 0.3267327 0.8684211
```

```
## [26] {aquatic=FALSE,toothed=TRUE}
                                         => {tail=TRUE} 0.3267327 0.8684211
  [27] {toothed=TRUE,domestic=FALSE}
                                         => {tail=TRUE} 0.4455446 0.8653846
## [28] {catsize=TRUE}
                                           {tail=TRUE} 0.3762376 0.8636364
## [29] {toothed=TRUE, venomous=FALSE}
                                           {tail=TRUE} 0.4851485 0.8596491
  [30] {eggs=FALSE}
                                            {tail=TRUE} 0.3564356 0.8571429
  [31] {milk=FALSE,toothed=TRUE}
                                         => {tail=TRUE} 0.1782178 0.8571429
  [32] {milk=TRUE}
                                         => {tail=TRUE} 0.3465347 0.8536585
## [33] {type=mammal}
                                         => {tail=TRUE} 0.3465347 0.8536585
  [34] {predator=TRUE,breathes=TRUE}
                                         => {tail=TRUE} 0.3168317 0.8205128
  [35] {airborne=TRUE, venomous=FALSE}
                                         => {tail=TRUE} 0.1782178 0.8181818
  [36] {aquatic=FALSE,predator=TRUE}
                                         => {tail=TRUE} 0.2178218 0.8148148
  [37] {hair=TRUE,predator=TRUE}
                                         => {tail=TRUE} 0.1584158 0.8000000
  [38] {hair=TRUE,domestic=FALSE}
                                         => {tail=TRUE} 0.2673267 0.7941176
## [39] {venomous=FALSE,legs=FALSE}
                                         => {tail=TRUE} 0.1485149 0.7894737
## [40] {breathes=TRUE, venomous=FALSE}
                                         => {tail=TRUE} 0.5841584 0.7866667
## [41] {legs=FALSE}
                                         => {tail=TRUE} 0.1782178 0.7826087
  [42] {airborne=FALSE,aquatic=FALSE}
                                         => {tail=TRUE} 0.3564356 0.7826087
  [43] {airborne=FALSE,breathes=TRUE}
                                         => {tail=TRUE} 0.4257426 0.7678571
                                         => {tail=TRUE} 0.3267327 0.7674419
## [44] {hair=TRUE}
## [45] {breathes=TRUE,domestic=FALSE}
                                           {tail=TRUE} 0.5148515 0.7647059
                                         => {tail=TRUE} 0.3960396 0.7547170
## [46] {aquatic=FALSE,domestic=FALSE}
## [47] {aquatic=FALSE}
                                         => {tail=TRUE} 0.4851485 0.7538462
                                         => {tail=TRUE} 0.1782178 0.7500000
## [48] {airborne=TRUE}
                                           {tail=TRUE} 0.4158416 0.7500000
## [49] {predator=TRUE}
  [50] {airborne=FALSE,predator=FALSE} => {tail=TRUE} 0.2079208 0.7500000
  [51] {domestic=FALSE}
                                         => {tail=TRUE} 0.6435644 0.7386364
## [52] {predator=FALSE}
                                         => {tail=TRUE} 0.3267327 0.7333333
## [53] {hair=FALSE}
                                         => {tail=TRUE} 0.4158416 0.7241379
                                         => {tail=TRUE} 0.5445545 0.6790123
## [54] {feathers=FALSE}
  [55] {eggs=TRUE}
                                         => {tail=TRUE} 0.3861386 0.6610169
##
   [56] {catsize=FALSE}
                                         => {tail=TRUE} 0.3663366 0.6491228
##
   [57]
       {toothed=FALSE}
                                        => {tail=TRUE} 0.2277228 0.5750000
##
        lift
##
  [1]
        1.3466667
##
   [2]
        1.3466667
##
   [3]
        1.3466667
## [4]
        1.3466667
## [5]
        1.3466667
  [6]
##
        1.3466667
  [7]
##
        1.2757895
  [8]
        1.2674510
  [9]
        1.2625000
##
  Γ10 1.2548485
## [11] 1.2504762
## [12] 1.2504762
## [13] 1.2504762
## [14] 1.2430769
## [15] 1.2344444
## [16] 1.2344444
## [17] 1.2196226
## [18] 1.2138967
## [19] 1.2120000
## [20] 1.1882353
## [21] 1.1834343
```

```
## [22] 1.1834343
  [23] 1.1783333
  [24] 1.1710145
  [25] 1.1694737
  [26] 1.1694737
## [27] 1.1653846
  [28] 1.1630303
## [29] 1.1576608
  [30] 1.1542857
  [31] 1.1542857
  [32] 1.1495935
## [33] 1.1495935
  [34] 1.1049573
## [35] 1.1018182
## [36] 1.0972840
  [37] 1.0773333
  [38] 1.0694118
  [39] 1.0631579
## [40] 1.0593778
## [41] 1.0539130
## [42] 1.0539130
## [43] 1.0340476
## [44] 1.0334884
  [45] 1.0298039
## [46] 1.0163522
  [47] 1.0151795
## [48] 1.0100000
## [49] 1.0100000
## [50] 1.0100000
## [51] 0.9946970
  [52] 0.9875556
   [53] 0.9751724
   [54] 0.9144033
  [55] 0.8901695
   [56] 0.8741520
   [57] 0.7743333
##
##
                           rhs
                                         support
                                                   confidence lift
## [1] {backbone=FALSE} => {tail=FALSE} 0.1683168 0.9444444
                                                              3.6688034
   [2] {fins=FALSE}
                        => {tail=FALSE} 0.2475248 0.2976190
                                                              1.1561355
   [3] {domestic=FALSE} => {tail=FALSE} 0.2277228 0.2613636
                                                              1.0152972
   [4] {predator=TRUE} => {tail=FALSE} 0.1386139 0.2500000
                                                              0.9711538
##
   [5] {venomous=FALSE} => {tail=FALSE} 0.2178218 0.2365591
                                                              0.9189413
##
       lhs
                                          rhs
                                                      support
                                                                confidence
  [1] {backbone=TRUE,domestic=FALSE} => {tail=TRUE} 0.6336634 0.9014085
  [2] {eggs=FALSE,domestic=FALSE}
                                       => {tail=TRUE} 0.2970297 0.8823529
  [3] {milk=TRUE,domestic=FALSE}
                                       => {tail=TRUE} 0.2871287 0.8787879
   [4] {domestic=FALSE,type=mammal}
                                       => {tail=TRUE} 0.2871287 0.8787879
   [5] {domestic=FALSE,catsize=TRUE}
                                      => {tail=TRUE} 0.3267327 0.8684211
  [6] {toothed=TRUE,domestic=FALSE}
                                      => {tail=TRUE} 0.4455446 0.8653846
   [7] {hair=TRUE,domestic=FALSE}
                                       => {tail=TRUE} 0.2673267 0.7941176
   [8] {breathes=TRUE,domestic=FALSE} => {tail=TRUE} 0.5148515 0.7647059
   [9] {aquatic=FALSE,domestic=FALSE} => {tail=TRUE} 0.3960396 0.7547170
##
       lift
## [1] 1.213897
```

```
## [2] 1.188235
  [3] 1.183434
  [4] 1.183434
  [5] 1.169474
   [6] 1.165385
  [7] 1.069412
##
  [8] 1.029804
## [9] 1.016352
##
       lhs
                                         rhs
                                                     support
                                                                confidence
##
  [1] {predator=TRUE, breathes=TRUE} => {tail=TRUE} 0.3168317 0.8205128
   [2] {aquatic=FALSE,predator=TRUE} => {tail=TRUE} 0.2178218 0.8148148
   [3] {hair=TRUE,predator=TRUE}
                                      => {tail=TRUE} 0.1584158 0.8000000
##
##
       lift
##
  [1] 1.104957
  [2] 1.097284
##
##
   [3] 1.077333
##
       lhs
                                          rhs
                                                      support
                                                                 confidence
  [1] {toothed=TRUE,venomous=FALSE} => {tail=TRUE} 0.4851485 0.8596491
  [2] {airborne=TRUE, venomous=FALSE} => {tail=TRUE} 0.1782178 0.8181818
   [3] {venomous=FALSE,legs=FALSE}
                                       => {tail=TRUE} 0.1485149 0.7894737
##
   [4] {breathes=TRUE,venomous=FALSE} => {tail=TRUE} 0.5841584 0.7866667
##
       lift.
## [1] 1.157661
   [2] 1.101818
## [3] 1.063158
  [4] 1.059378
##
       "Número de reglas con consecuente negado"
##
                                            rhs
        lhs
                                                              support
##
  [1]
        {type=fish}
                                           {airborne=FALSE} 0.1287129
##
  [2]
        {fins=TRUE}
                                         => {airborne=FALSE} 0.1683168
##
  [3]
        {breathes=FALSE}
                                            {airborne=FALSE} 0.2079208
##
  [4]
        {legs=FALSE}
                                           {airborne=FALSE} 0.2277228
  [5]
        {aquatic=TRUE, toothed=TRUE}
                                           {airborne=FALSE} 0.2277228
##
  [6]
        {feathers=FALSE, aquatic=TRUE}
                                         => {airborne=FALSE} 0.2970297
   [7]
        {milk=TRUE,predator=TRUE}
                                            {airborne=FALSE} 0.2178218
##
  [8]
        {predator=TRUE, type=mammal}
                                           {airborne=FALSE} 0.2178218
        {eggs=FALSE,predator=TRUE}
                                           {airborne=FALSE} 0.2277228
## [10] {hair=TRUE,predator=TRUE}
                                         => {airborne=FALSE} 0.1980198
  [11] {feathers=FALSE, catsize=TRUE}
                                            {airborne=FALSE} 0.3762376
  [12] {predator=TRUE, toothed=TRUE}
                                         => {airborne=FALSE} 0.3663366
  [13] {hair=FALSE,toothed=TRUE}
                                           {airborne=FALSE} 0.2277228
  [14] {eggs=TRUE,toothed=TRUE}
                                            {airborne=FALSE} 0.1980198
## [15] {milk=FALSE,toothed=TRUE}
                                            {airborne=FALSE} 0.2079208
## [16] {feathers=FALSE,predator=TRUE}
                                         => {airborne=FALSE} 0.4554455
## [17] {feathers=FALSE,backbone=TRUE}
                                         => {airborne=FALSE} 0.6039604
## [18] {toothed=TRUE}
                                         => {airborne=FALSE} 0.5841584
## [19] {predator=TRUE,catsize=TRUE}
                                         => {airborne=FALSE} 0.2673267
  [20] {feathers=FALSE,tail=TRUE}
                                         => {airborne=FALSE} 0.5247525
## [21] {eggs=FALSE}
                                         => {airborne=FALSE} 0.3960396
## [22] {milk=TRUE}
                                            {airborne=FALSE} 0.3861386
## [23] {type=mammal}
                                            {airborne=FALSE} 0.3861386
## [24] {hair=FALSE,feathers=FALSE}
                                           {airborne=FALSE} 0.3564356
## [25] {catsize=TRUE}
                                         => {airborne=FALSE} 0.4059406
## [26] {predator=TRUE,tail=FALSE}
                                           {airborne=FALSE} 0.1287129
```

```
## [27] {feathers=FALSE, venomous=FALSE} => {airborne=FALSE} 0.6633663
  [28] {feathers=FALSE,domestic=FALSE} => {airborne=FALSE} 0.6336634
  [29] {predator=TRUE}
                                         => {airborne=FALSE} 0.4851485
## [30] {aquatic=TRUE}
                                         => {airborne=FALSE} 0.3069307
  [31] {hair=TRUE}
                                            {airborne=FALSE} 0.3663366
## [32] {venomous=FALSE,tail=FALSE}
                                         => {airborne=FALSE} 0.1782178
## [33] {backbone=TRUE.domestic=FALSE}
                                         => {airborne=FALSE} 0.5544554
## [34] {backbone=TRUE}
                                         => {airborne=FALSE} 0.6435644
## [35]
       {tail=FALSE}
                                         => {airborne=FALSE} 0.1980198
  [36] {tail=TRUE}
                                         => {airborne=FALSE} 0.5643564
  [37] {aquatic=FALSE}
                                         => {airborne=FALSE} 0.4554455
## [38] {hair=FALSE}
                                         => {airborne=FALSE} 0.3960396
## [39]
       {backbone=FALSE}
                                         => {airborne=FALSE} 0.1188119
## [40] {milk=FALSE}
                                         => {airborne=FALSE} 0.3762376
## [41] {eggs=TRUE}
                                         => {airborne=FALSE} 0.3663366
   [42] {predator=FALSE}
                                         => {airborne=FALSE} 0.2772277
   [43] {toothed=FALSE}
##
                                         => {airborne=FALSE} 0.1782178
##
        confidence lift
        1.0000000 1.3116883
##
  [1]
##
   [2]
        1.0000000
                   1.3116883
  [3]
##
        1.0000000
                   1.3116883
## [4]
        1.0000000
                   1.3116883
## [5]
        1.0000000
                   1.3116883
  [6]
        1.0000000
##
                   1.3116883
##
  [7]
        1.0000000
                   1.3116883
  [8]
        1.0000000
                   1.3116883
  [9]
        1.0000000
##
                   1.3116883
  [10] 1.0000000
                   1.3116883
## [11] 1.0000000
                   1.3116883
                   1.3116883
## [12] 1.0000000
## [13] 1.0000000
                   1.3116883
  [14] 1.0000000
                   1.3116883
  [15] 1.0000000
                   1.3116883
  [16] 0.9787234
                   1.2837800
   [17] 0.9682540
                   1.2700474
## [18] 0.9672131
                   1.2686821
## [19] 0.9642857
                   1.2648423
## [20] 0.9636364
                   1.2639906
  [21] 0.9523810
                   1.2492270
  [22] 0.9512195
                   1.2477035
  [23] 0.9512195
                   1.2477035
  [24] 0.9473684
                   1.2426521
  [25] 0.9318182
                   1.2222550
  [26] 0.9285714
                   1.2179963
## [27] 0.9178082
                   1.2038783
## [28] 0.9014085
                   1.1823669
                   1.1477273
  [29] 0.8750000
  [30] 0.8611111
                   1.1295094
  [31] 0.8604651
                   1.1286620
  [32] 0.8181818
                   1.0731995
## [33] 0.7887324
                   1.0345711
## [34] 0.7831325
                   1.0272258
## [35] 0.7692308
                   1.0089910
## [36] 0.7600000 0.9968831
```

```
## [37] 0.7076923
                   0.9282717
   [38] 0.6896552
                   0.9046126
   [39] 0.6666667
                   0.8744589
  [40] 0.6333333
                   0.8307359
   [41] 0.6271186
                   0.8225842
  [42] 0.6222222
                   0.8161616
   [43] 0.4500000
                  0.5902597
##
       lhs
                                            support
                                                      confidence lift
##
  [1] {type=bird}
                        => {airborne=TRUE} 0.1584158 0.8000000
                                                                 3.3666667
   [2] {feathers=TRUE}
                        => {airborne=TRUE} 0.1584158 0.8000000
                                                                 3.3666667
   [3] {toothed=FALSE}
                        => {airborne=TRUE} 0.2178218 0.5500000
                                                                 2.3145833
                        => {airborne=TRUE} 0.1881188 0.2923077
   [4] {aquatic=FALSE}
                                                                 1.2301282
##
   [5] {venomous=FALSE} => {airborne=TRUE} 0.2178218 0.2365591
                                                                 0.9955197
##
                                           rhs
                                                            support
##
  [1] {feathers=FALSE, venomous=FALSE} => {airborne=FALSE} 0.6633663
   [2] {venomous=FALSE,tail=FALSE}
                                        => {airborne=FALSE} 0.1782178
##
       confidence lift
##
  [1] 0.9178082 1.203878
   [2] 0.8181818 1.073200
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
##
  [1]
                                         => {airborne=FALSE} 0.1287129
        {type=fish}
                                         => {airborne=FALSE} 0.1683168
  [2]
        {fins=TRUE}
##
   [3]
        {breathes=FALSE}
                                           {airborne=FALSE} 0.2079208
  [4]
##
        {legs=FALSE}
                                           {airborne=FALSE} 0.2277228
  [5]
        {aquatic=TRUE, toothed=TRUE}
                                           {airborne=FALSE} 0.2277228
   [6]
        {feathers=FALSE, aquatic=TRUE}
                                           {airborne=FALSE} 0.2970297
##
##
   [7]
        {milk=TRUE,predator=TRUE}
                                           {airborne=FALSE} 0.2178218
  [8]
##
        {predator=TRUE, type=mammal}
                                         => {airborne=FALSE} 0.2178218
  [9]
        {eggs=FALSE,predator=TRUE}
                                         => {airborne=FALSE} 0.2277228
  [10] {hair=TRUE,predator=TRUE}
                                         => {airborne=FALSE} 0.1980198
  [11] {feathers=FALSE,catsize=TRUE}
                                         => {airborne=FALSE} 0.3762376
  [12] {predator=TRUE, toothed=TRUE}
                                         => {airborne=FALSE} 0.3663366
                                         => {airborne=FALSE} 0.2277228
  [13] {hair=FALSE,toothed=TRUE}
  [14] {eggs=TRUE,toothed=TRUE}
                                           {airborne=FALSE} 0.1980198
## [15] {milk=FALSE,toothed=TRUE}
                                           {airborne=FALSE} 0.2079208
## [16] {feathers=FALSE,predator=TRUE}
                                           {airborne=FALSE} 0.4554455
## [17] {feathers=FALSE,backbone=TRUE}
                                           {airborne=FALSE} 0.6039604
## [18] {toothed=TRUE}
                                            {airborne=FALSE} 0.5841584
  [19] {predator=TRUE,catsize=TRUE}
                                         => {airborne=FALSE} 0.2673267
  [20] {feathers=FALSE,tail=TRUE}
                                           {airborne=FALSE} 0.5247525
  [21] {eggs=FALSE}
                                           {airborne=FALSE} 0.3960396
## [22] {milk=TRUE}
                                            {airborne=FALSE} 0.3861386
## [23] {type=mammal}
                                           {airborne=FALSE} 0.3861386
## [24] {hair=FALSE,feathers=FALSE}
                                         => {airborne=FALSE} 0.3564356
## [25] {catsize=TRUE}
                                           {airborne=FALSE} 0.4059406
  [26] {predator=TRUE,tail=FALSE}
                                            {airborne=FALSE} 0.1287129
  [27] {feathers=FALSE, venomous=FALSE} =>
                                            {airborne=FALSE} 0.6633663
  [28] {feathers=FALSE,domestic=FALSE} =>
                                           {airborne=FALSE} 0.6336634
## [29] {predator=TRUE}
                                           {airborne=FALSE} 0.4851485
## [30] {aquatic=TRUE}
                                         => {airborne=FALSE} 0.3069307
## [31] {hair=TRUE}
                                         => {airborne=FALSE} 0.3663366
## [32] {venomous=FALSE,tail=FALSE}
                                         => {airborne=FALSE} 0.1782178
## [33] {backbone=TRUE,domestic=FALSE}
                                        => {airborne=FALSE} 0.5544554
```

```
## [34] {backbone=TRUE}
  [35] {tail=FALSE}
  [36] {tail=TRUE}
## [37] {aquatic=FALSE}
  [38] {hair=FALSE}
## [39] {backbone=FALSE}
## [40] {milk=FALSE}
## [41] {eggs=TRUE}
   [42] {predator=FALSE}
##
   [43] {toothed=FALSE}
##
        confidence lift
##
        1.0000000 1.3116883
   [1]
##
   [2]
        1.0000000 1.3116883
  [3]
##
        1.0000000
                   1.3116883
## [4]
        1.0000000
                   1.3116883
## [5]
        1.0000000
                   1.3116883
##
  [6]
        1.0000000
                   1.3116883
  [7]
        1.0000000
                   1.3116883
  [8]
##
        1.0000000
                   1.3116883
  [9]
        1.0000000
                   1.3116883
## [10] 1.0000000
                   1.3116883
## [11] 1.0000000
                   1.3116883
## [12] 1.0000000
                   1.3116883
## [13] 1.0000000
                   1.3116883
## [14] 1.0000000
                   1.3116883
  [15] 1.0000000
                   1.3116883
## [16] 0.9787234
                   1.2837800
## [17] 0.9682540
                   1.2700474
## [18] 0.9672131
                   1.2686821
## [19] 0.9642857
                   1.2648423
## [20] 0.9636364
                   1.2639906
   [21] 0.9523810
                   1.2492270
   [22] 0.9512195
                   1.2477035
  [23] 0.9512195
                   1.2477035
   [24] 0.9473684
                   1.2426521
## [25] 0.9318182
                   1.2222550
## [26] 0.9285714
                   1.2179963
## [27] 0.9178082
                   1.2038783
## [28] 0.9014085
                   1.1823669
  [29] 0.8750000
                   1.1477273
   [30] 0.8611111
                   1.1295094
  [31] 0.8604651
                   1.1286620
   [32] 0.8181818
                   1.0731995
## [33] 0.7887324
                   1.0345711
## [34] 0.7831325
                   1.0272258
## [35] 0.7692308
                   1.0089910
   [36] 0.7600000
                   0.9968831
   [37] 0.7076923
                   0.9282717
  [38] 0.6896552
                   0.9046126
  [39] 0.6666667
                   0.8744589
## [40] 0.6333333
                   0.8307359
## [41] 0.6271186
                   0.8225842
## [42] 0.6222222
                   0.8161616
```

## [43] 0.4500000 0.5902597

=> {airborne=FALSE} 0.6435644 => {airborne=FALSE} 0.1980198 => {airborne=FALSE} 0.5643564 => {airborne=FALSE} 0.4554455 => {airborne=FALSE} 0.3960396 => {airborne=FALSE} 0.3762376 => {airborne=FALSE} 0.3663366 => {airborne=FALSE} 0.2772277 => {airborne=FALSE} 0.1782178

```
##
       lhs
                                            support
                                                      confidence lift
##
  [1] {type=bird}
                        => {airborne=TRUE} 0.1584158 0.8000000
                                                                 3.3666667
                        => {airborne=TRUE} 0.1584158 0.8000000
   [2] {feathers=TRUE}
                        => {airborne=TRUE} 0.2178218 0.5500000
   [3] {toothed=FALSE}
                                                                 2.3145833
   [4] {aquatic=FALSE}
                        => {airborne=TRUE} 0.1881188 0.2923077
                                                                 1.2301282
   [5] {venomous=FALSE} => {airborne=TRUE} 0.2178218 0.2365591
##
                                                                 0.9955197
##
                                           rhs
                                                            support
##
  [1] {feathers=FALSE, venomous=FALSE} => {airborne=FALSE} 0.6633663
   [2] {venomous=FALSE,tail=FALSE}
                                       => {airborne=FALSE} 0.1782178
##
       confidence lift
  [1] 0.9178082 1.203878
##
   [2] 0.8181818 1.073200
##
   [1] "Número de reglas con consecuente negado"
##
                                                       support
                                                                 confidence
## [1]
        {type=bird}
                                        => {legs=TRUE} 0.1980198 1.0000000
##
   [2]
        {feathers=TRUE}
                                        => {legs=TRUE} 0.1980198 1.0000000
   [3]
##
                                        => {legs=TRUE} 0.2376238 1.0000000
        {airborne=TRUE}
##
  [4]
        {breathes=TRUE,domestic=TRUE}
                                        => {legs=TRUE} 0.1188119 1.0000000
##
  [5]
        {fins=FALSE,domestic=TRUE}
                                        => {legs=TRUE} 0.1188119 1.0000000
   [6]
        {toothed=FALSE,tail=TRUE}
                                        => {legs=TRUE} 0.2277228 1.0000000
##
  [7]
        {toothed=FALSE,backbone=TRUE}
                                        => {legs=TRUE} 0.2178218 1.0000000
  [8]
        {milk=TRUE, predator=FALSE}
                                        => {legs=TRUE} 0.1881188 1.0000000
        {milk=TRUE,fins=FALSE}
## [9]
                                        => {legs=TRUE} 0.3663366 1.0000000
## [10] {predator=FALSE,type=mammal}
                                        => {legs=TRUE} 0.1881188 1.0000000
  [11] {fins=FALSE,type=mammal}
                                        => {legs=TRUE} 0.3663366 1.0000000
  [12] {eggs=FALSE,predator=FALSE}
                                        => {legs=TRUE} 0.1881188 1.0000000
  [13] {hair=TRUE,catsize=FALSE}
                                        => {legs=TRUE} 0.1287129 1.0000000
## [14] {hair=TRUE,fins=FALSE}
                                        => {legs=TRUE} 0.4059406 1.0000000
## [15] {predator=FALSE,catsize=TRUE}
                                        => {legs=TRUE} 0.1584158 1.0000000
## [16] {fins=FALSE,catsize=TRUE}
                                        => {legs=TRUE} 0.3564356 1.0000000
## [17] {hair=TRUE}
                                        => {legs=TRUE} 0.4158416 0.9767442
## [18] {eggs=FALSE,fins=FALSE}
                                        => {legs=TRUE} 0.3663366 0.9736842
  [19] {aquatic=FALSE,backbone=TRUE}
                                        => {legs=TRUE} 0.5049505 0.9622642
  [20] {backbone=TRUE,fins=FALSE}
                                        => {legs=TRUE} 0.6237624 0.9545455
  [21] {predator=FALSE,fins=FALSE}
                                        => {legs=TRUE} 0.3861386 0.9512195
## [22] {fins=FALSE,tail=TRUE}
                                        => {legs=TRUE} 0.5544554 0.9491525
## [23] {venomous=FALSE,fins=FALSE}
                                        => {legs=TRUE} 0.7227723 0.9480519
## [24] {breathes=TRUE,fins=FALSE}
                                        => {legs=TRUE} 0.7128713 0.9473684
## [25] {toothed=FALSE,breathes=TRUE}
                                        => {legs=TRUE} 0.3069307 0.9393939
## [26] {aquatic=FALSE, venomous=FALSE}
                                       => {legs=TRUE} 0.5643564 0.9344262
  [27] {toothed=TRUE,fins=FALSE}
                                        => {legs=TRUE} 0.4059406 0.9318182
                                        => {legs=TRUE} 0.3762376 0.9268293
## [28] {milk=TRUE}
## [29] {type=mammal}
                                        => {legs=TRUE} 0.3762376 0.9268293
                                        => {legs=TRUE} 0.1188119 0.9230769
## [30] {domestic=TRUE}
## [31] {aquatic=FALSE}
                                        => {legs=TRUE} 0.5940594 0.9230769
        {breathes=TRUE, venomous=FALSE} => {legs=TRUE} 0.6831683 0.9200000
## [33]
       {toothed=FALSE, venomous=FALSE} => {legs=TRUE} 0.3267327 0.9166667
## [34] {eggs=FALSE}
                                        => {legs=TRUE} 0.3762376 0.9047619
                                        => {legs=TRUE} 0.3564356 0.9000000
  [35] {toothed=FALSE}
  [36] {predator=FALSE,backbone=TRUE}
                                       => {legs=TRUE} 0.3168317 0.8888889
## [37] {predator=FALSE}
                                        => {legs=TRUE} 0.3861386 0.8666667
## [38] {catsize=TRUE}
                                        => {legs=TRUE} 0.3663366 0.8409091
## [39] {venomous=FALSE,tail=FALSE}
                                        => {legs=TRUE} 0.1782178 0.8181818
## [40] {tail=FALSE}
                                        => {legs=TRUE} 0.2079208 0.8076923
```

```
## [41] {backbone=FALSE}
## [42] {tail=TRUE}
## [43] {catsize=FALSE}
## [44] {airborne=FALSE}
## [45] {toothed=TRUE}
## [46] {eggs=TRUE}
## [47] {milk=FALSE}
## [48] {aquatic=TRUE}
##
        lift
## [1]
        1.2948718
## [2]
        1.2948718
## [3]
        1.2948718
## [4]
        1.2948718
## [5]
        1.2948718
## [6]
        1.2948718
## [7]
        1.2948718
## [8]
        1.2948718
## [9]
        1.2948718
## [10] 1.2948718
## [11] 1.2948718
## [12] 1.2948718
## [13] 1.2948718
## [14] 1.2948718
## [15] 1.2948718
## [16] 1.2948718
## [17] 1.2647585
## [18] 1.2607962
## [19] 1.2460087
## [20] 1.2360140
## [21] 1.2317073
## [22] 1.2290309
## [23] 1.2276057
## [24] 1.2267206
## [25] 1.2163947
## [26] 1.2099622
## [27] 1.2065851
## [28] 1.2001251
## [29] 1.2001251
## [30] 1.1952663
## [31] 1.1952663
## [32] 1.1912821
## [33] 1.1869658
## [34] 1.1715507
## [35] 1.1653846
## [36] 1.1509972
```

## [37] 1.1222222
## [38] 1.0888695
## [39] 1.0594406
## [40] 1.0458580
## [41] 1.0071225
## [42] 0.9841026
## [43] 0.9313990
## [44] 0.9080919
## [45] 0.8915511

=> {legs=TRUE} 0.1386139 0.7777778 => {legs=TRUE} 0.5643564 0.7600000 => {legs=TRUE} 0.4059406 0.7192982 => {legs=TRUE} 0.5346535 0.7012987 => {legs=TRUE} 0.4158416 0.6885246 => {legs=TRUE} 0.3960396 0.6779661 => {legs=TRUE} 0.3960396 0.6666667 => {legs=TRUE} 0.1782178 0.5000000

```
[46] 0.8778792
   [47] 0.8632479
   [48] 0.6474359
##
       lhs
                           rhs
                                         support
                                                   confidence lift
##
   [1] {type=fish}
                        => {legs=FALSE} 0.1287129 1.0000000
                                                              4.391304
                        => {legs=FALSE} 0.1584158 0.9411765
##
   [2] {fins=TRUE}
                                                              4.132992
   [3] {breathes=FALSE} => {legs=FALSE} 0.1584158 0.7619048
                                                              3.345756
       {predator=TRUE} => {legs=FALSE} 0.1683168 0.3035714 1.333075
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
##
  [1]
        {breathes=TRUE,domestic=TRUE}
                                           {aquatic=FALSE} 0.1188119
   [2]
##
        {fins=FALSE,domestic=TRUE}
                                           {aquatic=FALSE} 0.1188119
##
   [3]
        {backbone=FALSE, breathes=TRUE}
                                        => {aquatic=FALSE} 0.1089109
                                           {aquatic=FALSE} 0.1881188
##
   [4]
        {milk=TRUE, predator=FALSE}
  [5]
##
        {predator=FALSE, type=mammal}
                                           {aquatic=FALSE} 0.1881188
##
   [6]
        {eggs=FALSE,predator=FALSE}
                                            {aquatic=FALSE} 0.1881188
##
   [7]
        {hair=TRUE, predator=FALSE}
                                           {aquatic=FALSE} 0.2277228
   [8]
        {hair=TRUE,catsize=FALSE}
                                           {aquatic=FALSE} 0.1287129
##
   [9]
        {hair=TRUE,fins=FALSE}
                                           {aquatic=FALSE} 0.3861386
   [10] {eggs=FALSE,legs=TRUE}
                                           {aquatic=FALSE} 0.3564356
##
  [11] {eggs=FALSE,fins=FALSE}
                                           {aquatic=FALSE} 0.3564356
  [12] {milk=TRUE,fins=FALSE}
                                           {aquatic=FALSE} 0.3465347
  [13] {fins=FALSE,type=mammal}
                                           {aquatic=FALSE} 0.3465347
  [14] {predator=FALSE,catsize=TRUE}
                                            {aquatic=FALSE} 0.1485149
  [15] {predator=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.3762376
  [16] {predator=FALSE,fins=FALSE}
                                           {aquatic=FALSE} 0.3762376
   [17] {domestic=TRUE}
                                           {aquatic=FALSE} 0.1188119
##
  [18] {predator=FALSE,legs=TRUE}
                                         => {aquatic=FALSE} 0.3564356
  [19] {hair=TRUE}
                                           {aquatic=FALSE} 0.3861386
  [20] {eggs=FALSE,breathes=TRUE}
                                           {aquatic=FALSE} 0.3564356
  [21] {toothed=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.3762376
  [22]
       {fins=FALSE,catsize=TRUE}
                                           {aquatic=FALSE} 0.3069307
  [23] {eggs=FALSE}
                                           {aquatic=FALSE} 0.3564356
  [24] {toothed=TRUE,legs=TRUE}
                                           {aquatic=FALSE} 0.3564356
       {milk=TRUE}
   [25]
                                           {aquatic=FALSE} 0.3465347
##
  [26] {type=mammal}
                                           {aquatic=FALSE} 0.3465347
  [27] {feathers=FALSE, predator=FALSE}
                                            {aquatic=FALSE} 0.2871287
  [28] {predator=FALSE}
                                            {aquatic=FALSE} 0.3762376
       {breathes=TRUE,fins=FALSE}
  [29]
                                            {aquatic=FALSE} 0.6336634
  [30] {legs=TRUE,catsize=TRUE}
                                            {aquatic=FALSE} 0.3069307
  [31] {feathers=FALSE,breathes=TRUE}
                                           {aquatic=FALSE} 0.4950495
  [32] {fins=FALSE,tail=TRUE}
                                           {aquatic=FALSE} 0.4851485
  [33] {legs=TRUE,tail=TRUE}
                                           {aquatic=FALSE} 0.4653465
  [34] {breathes=TRUE,legs=TRUE}
                                           {aquatic=FALSE} 0.5940594
## [35] {breathes=TRUE,catsize=FALSE}
                                         => {aquatic=FALSE} 0.3267327
  [36] {airborne=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.4455446
       {backbone=TRUE,fins=FALSE}
                                           {aquatic=FALSE} 0.5247525
  [37]
  [38] {feathers=FALSE,fins=FALSE}
                                           {aquatic=FALSE} 0.5049505
  [39] {feathers=FALSE,legs=TRUE}
                                         => {aquatic=FALSE} 0.4554455
   [40] {venomous=FALSE,fins=FALSE}
                                           {aquatic=FALSE} 0.6039604
  [41] {fins=FALSE,legs=TRUE}
##
                                         => {aquatic=FALSE} 0.5940594
## [42] {fins=FALSE}
                                           {aquatic=FALSE} 0.6435644
## [43] {toothed=FALSE,tail=TRUE}
                                         => {aquatic=FALSE} 0.1584158
## [44] {toothed=FALSE,backbone=TRUE}
                                           {aquatic=FALSE} 0.1485149
```

```
## [45] {toothed=FALSE}
## [46] {toothed=TRUE}
  [47] {tail=FALSE}
  [48] {domestic=FALSE}
       {catsize=FALSE}
   [49]
##
   [50] {eggs=TRUE}
        confidence lift
        1.0000000 1.5538462
## [1]
##
   [2]
        1.0000000
                   1.5538462
##
  [3]
        1.0000000
                   1.5538462
  [4]
        1.0000000
                   1.5538462
##
   [5]
        1.0000000
                   1.5538462
##
   [6]
        1.0000000
                   1.5538462
##
  [7]
        1.0000000
                    1.5538462
## [8]
        1.0000000
                   1.5538462
## [9]
        0.9512195
                    1.4780488
   [10] 0.9473684
                    1.4720648
   [11] 0.9473684
                    1.4720648
  [12] 0.9459459
                    1.4698545
## [13] 0.9459459
                    1.4698545
## [14] 0.9375000
                    1.4567308
  [15] 0.9268293
                    1.4401501
## [16] 0.9268293
                    1.4401501
   [17] 0.9230769
                    1.4343195
  [18] 0.9230769
                    1.4343195
  [19] 0.9069767
                    1.4093023
## [20] 0.8780488
                    1.3643527
## [21] 0.8636364
                    1.3419580
## [22] 0.8611111
                    1.3380342
## [23] 0.8571429
                    1.3318681
## [24] 0.8571429
                    1.3318681
   [25] 0.8536585
                    1.3264540
   [26] 0.8536585
                    1.3264540
  [27] 0.8529412
                    1.3253394
   [28] 0.844444
                    1.3121368
  [29] 0.8421053
                    1.3085020
  [30] 0.8378378
                    1.3018711
## [31] 0.8333333
                   1.2948718
   [32] 0.8305085
                    1.2904824
                    1.2812416
  [33] 0.8245614
   [34] 0.8219178
                    1.2771338
  [35] 0.8048780
                   1.2506567
   [36] 0.8035714
                   1.2486264
  [37] 0.8030303
                   1.2477855
## [38] 0.7968750
                   1.2382212
## [39] 0.7931034
                    1.2323607
   [40] 0.7922078
                    1.2309690
  [41] 0.7792208
                    1.2107892
                   1.2023810
  [42] 0.7738095
  [43] 0.6956522
                    1.0809365
## [44] 0.6818182
                   1.0594406
## [45] 0.6750000
                    1.0488462
## [46] 0.6229508
                   0.9679697
```

**##** [47] 0.6153846 0.9562130

=> {aquatic=FALSE} 0.2673267 => {aquatic=FALSE} 0.3762376 => {aquatic=FALSE} 0.1584158 => {aquatic=FALSE} 0.5247525 => {aquatic=FALSE} 0.3366337 => {aquatic=FALSE} 0.2871287

```
## [48] 0.6022727 0.9358392
  [49] 0.5964912 0.9268556
  [50] 0.4915254 0.7637549
##
       lhs
                                          support
                                                    confidence lift
## [1] {type=fish}
                        => {aquatic=TRUE} 0.1287129 1.0000000 2.8055556
## [2] {fins=TRUE}
                        => {aquatic=TRUE} 0.1683168 1.0000000 2.8055556
## [3] {breathes=FALSE} => {aquatic=TRUE} 0.1980198 0.9523810
                        => {aquatic=TRUE} 0.1782178 0.7826087
## [4] {legs=FALSE}
                                                               2.1956522
  [5] {backbone=TRUE}
                        => {aquatic=TRUE} 0.2970297 0.3614458
                                                               1.0140562
  [6] {tail=TRUE}
                        => {aquatic=TRUE} 0.2574257 0.3466667
                                                               0.9725926
  [7] {venomous=FALSE} => {aquatic=TRUE} 0.3168317 0.3440860
                                                               0.9653524
                        => {aquatic=TRUE} 0.1287129 0.3250000
  [8] {toothed=FALSE}
                                                               0.9118056
   [9] {breathes=TRUE} => {aquatic=TRUE} 0.1584158 0.2000000 0.5611111
##
                                        rhs
                                                         support
## [1] {backbone=TRUE,fins=FALSE}
                                     => {aquatic=FALSE} 0.5247525 0.8030303
   [2] {toothed=FALSE,backbone=TRUE} => {aquatic=FALSE} 0.1485149 0.6818182
##
       lift
## [1] 1.247786
  [2] 1.059441
##
##
                                                    support
                                                               confidence
## [1] {fins=FALSE,tail=TRUE}
                                 => {aquatic=FALSE} 0.4851485 0.8305085
## [2] {legs=TRUE,tail=TRUE}
                                 => {aquatic=FALSE} 0.4653465 0.8245614
## [3] {toothed=FALSE,tail=TRUE} => {aquatic=FALSE} 0.1584158 0.6956522
       lift
##
## [1] 1.290482
  [2] 1.281242
  [3] 1.080936
##
##
                                      rhs
                                                       support
                                                                 confidence
##
   [1] {venomous=FALSE,fins=FALSE} => {aquatic=FALSE} 0.6039604 0.7922078
##
       lift
##
  [1] 1.230969
##
       lhs
                                                         support
                                                                   confidence
                                        rhs
  [1] {toothed=FALSE,tail=TRUE}
                                     => {aquatic=FALSE} 0.1584158 0.6956522
   [2] {toothed=FALSE,backbone=TRUE} => {aquatic=FALSE} 0.1485149 0.6818182
##
       lift
## [1] 1.080936
##
  [2] 1.059441
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
## [1] {breathes=TRUE,domestic=TRUE} => {aquatic=FALSE} 0.1188119 1.0000000
  [2] {backbone=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.1089109 1.0000000
  [3] {predator=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.3762376 0.9268293
  [4] {eggs=FALSE,breathes=TRUE}
                                      => {aquatic=FALSE} 0.3564356 0.8780488
## [5] {breathes=TRUE,fins=FALSE}
                                      => {aquatic=FALSE} 0.6336634 0.8421053
## [6] {feathers=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.4950495 0.8333333
## [7] {breathes=TRUE,legs=TRUE}
                                      => {aquatic=FALSE} 0.5940594 0.8219178
## [8] {breathes=TRUE,catsize=FALSE} => {aquatic=FALSE} 0.3267327 0.8048780
  [9] {airborne=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.4455446 0.8035714
##
##
       lift
## [1] 1.553846
## [2] 1.553846
## [3] 1.440150
## [4] 1.364353
## [5] 1.308502
## [6] 1.294872
```

```
[7] 1.277134
   [8] 1.250657
   [9] 1.248626
##
       "Número de reglas con consecuente negado"
##
                                                            support
##
  [1]
        {breathes=TRUE,domestic=TRUE}
                                         => {aquatic=FALSE} 0.1188119
   [2]
        {fins=FALSE,domestic=TRUE}
                                         => {aquatic=FALSE} 0.1188119
##
   [3]
        {backbone=FALSE, breathes=TRUE}
                                            {aquatic=FALSE} 0.1089109
##
   [4]
        {milk=TRUE,predator=FALSE}
                                           {aquatic=FALSE} 0.1881188
##
   [5]
        {predator=FALSE,type=mammal}
                                           {aquatic=FALSE} 0.1881188
   [6]
        {eggs=FALSE,predator=FALSE}
                                           {aquatic=FALSE} 0.1881188
   [7]
##
        {hair=TRUE, predator=FALSE}
                                           {aquatic=FALSE} 0.2277228
##
   [8]
        {hair=TRUE,catsize=FALSE}
                                         => {aquatic=FALSE} 0.1287129
                                           {aquatic=FALSE} 0.3861386
##
  [9]
        {hair=TRUE,fins=FALSE}
  [10] {eggs=FALSE,legs=TRUE}
                                           {aquatic=FALSE} 0.3564356
   [11] {eggs=FALSE,fins=FALSE}
                                            {aquatic=FALSE} 0.3564356
  [12] {milk=TRUE,fins=FALSE}
                                           {aquatic=FALSE} 0.3465347
  [13] {fins=FALSE,type=mammal}
                                           {aquatic=FALSE} 0.3465347
  [14] {predator=FALSE,catsize=TRUE}
                                           {aquatic=FALSE} 0.1485149
  [15] {predator=FALSE,breathes=TRUE}
                                           {aquatic=FALSE} 0.3762376
##
  [16] {predator=FALSE,fins=FALSE}
                                           {aquatic=FALSE} 0.3762376
  [17] {domestic=TRUE}
                                           {aquatic=FALSE} 0.1188119
  [18] {predator=FALSE,legs=TRUE}
                                            {aquatic=FALSE} 0.3564356
##
  [19] {hair=TRUE}
                                            {aquatic=FALSE} 0.3861386
  [20] {eggs=FALSE,breathes=TRUE}
                                           {aquatic=FALSE} 0.3564356
  [21] {toothed=TRUE,fins=FALSE}
                                           {aquatic=FALSE} 0.3762376
  [22] {fins=FALSE,catsize=TRUE}
                                           {aquatic=FALSE} 0.3069307
##
  [23] {eggs=FALSE}
                                         => {aquatic=FALSE} 0.3564356
  [24] {toothed=TRUE,legs=TRUE}
                                           {aquatic=FALSE} 0.3564356
## [25] {milk=TRUE}
                                           {aquatic=FALSE} 0.3465347
  [26] {type=mammal}
                                            {aquatic=FALSE} 0.3465347
   [27] {feathers=FALSE,predator=FALSE} =>
                                            {aquatic=FALSE} 0.2871287
  [28] {predator=FALSE}
                                           {aquatic=FALSE} 0.3762376
  [29] {breathes=TRUE,fins=FALSE}
                                           {aquatic=FALSE} 0.6336634
   [30] {legs=TRUE,catsize=TRUE}
                                           {aquatic=FALSE} 0.3069307
##
  [31] {feathers=FALSE,breathes=TRUE}
                                         => {aquatic=FALSE} 0.4950495
  [32] {fins=FALSE,tail=TRUE}
                                           {aquatic=FALSE} 0.4851485
  [33] {legs=TRUE,tail=TRUE}
                                           {aquatic=FALSE} 0.4653465
  [34] {breathes=TRUE,legs=TRUE}
##
                                            {aquatic=FALSE} 0.5940594
  [35] {breathes=TRUE,catsize=FALSE}
                                            {aquatic=FALSE} 0.3267327
  [36] {airborne=FALSE,breathes=TRUE}
                                           {aquatic=FALSE} 0.4455446
  [37] {backbone=TRUE,fins=FALSE}
                                           {aquatic=FALSE} 0.5247525
  [38] {feathers=FALSE,fins=FALSE}
                                           {aquatic=FALSE} 0.5049505
  [39] {feathers=FALSE,legs=TRUE}
                                           {aquatic=FALSE} 0.4554455
## [40] {venomous=FALSE,fins=FALSE}
                                           {aquatic=FALSE} 0.6039604
## [41] {fins=FALSE,legs=TRUE}
                                            {aquatic=FALSE} 0.5940594
                                           {aquatic=FALSE} 0.6435644
##
  [42] {fins=FALSE}
  [43] {toothed=FALSE,tail=TRUE}
                                           {aquatic=FALSE} 0.1584158
  [44] {toothed=FALSE,backbone=TRUE}
                                         => {aquatic=FALSE} 0.1485149
  [45] {toothed=FALSE}
                                           {aquatic=FALSE} 0.2673267
## [46] {toothed=TRUE}
                                           {aquatic=FALSE} 0.3762376
## [47] {tail=FALSE}
                                           {aquatic=FALSE} 0.1584158
## [48] {domestic=FALSE}
                                         => {aquatic=FALSE} 0.5247525
## [49] {catsize=FALSE}
                                           {aquatic=FALSE} 0.3366337
```

```
## [50] {eggs=TRUE}
                                         => {aquatic=FALSE} 0.2871287
##
        confidence lift
##
  [1]
        1.0000000
                   1.5538462
## [2]
        1.0000000
                   1.5538462
## [3]
        1.0000000
                   1.5538462
## [4]
        1.0000000
                   1.5538462
## [5]
        1.0000000
                   1.5538462
## [6]
        1.0000000
                   1.5538462
## [7]
        1.0000000
                   1.5538462
## [8]
        1.0000000
                   1.5538462
## [9]
        0.9512195
                   1.4780488
## [10] 0.9473684
                   1.4720648
## [11] 0.9473684
                   1.4720648
## [12] 0.9459459
                   1.4698545
## [13] 0.9459459
                   1.4698545
## [14] 0.9375000
                   1.4567308
## [15] 0.9268293
                   1.4401501
## [16] 0.9268293
                   1.4401501
## [17] 0.9230769
                   1.4343195
## [18] 0.9230769
                   1.4343195
## [19] 0.9069767
                   1.4093023
## [20] 0.8780488
                   1.3643527
## [21] 0.8636364
                   1.3419580
## [22] 0.8611111
                   1.3380342
## [23] 0.8571429
                   1.3318681
## [24] 0.8571429
                   1.3318681
## [25] 0.8536585
                   1.3264540
## [26] 0.8536585
                   1.3264540
## [27] 0.8529412
                   1.3253394
## [28] 0.844444
                   1.3121368
## [29] 0.8421053
                   1.3085020
## [30] 0.8378378
                   1.3018711
## [31] 0.8333333
                   1.2948718
## [32] 0.8305085
                   1.2904824
## [33] 0.8245614
                   1.2812416
## [34] 0.8219178
                   1.2771338
## [35] 0.8048780
                   1.2506567
## [36] 0.8035714
                   1.2486264
## [37] 0.8030303
                   1.2477855
## [38] 0.7968750
                   1.2382212
## [39] 0.7931034
                   1.2323607
## [40] 0.7922078
                   1.2309690
## [41] 0.7792208
                   1.2107892
## [42] 0.7738095
                   1.2023810
## [43] 0.6956522
                   1.0809365
## [44] 0.6818182
                   1.0594406
## [45] 0.6750000
                   1.0488462
## [46] 0.6229508
                   0.9679697
## [47] 0.6153846
                   0.9562130
## [48] 0.6022727
                   0.9358392
## [49] 0.5964912
                   0.9268556
## [50] 0.4915254
                   0.7637549
##
       lhs
                                            support
                                                      confidence lift
                            rhs
                         => {aquatic=TRUE} 0.1287129 1.0000000 2.8055556
## [1] {type=fish}
```

```
## [2] {fins=TRUE}
                        => {aquatic=TRUE} 0.1683168 1.0000000 2.8055556
## [3] {breathes=FALSE} => {aquatic=TRUE} 0.1980198 0.9523810
                                                                2.6719577
## [4] {legs=FALSE}
                        => {aquatic=TRUE} 0.1782178 0.7826087
                        => {aquatic=TRUE} 0.2970297 0.3614458
## [5] {backbone=TRUE}
                                                                1.0140562
## [6] {tail=TRUE}
                        => {aquatic=TRUE} 0.2574257 0.3466667
                                                                0.9725926
## [7] {venomous=FALSE} => {aquatic=TRUE} 0.3168317 0.3440860 0.9653524
## [8] {toothed=FALSE} => {aquatic=TRUE} 0.1287129 0.3250000 0.9118056
## [9] {breathes=TRUE} => {aquatic=TRUE} 0.1584158 0.2000000 0.5611111
##
       lhs
                                        rhs
                                                         support
                                                                   confidence
## [1] {backbone=TRUE,fins=FALSE}
                                     => {aquatic=FALSE} 0.5247525 0.8030303
  [2] {toothed=FALSE,backbone=TRUE} => {aquatic=FALSE} 0.1485149 0.6818182
##
       lift
## [1] 1.247786
  [2] 1.059441
##
##
       lhs
                                    rhs
                                                     support
                                                               confidence
   [1] {fins=FALSE,tail=TRUE}
                                 => {aquatic=FALSE} 0.4851485 0.8305085
   [2] {legs=TRUE,tail=TRUE}
                                 => {aquatic=FALSE} 0.4653465 0.8245614
   [3] {toothed=FALSE,tail=TRUE} => {aquatic=FALSE} 0.1584158 0.6956522
##
       lift
## [1] 1.290482
## [2] 1.281242
  [3] 1.080936
##
                                      rhs
                                                       support
                                                                 confidence
  [1] {venomous=FALSE,fins=FALSE} => {aquatic=FALSE} 0.6039604 0.7922078
##
##
       lift
##
  [1] 1.230969
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
  [1] {toothed=FALSE,tail=TRUE}
                                     => {aquatic=FALSE} 0.1584158 0.6956522
   [2] {toothed=FALSE,backbone=TRUE} => {aquatic=FALSE} 0.1485149 0.6818182
##
       lift
## [1] 1.080936
##
   [2] 1.059441
##
       lhs
                                                          support
                                                                    confidence
## [1] {breathes=TRUE,domestic=TRUE}
                                      => {aquatic=FALSE} 0.1188119 1.0000000
## [2] {backbone=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.1089109 1.0000000
## [3] {predator=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.3762376 0.9268293
## [4] {eggs=FALSE,breathes=TRUE}
                                      => {aquatic=FALSE} 0.3564356 0.8780488
## [5] {breathes=TRUE,fins=FALSE}
                                      => {aquatic=FALSE} 0.6336634 0.8421053
## [6] {feathers=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.4950495 0.8333333
## [7] {breathes=TRUE,legs=TRUE}
                                      => {aquatic=FALSE} 0.5940594 0.8219178
## [8] {breathes=TRUE,catsize=FALSE} => {aquatic=FALSE} 0.3267327 0.8048780
  [9] {airborne=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.4455446 0.8035714
##
       lift
## [1] 1.553846
## [2] 1.553846
## [3] 1.440150
## [4] 1.364353
## [5] 1.308502
## [6] 1.294872
## [7] 1.277134
## [8] 1.250657
## [9] 1.248626
## [1] "Número de reglas con consecuente negado"
##
        lhs
                                                            support
```

```
{breathes=TRUE,domestic=TRUE}
                                         => {aguatic=FALSE} 0.1188119
##
   [2]
        {fins=FALSE,domestic=TRUE}
                                           {aquatic=FALSE} 0.1188119
                                           {aquatic=FALSE} 0.1089109
##
   [3]
        {backbone=FALSE, breathes=TRUE}
   [4]
        {milk=TRUE,predator=FALSE}
##
                                           {aquatic=FALSE} 0.1881188
##
   [5]
        {predator=FALSE, type=mammal}
                                            {aquatic=FALSE} 0.1881188
##
   [6]
        {eggs=FALSE,predator=FALSE}
                                            {aquatic=FALSE} 0.1881188
##
  [7]
        {hair=TRUE, predator=FALSE}
                                            {aquatic=FALSE} 0.2277228
                                            {aquatic=FALSE} 0.1287129
##
  [8]
        {hair=TRUE,catsize=FALSE}
##
   [9]
        {hair=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.3861386
   [10] {eggs=FALSE,legs=TRUE}
                                           {aquatic=FALSE} 0.3564356
  [11] {eggs=FALSE,fins=FALSE}
                                         => {aquatic=FALSE} 0.3564356
   [12] {milk=TRUE,fins=FALSE}
                                           {aquatic=FALSE} 0.3465347
  [13] {fins=FALSE,type=mammal}
                                           {aquatic=FALSE} 0.3465347
##
  [14] {predator=FALSE, catsize=TRUE}
                                           {aquatic=FALSE} 0.1485149
  [15] {predator=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.3762376
   [16] {predator=FALSE,fins=FALSE}
                                            {aquatic=FALSE} 0.3762376
  [17] {domestic=TRUE}
                                            {aquatic=FALSE} 0.1188119
  [18] {predator=FALSE,legs=TRUE}
                                           {aquatic=FALSE} 0.3564356
  [19] {hair=TRUE}
                                           {aquatic=FALSE} 0.3861386
   [20] {eggs=FALSE,breathes=TRUE}
                                           {aquatic=FALSE} 0.3564356
##
  [21] {toothed=TRUE,fins=FALSE}
                                           {aquatic=FALSE} 0.3762376
  [22] {fins=FALSE,catsize=TRUE}
                                           {aquatic=FALSE} 0.3069307
  [23] {eggs=FALSE}
                                           {aquatic=FALSE} 0.3564356
##
  [24] {toothed=TRUE,legs=TRUE}
                                            {aquatic=FALSE} 0.3564356
  [25] {milk=TRUE}
                                           {aquatic=FALSE} 0.3465347
  [26] {type=mammal}
                                           {aquatic=FALSE} 0.3465347
   [27] {feathers=FALSE,predator=FALSE}
                                           {aquatic=FALSE} 0.2871287
##
  [28] {predator=FALSE}
                                           {aquatic=FALSE} 0.3762376
  [29] {breathes=TRUE,fins=FALSE}
                                           {aquatic=FALSE} 0.6336634
                                           {aquatic=FALSE} 0.3069307
  [30] {legs=TRUE,catsize=TRUE}
   [31] {feathers=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.4950495
##
   [32]
       {fins=FALSE,tail=TRUE}
                                           {aquatic=FALSE} 0.4851485
  [33] {legs=TRUE,tail=TRUE}
                                           {aquatic=FALSE} 0.4653465
  [34] {breathes=TRUE,legs=TRUE}
                                         => {aquatic=FALSE} 0.5940594
   [35] {breathes=TRUE,catsize=FALSE}
                                           {aquatic=FALSE} 0.3267327
##
  [36] {airborne=FALSE,breathes=TRUE}
                                           {aquatic=FALSE} 0.4455446
  [37] {backbone=TRUE,fins=FALSE}
                                           {aquatic=FALSE} 0.5247525
  [38] {feathers=FALSE,fins=FALSE}
                                           {aquatic=FALSE} 0.5049505
   [39] {feathers=FALSE,legs=TRUE}
                                            {aquatic=FALSE} 0.4554455
##
  [40] {venomous=FALSE,fins=FALSE}
                                           {aquatic=FALSE} 0.6039604
  [41] {fins=FALSE,legs=TRUE}
                                           {aquatic=FALSE} 0.5940594
  [42] {fins=FALSE}
                                           {aquatic=FALSE} 0.6435644
  [43] {toothed=FALSE,tail=TRUE}
                                           {aquatic=FALSE} 0.1584158
  [44] {toothed=FALSE,backbone=TRUE}
                                           {aquatic=FALSE} 0.1485149
## [45] {toothed=FALSE}
                                           {aquatic=FALSE} 0.2673267
## [46] {toothed=TRUE}
                                           {aquatic=FALSE} 0.3762376
  [47] {tail=FALSE}
                                           {aquatic=FALSE} 0.1584158
  [48] {domestic=FALSE}
                                           {aquatic=FALSE} 0.5247525
   [49]
       {catsize=FALSE}
                                         => {aquatic=FALSE} 0.3366337
##
   [50]
       {eggs=TRUE}
                                         => {aquatic=FALSE} 0.2871287
##
        confidence lift
## [1]
        1.0000000 1.5538462
##
  [2]
        1.0000000 1.5538462
## [3]
        1.0000000 1.5538462
```

```
## [4]
        1.0000000
                    1.5538462
##
   [5]
        1.0000000
                    1.5538462
        1.0000000
   [6]
                    1.5538462
   [7]
        1.0000000
##
                    1.5538462
##
   [8]
        1.0000000
                    1.5538462
##
   [9]
        0.9512195
                    1.4780488
   [10] 0.9473684
                    1.4720648
   [11] 0.9473684
                    1.4720648
   [12] 0.9459459
                    1.4698545
   [13] 0.9459459
                    1.4698545
   [14] 0.9375000
                    1.4567308
   [15] 0.9268293
                    1.4401501
   [16] 0.9268293
                    1.4401501
   [17] 0.9230769
                    1.4343195
   [18] 0.9230769
                    1.4343195
   [19] 0.9069767
                    1.4093023
   [20] 0.8780488
                    1.3643527
   [21] 0.8636364
                    1.3419580
   [22] 0.8611111
                    1.3380342
   [23] 0.8571429
                    1.3318681
##
   [24] 0.8571429
                    1.3318681
   [25] 0.8536585
                    1.3264540
   [26] 0.8536585
                    1.3264540
   [27] 0.8529412
                    1.3253394
   [28] 0.8444444
                    1.3121368
   [29] 0.8421053
                    1.3085020
   [30] 0.8378378
                    1.3018711
   [31] 0.8333333
                    1.2948718
   [32] 0.8305085
                    1.2904824
   [33] 0.8245614
                    1.2812416
   [34] 0.8219178
                    1.2771338
##
   [35] 0.8048780
                    1.2506567
   [36] 0.8035714
                    1.2486264
   [37] 0.8030303
                    1.2477855
   [38]
        0.7968750
                    1.2382212
##
   [39] 0.7931034
                    1.2323607
   [40] 0.7922078
                    1.2309690
   [41] 0.7792208
                    1.2107892
   [42] 0.7738095
                    1.2023810
   [43] 0.6956522
                    1.0809365
   [44] 0.6818182
                    1.0594406
   [45] 0.6750000
                    1.0488462
   [46] 0.6229508
                    0.9679697
   [47] 0.6153846
                    0.9562130
   [48] 0.6022727
                    0.9358392
   [49] 0.5964912
                    0.9268556
##
   [50] 0.4915254
                   0.7637549
##
       lhs
                                            support
                                                       confidence lift
   [1] {type=fish}
                         => {aquatic=TRUE} 0.1287129 1.0000000
                                                                  2.8055556
   [2] {fins=TRUE}
                         => {aquatic=TRUE} 0.1683168 1.0000000
                                                                  2.8055556
   [3] {breathes=FALSE} => {aquatic=TRUE} 0.1980198 0.9523810
##
                                                                  2.6719577
   [4] {legs=FALSE}
                         => {aquatic=TRUE} 0.1782178 0.7826087
## [5] {backbone=TRUE}
                         => {aquatic=TRUE} 0.2970297 0.3614458
                                                                  1.0140562
## [6] {tail=TRUE}
                         => {aquatic=TRUE} 0.2574257 0.3466667
```

```
## [7] {venomous=FALSE} => {aquatic=TRUE} 0.3168317 0.3440860 0.9653524
  [8] {toothed=FALSE} => {aquatic=TRUE} 0.1287129 0.3250000 0.9118056
  [9] {breathes=TRUE} => {aquatic=TRUE} 0.1584158 0.2000000 0.5611111
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
##
  [1] {backbone=TRUE,fins=FALSE}
                                      => {aquatic=FALSE} 0.5247525 0.8030303
   [2] {toothed=FALSE,backbone=TRUE} => {aquatic=FALSE} 0.1485149 0.6818182
       lift.
## [1] 1.247786
##
  [2] 1.059441
##
       lhs
                                     rhs
                                                     support
                                                               confidence
  [1] {fins=FALSE,tail=TRUE}
                                  => {aquatic=FALSE} 0.4851485 0.8305085
   [2] {legs=TRUE,tail=TRUE}
                                  => {aquatic=FALSE} 0.4653465 0.8245614
   [3] {toothed=FALSE,tail=TRUE} => {aquatic=FALSE} 0.1584158 0.6956522
##
       lift
## [1] 1.290482
## [2] 1.281242
  [3] 1.080936
##
##
                                       rhs
                                                       support
                                                                 confidence
  [1] {venomous=FALSE,fins=FALSE} => {aquatic=FALSE} 0.6039604 0.7922078
##
##
  [1] 1.230969
       lhs
##
                                                         support
                                                                   confidence
  [1] {toothed=FALSE,tail=TRUE}
                                      => {aquatic=FALSE} 0.1584158 0.6956522
   [2] {toothed=FALSE,backbone=TRUE} => {aquatic=FALSE} 0.1485149 0.6818182
##
##
       lift
## [1] 1.080936
## [2] 1.059441
       lhs
                                                          support
                                                                    confidence
                                          rhs
## [1] {breathes=TRUE,domestic=TRUE}
                                      => {aquatic=FALSE} 0.1188119 1.0000000
## [2] {backbone=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.1089109 1.0000000
## [3] {predator=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.3762376 0.9268293
## [4] {eggs=FALSE,breathes=TRUE}
                                       => {aquatic=FALSE} 0.3564356 0.8780488
## [5] {breathes=TRUE,fins=FALSE}
                                       => {aquatic=FALSE} 0.6336634 0.8421053
## [6] {feathers=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.4950495 0.8333333
## [7] {breathes=TRUE,legs=TRUE}
                                       => {aquatic=FALSE} 0.5940594 0.8219178
## [8] {breathes=TRUE,catsize=FALSE} => {aquatic=FALSE} 0.3267327 0.8048780
  [9] {airborne=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.4455446 0.8035714
##
       lift
## [1] 1.553846
## [2] 1.553846
## [3] 1.440150
## [4] 1.364353
## [5] 1.308502
## [6] 1.294872
## [7] 1.277134
## [8] 1.250657
## [9] 1.248626
  [1] "Número de reglas con consecuente negado"
##
        lhs
                                                            support
## [1]
        {type=fish}
                                            {backbone=TRUE} 0.1287129
## [2]
        {fins=TRUE}
                                         => {backbone=TRUE} 0.1683168
## [3]
        {type=bird}
                                         => {backbone=TRUE} 0.1980198
## [4]
        {feathers=TRUE}
                                         => {backbone=TRUE} 0.1980198
## [5]
       {milk=TRUE}
                                         => {backbone=TRUE} 0.4059406
```

```
[6]
        {type=mammal}
                                             {backbone=TRUE} 0.4059406
                                             {backbone=TRUE} 0.6039604
##
   [7]
        {toothed=TRUE}
        {venomous=FALSE,domestic=TRUE}
##
   [8]
                                             {backbone=TRUE} 0.1188119
   [9]
        {aquatic=TRUE,tail=TRUE}
                                             {backbone=TRUE} 0.2574257
##
##
   [10]
       {aquatic=TRUE, breathes=TRUE}
                                             {backbone=TRUE} 0.1584158
       {hair=TRUE, predator=TRUE}
                                             {backbone=TRUE} 0.1980198
##
       {hair=TRUE,tail=TRUE}
   Γ12]
                                             {backbone=TRUE} 0.3267327
   [13] {predator=FALSE, catsize=TRUE}
                                             {backbone=TRUE} 0.1584158
       {tail=TRUE,catsize=TRUE}
                                             {backbone=TRUE} 0.3762376
   [15] {venomous=FALSE,tail=TRUE}
                                             {backbone=TRUE} 0.7029703
   [16] {tail=TRUE}
                                             {backbone=TRUE} 0.7326733
   [17] {catsize=TRUE}
                                             {backbone=TRUE} 0.4257426
   Г187
       {predator=TRUE,breathes=TRUE}
                                             {backbone=TRUE} 0.3663366
                                             {backbone=TRUE} 0.1188119
   [19]
       {domestic=TRUE}
   [20] {hair=TRUE,domestic=FALSE}
                                             {backbone=TRUE} 0.3069307
   [21]
        {airborne=FALSE, breathes=TRUE}
                                             {backbone=TRUE} 0.5049505
       {breathes=TRUE, venomous=FALSE}
   [22]
                                             {backbone=TRUE} 0.6633663
       {aquatic=FALSE, predator=TRUE}
                                             {backbone=TRUE} 0.2376238
   [24] {airborne=FALSE,aquatic=FALSE}
                                             {backbone=TRUE} 0.3960396
   [25] {breathes=TRUE}
                                             {backbone=TRUE} 0.6831683
##
   [26] {predator=TRUE, venomous=FALSE}
                                             {backbone=TRUE} 0.4257426
   [27] {airborne=FALSE, venomous=FALSE} =>
                                             {backbone=TRUE} 0.6039604
   [28] {airborne=FALSE,predator=FALSE}
                                             {backbone=TRUE} 0.2376238
       {airborne=FALSE,legs=TRUE}
                                             {backbone=TRUE} 0.4554455
##
   [29]
##
   [30] {legs=FALSE}
                                             {backbone=TRUE} 0.1881188
   [31] {legs=TRUE}
                                             {backbone=TRUE} 0.6336634
   [32] {aquatic=FALSE}
                                             {backbone=TRUE} 0.5247525
##
##
   [33] {predator=FALSE}
                                             {backbone=TRUE} 0.3564356
                                            {backbone=TRUE} 0.6237624
   [34] {feathers=FALSE}
   [35] {airborne=TRUE}
                                            {backbone=TRUE} 0.1782178
##
   [36]
        {eggs=TRUE}
                                             {backbone=TRUE} 0.4158416
##
   [37]
        {catsize=FALSE}
                                             {backbone=TRUE} 0.3960396
   [38]
        {breathes=FALSE}
                                            {backbone=TRUE} 0.1386139
   [39]
                                          => {backbone=TRUE} 0.2178218
##
       {toothed=FALSE}
##
        confidence lift
##
   [1]
        1.0000000
                   1.2168675
##
   [2]
        1.0000000
                   1.2168675
##
   [3]
                   1.2168675
        1.0000000
   [4]
##
        1.0000000
                    1.2168675
##
   [5]
        1.0000000
                    1.2168675
   [6]
        1.0000000
                   1.2168675
   [7]
##
        1.0000000
                    1.2168675
##
   [8]
        1.0000000
                    1.2168675
##
   [9]
        1.0000000
                    1.2168675
   [10] 1.0000000
                   1.2168675
   [11] 1.0000000
                    1.2168675
##
   [12]
       1.0000000
                    1.2168675
   [13] 1.0000000
                    1.2168675
   [14] 1.0000000
                    1.2168675
   [15]
       1.0000000
                    1.2168675
   [16] 0.9866667
##
                    1.2006426
  [17] 0.9772727
                    1.1892114
## [18] 0.9487179
                    1.1544640
                   1.1232623
## [19] 0.9230769
```

```
## [20] 0.9117647
                   1.1094968
  [21] 0.9107143
                   1.1082186
  [22] 0.8933333
                   1.0870683
  [23] 0.8888889
                   1.0816600
  [24] 0.8695652
                   1.0581456
  [25] 0.8625000
                   1.0495482
  [26] 0.8600000
                   1.0465060
  [27] 0.8591549
                   1.0454777
  [28] 0.8571429
                   1.0430293
  [29] 0.8518519
                   1.0365908
  [30] 0.8260870
                   1.0052383
  [31] 0.8205128
                   0.9984554
   [32] 0.8153846
                   0.9922150
  [33] 0.8000000
                   0.9734940
  [34] 0.7777778
                   0.9464525
   [35] 0.7500000
                   0.9126506
   [36] 0.7118644
                   0.8662446
   [37] 0.7017544
                   0.8539421
   [38] 0.6666667
                   0.8112450
   [39] 0.5500000
                   0.6692771
##
       lhs
                          rhs
                                            support
                                                      confidence lift
  [1] {toothed=FALSE} => {backbone=FALSE} 0.1782178 0.4500000
   [2] {eggs=TRUE}
                       => {backbone=FALSE} 0.1683168 0.2881356 1.616761
##
   [3] {aquatic=FALSE} => {backbone=FALSE} 0.1188119 0.1846154 1.035897
##
       lhs
                                          rhs
                                                           support
                                                                     confidence
   [1] {aquatic=FALSE,predator=TRUE} => {backbone=TRUE} 0.2376238 0.8888889
   [2] {airborne=FALSE,aquatic=FALSE} => {backbone=TRUE} 0.3960396 0.8695652
##
       lift
## [1] 1.081660
   [2] 1.058146
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                            support
##
  [1]
        {type=fish}
                                            {toothed=TRUE} 0.1287129
  [2]
##
        {fins=TRUE}
                                           {toothed=TRUE} 0.1683168
##
   [3]
        {breathes=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.1386139
        {backbone=TRUE,breathes=FALSE}
##
  [4]
                                           {toothed=TRUE} 0.1386139
##
  [5]
        {legs=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.1782178
##
  [6]
        {backbone=TRUE,legs=FALSE}
                                            {toothed=TRUE} 0.1881188
        {eggs=FALSE,backbone=TRUE}
  [7]
                                            {toothed=TRUE} 0.4059406
##
##
  [8]
        {eggs=FALSE}
                                            {toothed=TRUE} 0.4059406
  [9]
        {hair=TRUE,backbone=TRUE}
                                            {toothed=TRUE} 0.3762376
  [10] {hair=TRUE,airborne=FALSE}
                                            {toothed=TRUE} 0.3564356
  [11] {hair=TRUE,tail=TRUE}
                                            {toothed=TRUE} 0.3168317
## [12] {feathers=FALSE,backbone=TRUE}
                                         => {toothed=TRUE} 0.6039604
## [13] {hair=TRUE,predator=TRUE}
                                         => {toothed=TRUE} 0.1881188
## [14] {feathers=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.5148515
  [15] {feathers=FALSE,catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
  [16] {airborne=FALSE,backbone=TRUE}
                                           {toothed=TRUE} 0.5841584
## [17] {airborne=FALSE,tail=TRUE}
                                           {toothed=TRUE} 0.4950495
## [18] {airborne=FALSE,catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
                                            {toothed=TRUE} 0.1584158
## [19]
       {venomous=FALSE,legs=FALSE}
## [20] {legs=FALSE}
                                         => {toothed=TRUE} 0.1881188
## [21] {backbone=TRUE,catsize=TRUE}
                                         => {toothed=TRUE} 0.3465347
## [22] {feathers=FALSE,airborne=FALSE} => {toothed=TRUE} 0.5841584
```

```
## [23] {airborne=FALSE,breathes=TRUE}
                                         => {toothed=TRUE} 0.4455446
   [24] {catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
   [25] {feathers=FALSE,predator=TRUE}
                                            {toothed=TRUE} 0.3663366
   [26] {predator=TRUE,backbone=TRUE}
                                            {toothed=TRUE} 0.3663366
                                          =>
##
   [27] {airborne=FALSE,predator=FALSE} =>
                                            {toothed=TRUE} 0.2178218
   [28] {feathers=FALSE, breathes=TRUE}
                                         =>
                                            {toothed=TRUE} 0.4653465
##
   [29] {airborne=FALSE,aquatic=FALSE}
                                            {toothed=TRUE} 0.3564356
   [30] {feathers=FALSE, venomous=FALSE} =>
                                             {toothed=TRUE} 0.5643564
   [31] {airborne=FALSE, venomous=FALSE} =>
                                             {toothed=TRUE} 0.5445545
   [32] {feathers=FALSE,aquatic=TRUE}
                                            {toothed=TRUE} 0.2277228
   [33] {aquatic=TRUE,backbone=TRUE}
                                            {toothed=TRUE} 0.2277228
   [34] {feathers=FALSE}
                                            {toothed=TRUE} 0.6039604
##
   [35] {predator=TRUE,tail=TRUE}
                                            {toothed=TRUE} 0.3069307
   [36] {aquatic=TRUE,tail=TRUE}
                                            {toothed=TRUE} 0.1881188
       {aquatic=FALSE, predator=TRUE}
                                          => {toothed=TRUE} 0.1881188
   [37]
   [38]
        {tail=TRUE}
                                             {toothed=TRUE} 0.5148515
##
##
   [39]
        {predator=TRUE, breathes=TRUE}
                                            {toothed=TRUE} 0.2673267
       {breathes=FALSE}
                                            {toothed=TRUE} 0.1386139
   [40]
   [41] {predator=TRUE}
                                            {toothed=TRUE} 0.3663366
   [42] {aquatic=TRUE}
                                             {toothed=TRUE} 0.2277228
##
  [43] {domestic=FALSE}
                                            {toothed=TRUE} 0.5148515
  [44] {breathes=TRUE}
                                            {toothed=TRUE} 0.4653465
   [45] {predator=FALSE}
                                            {toothed=TRUE} 0.2376238
##
   [46] {catsize=FALSE}
                                            {toothed=TRUE} 0.2574257
##
   [47]
       {hair=FALSE}
                                         => {toothed=TRUE} 0.2277228
##
   Γ487
       {eggs=TRUE}
                                         => {toothed=TRUE} 0.1980198
##
        confidence lift
##
   [1]
        1.0000000
                   1.6557377
##
   [2]
        1.0000000
                   1.6557377
##
   [3]
        1.0000000
                   1.6557377
##
   [4]
        1.0000000
                   1.6557377
##
   [5]
        1.0000000
                   1.6557377
##
   [6]
        1.0000000
                   1.6557377
##
   [7]
        1.0000000
                   1.6557377
   [8]
##
        0.9761905
                   1.6163154
##
   [9]
        0.9743590
                   1.6132829
   [10] 0.9729730
                   1.6109880
   [11] 0.9696970
##
                   1.6055638
   [12] 0.9682540
                   1.6031746
##
   [13] 0.9500000
                   1.5729508
   [14] 0.9454545
                   1.5654247
   [15] 0.9210526
                   1.5250216
   [16] 0.9076923
                   1.5029004
   [17] 0.8771930
                   1.4524015
  [18] 0.8536585
                   1.4134346
   [19] 0.8421053
                   1.3943054
                   1.3677833
##
   [20] 0.8260870
   [21] 0.8139535
                   1.3476935
   [22] 0.8082192
                   1.3381990
   [23]
       0.8035714
                   1.3305035
##
  [24] 0.7954545
                   1.3170641
## [25] 0.7872340
                   1.3034531
## [26] 0.7872340
                   1.3034531
                   1.3009368
## [27] 0.7857143
```

```
## [28] 0.7833333
                   1.2969945
   [29] 0.7826087
                   1.2957947
   [30] 0.7808219
                   1.2928363
  [31] 0.7746479
                   1.2826137
   [32] 0.7666667
                   1.2693989
  [33] 0.7666667
                   1.2693989
##
  [34] 0.7530864
                   1.2469136
                   1.2220921
  [35] 0.7380952
   [36] 0.7307692
                   1.2099622
   [37] 0.7037037
                   1.1651488
  [38] 0.6933333
                   1.1479781
   [39] 0.6923077
                   1.1462799
   [40] 0.6666667
                   1.1038251
  [41] 0.6607143
                   1.0939696
  [42] 0.6388889
                   1.0578324
   [43] 0.5909091
                   0.9783905
  [44] 0.5875000
                   0.9727459
   [45] 0.5333333
                   0.8830601
                   0.7552488
  [46] 0.4561404
   [47] 0.3965517
                   0.6565856
##
   [48] 0.3389831
                   0.5612670
##
       lhs
                                           support
                                                      confidence lift
##
                        => {toothed=FALSE} 0.1980198 1.0000000 2.5250000
  [1] {type=bird}
   [2] {feathers=TRUE} => {toothed=FALSE} 0.1980198 1.0000000
                                                                 2.5250000
   [3] {tail=FALSE}
                       => {toothed=FALSE} 0.1683168 0.6538462
                                                                 1.6509615
   [4] {milk=FALSE}
                        => {toothed=FALSE} 0.3861386 0.6500000
                                                                 1.6412500
   [5] {catsize=FALSE} => {toothed=FALSE} 0.3069307 0.5438596
                                                                 1.3732456
##
   [6]
       {predator=TRUE} => {toothed=FALSE} 0.1881188 0.3392857
                                                                 0.8566964
##
                                          rhs
                                                          support
  [1] {hair=TRUE,predator=TRUE}
                                       => {toothed=TRUE} 0.1881188 0.9500000
   [2] {feathers=FALSE,predator=TRUE} =>
                                          {toothed=TRUE} 0.3663366 0.7872340
   [3] {predator=TRUE,backbone=TRUE}
                                       => {toothed=TRUE} 0.3663366 0.7872340
  [4] {predator=TRUE,tail=TRUE}
                                       => {toothed=TRUE} 0.3069307 0.7380952
   [5] {aquatic=FALSE,predator=TRUE}
                                       => {toothed=TRUE} 0.1881188 0.7037037
       {predator=TRUE,breathes=TRUE}
                                       => {toothed=TRUE} 0.2673267 0.6923077
##
##
       lift
##
  [1] 1.572951
##
  [2] 1.303453
   [3] 1.303453
##
  [4] 1.222092
  [5] 1.165149
   [6] 1.146280
       "Número de reglas con consecuente negado"
##
##
        lhs
                                            rhs
                                                            support
## [1]
        {type=fish}
                                         => {toothed=TRUE} 0.1287129
  [2]
        {fins=TRUE}
##
                                            {toothed=TRUE} 0.1683168
##
   [3]
        {breathes=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.1386139
##
  [4]
        {backbone=TRUE,breathes=FALSE}
                                            {toothed=TRUE} 0.1386139
##
  [5]
        {legs=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.1782178
##
   [6]
        {backbone=TRUE,legs=FALSE}
                                            {toothed=TRUE} 0.1881188
##
   [7]
        {eggs=FALSE,backbone=TRUE}
                                            {toothed=TRUE} 0.4059406
##
  [8]
        {eggs=FALSE}
                                            {toothed=TRUE} 0.4059406
                                            {toothed=TRUE} 0.3762376
## [9]
        {hair=TRUE,backbone=TRUE}
## [10] {hair=TRUE,airborne=FALSE}
                                            {toothed=TRUE} 0.3564356
```

```
## [11] {hair=TRUE,tail=TRUE}
                                         => {toothed=TRUE} 0.3168317
  [12] {feathers=FALSE,backbone=TRUE}
                                            {toothed=TRUE} 0.6039604
  [13] {hair=TRUE, predator=TRUE}
                                            {toothed=TRUE} 0.1881188
  [14] {feathers=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.5148515
  [15] {feathers=FALSE, catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
  [16] {airborne=FALSE,backbone=TRUE}
                                            {toothed=TRUE} 0.5841584
  [17] {airborne=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.4950495
  [18] {airborne=FALSE,catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
##
   Г197
       {venomous=FALSE,legs=FALSE}
                                            {toothed=TRUE} 0.1584158
   [20] {legs=FALSE}
                                            {toothed=TRUE} 0.1881188
  [21] {backbone=TRUE,catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
   [22] {feathers=FALSE,airborne=FALSE} =>
                                            {toothed=TRUE} 0.5841584
  [23]
       {airborne=FALSE,breathes=TRUE}
                                            {toothed=TRUE} 0.4455446
  [24] {catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
                                            {toothed=TRUE} 0.3663366
  [25] {feathers=FALSE,predator=TRUE}
   [26] {predator=TRUE,backbone=TRUE}
                                            {toothed=TRUE} 0.3663366
   [27] {airborne=FALSE,predator=FALSE} =>
                                            {toothed=TRUE} 0.2178218
   [28] {feathers=FALSE,breathes=TRUE}
                                            {toothed=TRUE} 0.4653465
   [29] {airborne=FALSE, aquatic=FALSE}
                                            {toothed=TRUE} 0.3564356
   [30] {feathers=FALSE, venomous=FALSE}
                                            {toothed=TRUE} 0.5643564
##
  [31] {airborne=FALSE, venomous=FALSE} =>
                                            {toothed=TRUE} 0.5445545
  [32] {feathers=FALSE,aquatic=TRUE}
                                            {toothed=TRUE} 0.2277228
  [33] {aquatic=TRUE,backbone=TRUE}
##
                                            {toothed=TRUE} 0.2277228
       {feathers=FALSE}
##
   Γ341
                                            {toothed=TRUE} 0.6039604
  [35] {predator=TRUE,tail=TRUE}
                                            {toothed=TRUE} 0.3069307
   [36] {aquatic=TRUE,tail=TRUE}
                                            {toothed=TRUE} 0.1881188
   [37] {aquatic=FALSE,predator=TRUE}
                                            {toothed=TRUE} 0.1881188
##
   [38] {tail=TRUE}
                                            {toothed=TRUE} 0.5148515
  [39] {predator=TRUE,breathes=TRUE}
                                            {toothed=TRUE} 0.2673267
  [40] {breathes=FALSE}
                                            {toothed=TRUE} 0.1386139
   [41]
        {predator=TRUE}
                                            {toothed=TRUE} 0.3663366
##
   [42]
        {aquatic=TRUE}
                                            {toothed=TRUE} 0.2277228
  [43]
        {domestic=FALSE}
                                            {toothed=TRUE} 0.5148515
  [44]
       {breathes=TRUE}
                                         => {toothed=TRUE} 0.4653465
   [45]
        {predator=FALSE}
                                            {toothed=TRUE} 0.2376238
##
   [46] {catsize=FALSE}
                                         => {toothed=TRUE} 0.2574257
  [47] {hair=FALSE}
                                            {toothed=TRUE} 0.2277228
##
  [48] {eggs=TRUE}
                                         => {toothed=TRUE} 0.1980198
##
        confidence lift
##
  [1]
        1.0000000
                   1.6557377
   [2]
        1.0000000
                   1.6557377
   [3]
        1.0000000
##
                   1.6557377
##
   [4]
        1.0000000
                   1.6557377
##
   [5]
        1.0000000
                   1.6557377
##
  [6]
        1.0000000
                   1.6557377
  [7]
##
        1.0000000
                   1.6557377
##
   [8]
        0.9761905
                   1.6163154
##
   [9]
        0.9743590
                   1.6132829
  [10]
       0.9729730
                   1.6109880
   [11]
        0.9696970
                   1.6055638
##
  [12]
        0.9682540
                   1.6031746
## [13] 0.9500000
                   1.5729508
## [14] 0.9454545
                   1.5654247
                   1.5250216
## [15] 0.9210526
```

```
## [16] 0.9076923
                   1.5029004
  [17] 0.8771930
                   1.4524015
  [18] 0.8536585
                   1.4134346
  [19] 0.8421053
                   1.3943054
  [20] 0.8260870
                   1.3677833
                   1.3476935
  [21] 0.8139535
  [22] 0.8082192
                   1.3381990
## [23] 0.8035714
                   1.3305035
  [24] 0.7954545
                   1.3170641
  [25] 0.7872340
                   1.3034531
  [26] 0.7872340
                   1.3034531
  [27] 0.7857143
                   1.3009368
                   1.2969945
  [28] 0.7833333
  [29] 0.7826087
                   1.2957947
  [30] 0.7808219
                   1.2928363
   [31] 0.7746479
                   1.2826137
   [32] 0.7666667
                   1.2693989
  [33] 0.7666667
                   1.2693989
  [34] 0.7530864
                   1.2469136
   [35] 0.7380952
                   1.2220921
##
  [36] 0.7307692
                   1.2099622
  [37] 0.7037037
                   1.1651488
  [38] 0.6933333
                   1.1479781
   [39] 0.6923077
                   1.1462799
  [40] 0.6666667
                   1.1038251
  [41] 0.6607143
                   1.0939696
  [42] 0.6388889
                   1.0578324
  [43] 0.5909091
                   0.9783905
## [44] 0.5875000
                   0.9727459
  [45] 0.5333333
                   0.8830601
   [46] 0.4561404
                   0.7552488
   [47] 0.3965517
                   0.6565856
##
  [48] 0.3389831
                   0.5612670
##
       lhs
                                           support
                                                     confidence lift
                          rhs
                       => {toothed=FALSE} 0.1980198 1.0000000 2.5250000
   [1] {type=bird}
   [2] {feathers=TRUE} => {toothed=FALSE} 0.1980198 1.0000000 2.5250000
   [3] {tail=FALSE}
                       => {toothed=FALSE} 0.1683168 0.6538462 1.6509615
  [4] {milk=FALSE}
                       => {toothed=FALSE} 0.3861386 0.6500000 1.6412500
   [5] {catsize=FALSE} => {toothed=FALSE} 0.3069307 0.5438596 1.3732456
##
   [6] {predator=TRUE} => {toothed=FALSE} 0.1881188 0.3392857 0.8566964
##
       lhs
                                          rhs
                                                         support
                                                                    confidence
  [1] {hair=TRUE,predator=TRUE}
                                       => {toothed=TRUE} 0.1881188 0.9500000
   [2] {feathers=FALSE,predator=TRUE} => {toothed=TRUE} 0.3663366 0.7872340
  [3] {predator=TRUE,backbone=TRUE} => {toothed=TRUE} 0.3663366 0.7872340
## [4] {predator=TRUE,tail=TRUE}
                                       => {toothed=TRUE} 0.3069307 0.7380952
  [5] {aquatic=FALSE,predator=TRUE}
                                      => {toothed=TRUE} 0.1881188 0.7037037
##
   [6] {predator=TRUE,breathes=TRUE}
                                      => {toothed=TRUE} 0.2673267 0.6923077
##
       lift
## [1] 1.572951
   [2] 1.303453
##
   [3] 1.303453
## [4] 1.222092
## [5] 1.165149
## [6] 1.146280
```

```
[1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                                   confidence
                                                        support
##
  [1]
        {type=fish}
                                         => {eggs=TRUE} 0.1287129 1.0000000
##
  [2]
        {type=bird}
                                           {eggs=TRUE} 0.1980198 1.0000000
                                         => {eggs=TRUE} 0.1980198 1.0000000
##
   [3]
        {feathers=TRUE}
  [4]
##
        {milk=FALSE,fins=TRUE}
                                         => {eggs=TRUE} 0.1287129 1.0000000
        {backbone=FALSE, venomous=FALSE} =>
##
  [5]
                                           {eggs=TRUE} 0.1386139 1.0000000
                                           {eggs=TRUE} 0.1782178 1.0000000
##
  [6]
        {breathes=FALSE, venomous=FALSE} =>
##
   [7]
        {hair=FALSE,airborne=TRUE}
                                         => {eggs=TRUE} 0.1782178 1.0000000
##
  [8]
        {milk=FALSE,airborne=TRUE}
                                         => {eggs=TRUE} 0.2178218 1.0000000
  [9]
        {hair=FALSE,tail=FALSE}
                                         => {eggs=TRUE} 0.1584158 1.0000000
  [10] {milk=FALSE,tail=FALSE}
                                         => {eggs=TRUE} 0.1980198 1.0000000
## [11] {aquatic=TRUE, toothed=FALSE}
                                         => {eggs=TRUE} 0.1287129 1.0000000
                                         => {eggs=TRUE} 0.2178218 1.0000000
## [12] {toothed=FALSE,backbone=TRUE}
## [13] {milk=FALSE,catsize=TRUE}
                                         => {eggs=TRUE} 0.1188119 1.0000000
## [14] {hair=FALSE,predator=FALSE}
                                           {eggs=TRUE} 0.2178218 1.0000000
  [15] {milk=FALSE,predator=FALSE}
                                         => {eggs=TRUE} 0.2574257 1.0000000
  [16] {milk=FALSE, venomous=FALSE}
                                         => {eggs=TRUE} 0.5148515 1.0000000
  [17] {milk=FALSE,backbone=TRUE}
                                         => {eggs=TRUE} 0.4059406 0.9761905
  [18] {toothed=FALSE}
                                         => {eggs=TRUE} 0.3861386 0.9750000
## [19] {milk=FALSE,legs=TRUE}
                                         => {eggs=TRUE} 0.3861386 0.9750000
## [20] {milk=FALSE,breathes=TRUE}
                                         => {eggs=TRUE} 0.3762376 0.9743590
## [21] {hair=FALSE,legs=TRUE}
                                         => {eggs=TRUE} 0.3465347 0.9722222
## [22] {hair=FALSE,aquatic=FALSE}
                                         => {eggs=TRUE} 0.2475248 0.9615385
## [23] {hair=FALSE, venomous=FALSE}
                                         => {eggs=TRUE} 0.4950495 0.9615385
  [24] {aquatic=TRUE,catsize=FALSE}
                                         => {eggs=TRUE} 0.2178218 0.9565217
  [25] {hair=FALSE,catsize=FALSE}
                                         => {eggs=TRUE} 0.4158416 0.9545455
## [26] {hair=FALSE,fins=FALSE}
                                         => {eggs=TRUE} 0.4059406 0.9534884
## [27] {breathes=FALSE}
                                         => {eggs=TRUE} 0.1980198 0.9523810
## [28] {legs=FALSE,catsize=FALSE}
                                         => {eggs=TRUE} 0.1485149 0.9375000
## [29] {hair=FALSE}
                                           {eggs=TRUE} 0.5346535 0.9310345
  [30]
       {airborne=TRUE}
                                         => {eggs=TRUE} 0.2178218 0.9166667
  [31] {aquatic=TRUE,fins=FALSE}
                                         => {eggs=TRUE} 0.1683168 0.8947368
  [32] {aquatic=TRUE,legs=TRUE}
                                         => {eggs=TRUE} 0.1584158 0.8888889
   [33] {predator=TRUE, catsize=FALSE}
                                            {eggs=TRUE} 0.2376238 0.8571429
##
  [34] {aquatic=TRUE, venomous=FALSE}
                                         => {eggs=TRUE} 0.2673267 0.8437500
  [35] {venomous=FALSE,legs=FALSE}
                                           {eggs=TRUE} 0.1584158 0.8421053
  [36] {aquatic=TRUE}
                                         => {eggs=TRUE} 0.2970297 0.8333333
##
##
  [37] {legs=FALSE}
                                           {eggs=TRUE} 0.1881188 0.8260870
  [38] {tail=FALSE,domestic=FALSE}
                                         => {eggs=TRUE} 0.1881188 0.8260870
  [39] {domestic=FALSE,catsize=FALSE}
                                         => {eggs=TRUE} 0.4059406 0.8200000
  [40] {venomous=FALSE, catsize=FALSE}
                                         => {eggs=TRUE} 0.4059406 0.8200000
## [41] {tail=FALSE}
                                         => {eggs=TRUE} 0.1980198 0.7692308
                                         => {eggs=TRUE} 0.1287129 0.7647059
## [42] {fins=TRUE}
## [43] {predator=FALSE,domestic=FALSE} => {eggs=TRUE} 0.2079208 0.6176471
                                         => {eggs=TRUE} 0.3267327 0.5892857
  [44] {predator=TRUE}
##
   [45] {catsize=TRUE}
                                         => {eggs=TRUE} 0.1287129 0.2954545
##
        lift
## [1]
        1.7118644
        1.7118644
##
   [2]
##
   [3]
        1.7118644
## [4]
        1.7118644
## [5]
        1.7118644
## [6]
        1.7118644
```

```
## [7]
        1.7118644
## [8]
        1.7118644
        1.7118644
## [9]
## [10] 1.7118644
## [11] 1.7118644
## [12] 1.7118644
## [13] 1.7118644
## [14] 1.7118644
## [15] 1.7118644
## [16] 1.7118644
## [17] 1.6711057
## [18] 1.6690678
## [19] 1.6690678
## [20] 1.6679704
## [21] 1.6643126
## [22] 1.6460235
## [23] 1.6460235
## [24] 1.6374355
## [25] 1.6340524
## [26] 1.6322428
## [27] 1.6303471
## [28] 1.6048729
## [29] 1.5938048
## [30] 1.5692090
## [31] 1.5316682
## [32] 1.5216573
## [33] 1.4673123
## [34] 1.4443856
## [35] 1.4415700
## [36] 1.4265537
## [37] 1.4141489
## [38] 1.4141489
## [39] 1.4037288
## [40] 1.4037288
## [41] 1.3168188
## [42] 1.3090728
## [43] 1.0573280
## [44] 1.0087772
## [45] 0.5057781
##
       lhs
                                                  confidence lift
                           rhs
                                        support
  [1] {milk=TRUE}
                       => {eggs=FALSE} 0.3960396 0.9756098 2.346109
  [2] {type=mammal}
                       => {eggs=FALSE} 0.3960396 0.9756098 2.346109
   [3] {backbone=TRUE} => {eggs=FALSE} 0.4059406 0.4939759 1.187894
##
       lhs
                                                                confidence
                                         rhs
                                                     support
## [1] {toothed=FALSE,backbone=TRUE} => {eggs=TRUE} 0.2178218 1.0000000
## [2] {milk=FALSE,backbone=TRUE}
                                     => {eggs=TRUE} 0.4059406 0.9761905
##
       lift
## [1] 1.711864
  [2] 1.671106
  [1] "Número de reglas con consecuente negado"
##
                                                                   confidence
        lhs
                                            rhs
                                                        support
## [1]
        {type=fish}
                                         => {eggs=TRUE} 0.1287129 1.0000000
## [2]
        {type=bird}
                                         => {eggs=TRUE} 0.1980198 1.0000000
       {feathers=TRUE}
## [3]
                                         => {eggs=TRUE} 0.1980198 1.0000000
```

```
[4]
        {milk=FALSE,fins=TRUE}
                                         => {eggs=TRUE} 0.1287129 1.0000000
##
                                            {eggs=TRUE} 0.1386139 1.0000000
   [5]
        {backbone=FALSE, venomous=FALSE} =>
  [6]
        {breathes=FALSE, venomous=FALSE} =>
                                           {eggs=TRUE} 0.1782178 1.0000000
  [7]
        {hair=FALSE,airborne=TRUE}
                                         => {eggs=TRUE} 0.1782178 1.0000000
##
##
   [8]
        {milk=FALSE,airborne=TRUE}
                                         => {eggs=TRUE} 0.2178218 1.0000000
##
  [9]
        {hair=FALSE,tail=FALSE}
                                         => {eggs=TRUE} 0.1584158 1.0000000
## [10] {milk=FALSE,tail=FALSE}
                                         => {eggs=TRUE} 0.1980198 1.0000000
## [11] {aquatic=TRUE, toothed=FALSE}
                                         => {eggs=TRUE} 0.1287129 1.0000000
  [12] {toothed=FALSE,backbone=TRUE}
                                         => {eggs=TRUE} 0.2178218 1.0000000
  [13] {milk=FALSE,catsize=TRUE}
                                         => {eggs=TRUE} 0.1188119 1.0000000
## [14] {hair=FALSE,predator=FALSE}
                                         => {eggs=TRUE} 0.2178218 1.0000000
  [15] {milk=FALSE,predator=FALSE}
                                         => {eggs=TRUE} 0.2574257 1.0000000
## [16] {milk=FALSE, venomous=FALSE}
                                         => {eggs=TRUE} 0.5148515 1.0000000
## [17] {milk=FALSE,backbone=TRUE}
                                         => {eggs=TRUE} 0.4059406 0.9761905
                                         => {eggs=TRUE} 0.3861386 0.9750000
## [18] {toothed=FALSE}
  [19] {milk=FALSE,legs=TRUE}
                                         => {eggs=TRUE} 0.3861386 0.9750000
  [20] {milk=FALSE,breathes=TRUE}
                                         => {eggs=TRUE} 0.3762376 0.9743590
  [21] {hair=FALSE,legs=TRUE}
                                         => {eggs=TRUE} 0.3465347 0.9722222
  [22] {hair=FALSE,aquatic=FALSE}
                                         => {eggs=TRUE} 0.2475248 0.9615385
  [23] {hair=FALSE, venomous=FALSE}
                                         => {eggs=TRUE} 0.4950495 0.9615385
## [24] {aquatic=TRUE,catsize=FALSE}
                                         => {eggs=TRUE} 0.2178218 0.9565217
## [25] {hair=FALSE,catsize=FALSE}
                                         => {eggs=TRUE} 0.4158416 0.9545455
## [26] {hair=FALSE,fins=FALSE}
                                         => {eggs=TRUE} 0.4059406 0.9534884
## [27] {breathes=FALSE}
                                         => {eggs=TRUE} 0.1980198 0.9523810
  [28] {legs=FALSE,catsize=FALSE}
                                         => {eggs=TRUE} 0.1485149 0.9375000
## [29] {hair=FALSE}
                                         => {eggs=TRUE} 0.5346535 0.9310345
## [30] {airborne=TRUE}
                                         => {eggs=TRUE} 0.2178218 0.9166667
## [31] {aquatic=TRUE,fins=FALSE}
                                         => {eggs=TRUE} 0.1683168 0.8947368
## [32] {aquatic=TRUE,legs=TRUE}
                                         => {eggs=TRUE} 0.1584158 0.8888889
## [33] {predator=TRUE,catsize=FALSE}
                                         => {eggs=TRUE} 0.2376238 0.8571429
  [34] {aquatic=TRUE, venomous=FALSE}
                                           {eggs=TRUE} 0.2673267 0.8437500
   [35]
       {venomous=FALSE,legs=FALSE}
                                         => {eggs=TRUE} 0.1584158 0.8421053
  [36] {aquatic=TRUE}
                                         => {eggs=TRUE} 0.2970297 0.8333333
  [37] {legs=FALSE}
                                         => {eggs=TRUE} 0.1881188 0.8260870
   [38] {tail=FALSE,domestic=FALSE}
                                         => {eggs=TRUE} 0.1881188 0.8260870
  [39] {domestic=FALSE,catsize=FALSE}
                                         => {eggs=TRUE} 0.4059406 0.8200000
## [40] {venomous=FALSE, catsize=FALSE}
                                         => {eggs=TRUE} 0.4059406 0.8200000
## [41] {tail=FALSE}
                                         => {eggs=TRUE} 0.1980198 0.7692308
## [42] {fins=TRUE}
                                         => {eggs=TRUE} 0.1287129 0.7647059
  [43] {predator=FALSE,domestic=FALSE} => {eggs=TRUE} 0.2079208 0.6176471
                                         => {eggs=TRUE} 0.3267327 0.5892857
  [44] {predator=TRUE}
   [45] {catsize=TRUE}
                                         => {eggs=TRUE} 0.1287129 0.2954545
##
##
        lift
##
  [1]
        1.7118644
  [2]
##
        1.7118644
## [3]
        1.7118644
##
  [4]
        1.7118644
##
  [5]
        1.7118644
##
  [6]
        1.7118644
##
   [7]
        1.7118644
  [8]
##
        1.7118644
## [9]
        1.7118644
## [10] 1.7118644
## [11] 1.7118644
```

```
## [12] 1.7118644
## [13] 1.7118644
## [14] 1.7118644
## [15] 1.7118644
## [16] 1.7118644
## [17] 1.6711057
## [18] 1.6690678
## [19] 1.6690678
## [20] 1.6679704
## [21] 1.6643126
## [22] 1.6460235
## [23] 1.6460235
## [24] 1.6374355
## [25] 1.6340524
## [26] 1.6322428
## [27] 1.6303471
## [28] 1.6048729
## [29] 1.5938048
## [30] 1.5692090
## [31] 1.5316682
## [32] 1.5216573
## [33] 1.4673123
## [34] 1.4443856
## [35] 1.4415700
## [36] 1.4265537
## [37] 1.4141489
## [38] 1.4141489
## [39] 1.4037288
## [40] 1.4037288
## [41] 1.3168188
## [42] 1.3090728
## [43] 1.0573280
## [44] 1.0087772
  [45] 0.5057781
##
##
       lhs
                                        support
                                                  confidence lift
                           rhs
## [1] {milk=TRUE}
                       => {eggs=FALSE} 0.3960396 0.9756098 2.346109
  [2] {type=mammal}
                       => {eggs=FALSE} 0.3960396 0.9756098 2.346109
##
  [3] {backbone=TRUE} => {eggs=FALSE} 0.4059406 0.4939759 1.187894
##
       lhs
                                         rhs
                                                     support
                                                                confidence
  [1] {toothed=FALSE,backbone=TRUE} => {eggs=TRUE} 0.2178218 1.0000000
  [2] {milk=FALSE,backbone=TRUE}
                                      => {eggs=TRUE} 0.4059406 0.9761905
##
       lift
## [1] 1.711864
  [2] 1.671106
  [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                              support
## [1]
        {type=fish}
                                         => {airborne=FALSE} 0.1287129
##
  [2]
        {fins=TRUE}
                                         => {airborne=FALSE} 0.1683168
## [3]
        {breathes=FALSE}
                                         => {airborne=FALSE} 0.2079208
## [4]
        {legs=FALSE}
                                            {airborne=FALSE} 0.2277228
##
  [5]
        {aquatic=TRUE, toothed=TRUE}
                                         => {airborne=FALSE} 0.2277228
## [6]
        {feathers=FALSE, aquatic=TRUE}
                                         => {airborne=FALSE} 0.2970297
## [7]
        {milk=TRUE,predator=TRUE}
                                         => {airborne=FALSE} 0.2178218
## [8]
        {predator=TRUE, type=mammal}
                                         => {airborne=FALSE} 0.2178218
```

```
{eggs=FALSE,predator=TRUE}
                                         => {airborne=FALSE} 0.2277228
                                           {airborne=FALSE} 0.1980198
  [10] {hair=TRUE,predator=TRUE}
  [11] {feathers=FALSE, catsize=TRUE}
                                           {airborne=FALSE} 0.3762376
  [12] {predator=TRUE, toothed=TRUE}
                                            {airborne=FALSE} 0.3663366
  [13] {hair=FALSE,toothed=TRUE}
                                            {airborne=FALSE} 0.2277228
  [14] {eggs=TRUE,toothed=TRUE}
                                           {airborne=FALSE} 0.1980198
  [15] {milk=FALSE,toothed=TRUE}
                                            {airborne=FALSE} 0.2079208
## [16] {feathers=FALSE,predator=TRUE}
                                            {airborne=FALSE} 0.4554455
  [17] {feathers=FALSE,backbone=TRUE}
                                            {airborne=FALSE} 0.6039604
  [18] {toothed=TRUE}
                                            {airborne=FALSE} 0.5841584
  [19] {predator=TRUE,catsize=TRUE}
                                           {airborne=FALSE} 0.2673267
  [20] {feathers=FALSE,tail=TRUE}
                                           {airborne=FALSE} 0.5247525
  [21] {eggs=FALSE}
                                           {airborne=FALSE} 0.3960396
## [22] {milk=TRUE}
                                         => {airborne=FALSE} 0.3861386
## [23] {type=mammal}
                                         => {airborne=FALSE} 0.3861386
## [24]
        {hair=FALSE, feathers=FALSE}
                                           {airborne=FALSE} 0.3564356
  [25] {catsize=TRUE}
                                           {airborne=FALSE} 0.4059406
  [26] {predator=TRUE,tail=FALSE}
                                           {airborne=FALSE} 0.1287129
  [27] {feathers=FALSE, venomous=FALSE} =>
                                           {airborne=FALSE} 0.6633663
  [28] {feathers=FALSE,domestic=FALSE}
                                            {airborne=FALSE} 0.6336634
##
  [29] {predator=TRUE}
                                           {airborne=FALSE} 0.4851485
## [30] {aquatic=TRUE}
                                           {airborne=FALSE} 0.3069307
## [31] {hair=TRUE}
                                            {airborne=FALSE} 0.3663366
       {venomous=FALSE,tail=FALSE}
                                            {airborne=FALSE} 0.1782178
  Γ321
  [33]
       {backbone=TRUE,domestic=FALSE}
                                            {airborne=FALSE} 0.5544554
  [34] {backbone=TRUE}
                                           {airborne=FALSE} 0.6435644
## [35] {tail=FALSE}
                                           {airborne=FALSE} 0.1980198
  [36] {tail=TRUE}
                                         => {airborne=FALSE} 0.5643564
## [37]
       {aquatic=FALSE}
                                         => {airborne=FALSE} 0.4554455
  [38]
       {hair=FALSE}
                                         => {airborne=FALSE} 0.3960396
## [39]
        {backbone=FALSE}
                                         => {airborne=FALSE} 0.1188119
  [40]
       {milk=FALSE}
                                         => {airborne=FALSE} 0.3762376
  [41]
       {eggs=TRUE}
                                         => {airborne=FALSE} 0.3663366
   [42] {predator=FALSE}
                                         => {airborne=FALSE} 0.2772277
##
   [43]
        {toothed=FALSE}
                                         => {airborne=FALSE} 0.1782178
##
        confidence lift
##
  [1]
        1.0000000 1.3116883
##
  [2]
        1.0000000
                   1.3116883
  [3]
                   1.3116883
##
        1.0000000
  [4]
##
        1.0000000
                   1.3116883
  [5]
        1.0000000
                   1.3116883
  [6]
        1.0000000
##
                   1.3116883
##
   [7]
        1.0000000
                   1.3116883
##
  [8]
        1.0000000
                   1.3116883
  [9]
        1.0000000
                   1.3116883
## [10] 1.0000000
                   1.3116883
  [11] 1.0000000
                   1.3116883
  [12] 1.0000000
                   1.3116883
  [13] 1.0000000
                   1.3116883
## [14] 1.0000000
                   1.3116883
## [15] 1.0000000
                   1.3116883
## [16] 0.9787234
                   1.2837800
## [17] 0.9682540
                   1.2700474
## [18] 0.9672131 1.2686821
```

```
## [19] 0.9642857
                   1.2648423
  [20] 0.9636364
                   1.2639906
  [21] 0.9523810
                   1.2492270
  [22] 0.9512195
                   1.2477035
   [23] 0.9512195
                   1.2477035
  [24] 0.9473684
                   1.2426521
  [25] 0.9318182
                   1.2222550
                   1.2179963
  [26] 0.9285714
   [27] 0.9178082
                   1.2038783
  [28] 0.9014085
                   1.1823669
  [29] 0.8750000
                   1.1477273
  [30] 0.8611111
                   1.1295094
   [31] 0.8604651
                   1.1286620
  [32] 0.8181818
                   1.0731995
  [33] 0.7887324
                   1.0345711
   [34] 0.7831325
                   1.0272258
   [35] 0.7692308
                   1.0089910
   [36] 0.7600000
                   0.9968831
  [37] 0.7076923
                   0.9282717
   [38] 0.6896552
                   0.9046126
##
  [39] 0.6666667
                   0.8744589
  [40] 0.6333333
                   0.8307359
  [41] 0.6271186
                   0.8225842
   [42] 0.6222222
                   0.8161616
##
  [43] 0.4500000 0.5902597
       lhs
                                            support
                                                      confidence lift
##
  [1] {type=bird}
                        => {airborne=TRUE} 0.1584158 0.8000000
                                                                 3.3666667
   [2] {feathers=TRUE}
                        => {airborne=TRUE} 0.1584158 0.8000000
                                                                 3.3666667
                        => {airborne=TRUE} 0.2178218 0.5500000
   [3] {toothed=FALSE}
                                                                 2.3145833
   [4] {aquatic=FALSE}
                        => {airborne=TRUE} 0.1881188 0.2923077
                                                                 1.2301282
##
   [5] {venomous=FALSE} => {airborne=TRUE} 0.2178218 0.2365591
                                                                 0.9955197
##
       lhs
                                           rhs
                                                             support
   [1] {feathers=FALSE, venomous=FALSE} => {airborne=FALSE} 0.6633663
   [2] {venomous=FALSE,tail=FALSE}
                                        => {airborne=FALSE} 0.1782178
##
       confidence lift
##
  [1] 0.9178082 1.203878
   [2] 0.8181818 1.073200
##
  [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                          support
                                                                    confidence
                                         => {hair=FALSE} 0.1287129 1.0000000
##
  [1]
        {type=fish}
                                            {hair=FALSE} 0.2079208 1.0000000
  [2]
        {breathes=FALSE}
   [3]
        {eggs=TRUE,fins=TRUE}
                                            {hair=FALSE} 0.1287129 1.0000000
##
##
   [4]
        {milk=FALSE,fins=TRUE}
                                            {hair=FALSE} 0.1287129 1.0000000
##
   [5]
        {airborne=FALSE,backbone=FALSE}
                                            {hair=FALSE} 0.1188119 1.0000000
##
  [6]
        {legs=FALSE,catsize=FALSE}
                                            {hair=FALSE} 0.1584158 1.0000000
  [7]
                                            {hair=FALSE} 0.1881188 1.0000000
##
        {eggs=TRUE,legs=FALSE}
##
  [8]
        {milk=FALSE,legs=FALSE}
                                            {hair=FALSE} 0.1980198 1.0000000
  [9]
        {aquatic=TRUE,catsize=FALSE}
                                            {hair=FALSE} 0.2277228 1.0000000
  [10] {milk=FALSE,aquatic=TRUE}
                                           {hair=FALSE} 0.2970297 1.0000000
  [11] {milk=FALSE,catsize=TRUE}
                                            {hair=FALSE} 0.1188119 1.0000000
                                            {hair=FALSE} 0.3366337 1.0000000
       {milk=FALSE,predator=TRUE}
  [12]
## [13] {eggs=TRUE,toothed=TRUE}
                                           {hair=FALSE} 0.1980198 1.0000000
## [14] {milk=FALSE,toothed=TRUE}
                                         => {hair=FALSE} 0.2079208 1.0000000
## [15] {milk=FALSE,tail=TRUE}
                                           {hair=FALSE} 0.3960396 1.0000000
```

```
## [16] {milk=FALSE,airborne=FALSE}
                                         => {hair=FALSE} 0.3762376 1.0000000
  [17] {milk=FALSE,backbone=TRUE}
                                           {hair=FALSE} 0.4158416 1.0000000
                                           {hair=FALSE} 0.4059406 0.9761905
  [18] {eggs=TRUE,backbone=TRUE}
  [19] {eggs=TRUE,tail=TRUE}
                                           {hair=FALSE} 0.3762376 0.9743590
  [20] {eggs=TRUE,airborne=FALSE}
                                            {hair=FALSE} 0.3564356 0.9729730
                                            {hair=FALSE} 0.3168317 0.9696970
  [21] {eggs=TRUE,predator=TRUE}
  [22] {eggs=TRUE,aquatic=TRUE}
                                            {hair=FALSE} 0.2871287 0.9666667
## [23] {milk=FALSE, venomous=FALSE}
                                           {hair=FALSE} 0.4950495 0.9615385
##
  [24] {legs=FALSE}
                                            {hair=FALSE} 0.2178218 0.9565217
  [25] {toothed=FALSE,tail=TRUE}
                                         => {hair=FALSE} 0.2178218 0.9565217
  [26] {toothed=FALSE,backbone=TRUE}
                                         => {hair=FALSE} 0.2079208 0.9545455
  [27] {predator=TRUE, toothed=FALSE}
                                         => {hair=FALSE} 0.1782178 0.9473684
  [28] {milk=FALSE,domestic=FALSE}
                                         => {hair=FALSE} 0.5148515 0.9454545
## [29] {airborne=FALSE, toothed=FALSE}
                                        => {hair=FALSE} 0.1683168 0.9444444
## [30] {predator=TRUE,catsize=FALSE}
                                         => {hair=FALSE} 0.2574257 0.9285714
   [31] {eggs=TRUE,domestic=FALSE}
                                         => {hair=FALSE} 0.4950495 0.9259259
                                         => {hair=FALSE} 0.1188119 0.9230769
   [32] {aquatic=TRUE, toothed=FALSE}
  [33] {eggs=TRUE,catsize=TRUE}
                                         => {hair=FALSE} 0.1188119 0.9230769
  [34] {aquatic=TRUE,fins=FALSE}
                                         => {hair=FALSE} 0.1683168 0.8947368
  [35] {aquatic=TRUE}
                                            {hair=FALSE} 0.3168317 0.8888889
##
  [36] {airborne=TRUE,backbone=TRUE}
                                           {hair=FALSE} 0.1584158 0.8888889
  [37] {toothed=FALSE,domestic=FALSE}
                                            {hair=FALSE} 0.3168317 0.8888889
                                            {hair=FALSE} 0.3465347 0.8750000
## [38] {toothed=FALSE}
       {backbone=FALSE.venomous=FALSE} =>
                                            {hair=FALSE} 0.1188119 0.8571429
  [39]
  [40] {airborne=FALSE,catsize=FALSE}
                                            {hair=FALSE} 0.2871287 0.8055556
  [41] {domestic=FALSE, catsize=FALSE}
                                           {hair=FALSE} 0.3960396 0.8000000
## [42] {tail=TRUE,catsize=FALSE}
                                           {hair=FALSE} 0.2871287 0.7837838
## [43] {venomous=FALSE, catsize=FALSE}
                                        => {hair=FALSE} 0.3861386 0.7800000
## [44] {backbone=FALSE}
                                         => {hair=FALSE} 0.1386139 0.7777778
## [45] {backbone=TRUE,catsize=FALSE}
                                         => {hair=FALSE} 0.3069307 0.7750000
## [46] {catsize=FALSE}
                                         => {hair=FALSE} 0.4356436 0.7719298
  [47]
       {airborne=TRUE}
                                         => {hair=FALSE} 0.1782178 0.7500000
  [48] {tail=FALSE,domestic=FALSE}
                                         => {hair=FALSE} 0.1584158 0.6956522
                                         => {hair=FALSE} 0.3564356 0.6428571
  [49] {predator=TRUE}
   [50] {venomous=FALSE,tail=FALSE}
                                            {hair=FALSE} 0.1386139 0.6363636
  [51] {tail=FALSE}
                                         => {hair=FALSE} 0.1584158 0.6153846
##
  [52] {backbone=TRUE}
                                           {hair=FALSE} 0.4356436 0.5301205
  [53] {breathes=TRUE}
                                         => {hair=FALSE} 0.3663366 0.4625000
                                           {hair=FALSE} 0.3564356 0.4615385
   [54] {legs=TRUE}
   [55] {aquatic=FALSE}
                                         => {hair=FALSE} 0.2574257 0.4000000
##
##
        lift
##
  [1]
        1.7413793
##
   [2]
        1.7413793
##
   [3]
        1.7413793
  [4]
##
        1.7413793
  [5]
        1.7413793
##
##
   [6]
        1.7413793
  [7]
##
        1.7413793
  [8]
        1.7413793
##
  [9]
        1.7413793
##
  [10]
       1.7413793
## [11] 1.7413793
## [12] 1.7413793
## [13] 1.7413793
```

```
## [14] 1.7413793
## [15] 1.7413793
## [16] 1.7413793
## [17] 1.7413793
## [18] 1.6999179
## [19] 1.6967286
## [20] 1.6943150
## [21] 1.6886102
  [22] 1.6833333
  [23] 1.6744032
## [24] 1.6656672
## [25] 1.6656672
  [26] 1.6622257
## [27] 1.6497278
## [28] 1.6463950
## [29] 1.6446360
  [30] 1.6169951
  [31] 1.6123883
  [32] 1.6074271
## [33] 1.6074271
  [34] 1.5580762
##
  [35] 1.5478927
## [36] 1.5478927
  [37] 1.5478927
## [38] 1.5237069
  [39] 1.4926108
## [40] 1.4027778
## [41] 1.3931034
## [42] 1.3648649
## [43] 1.3582759
## [44] 1.3544061
  [45] 1.3495690
## [46] 1.3442226
## [47] 1.3060345
   [48] 1.2113943
  [49] 1.1194581
## [50] 1.1081505
## [51] 1.0716180
  [52] 0.9231408
  [53] 0.8053879
  [54] 0.8037135
##
  [55] 0.6965517
       lhs
                           rhs
                                        support
                                                  confidence lift
  [1] {milk=TRUE}
                        => {hair=TRUE} 0.3861386 0.9512195 2.2342598
                        => {hair=TRUE} 0.3861386 0.9512195
## [2] {type=mammal}
                                                             2.2342598
## [3] {eggs=FALSE}
                        => {hair=TRUE} 0.3762376 0.9047619
                                                             2.1251384
                                                             1.4632101
  [4] {toothed=TRUE}
                        => {hair=TRUE} 0.3762376 0.6229508
   [5] {predator=FALSE} => {hair=TRUE} 0.2277228 0.5111111
                                                             1.2005168
   [6] {backbone=TRUE} => {hair=TRUE} 0.3861386 0.4698795
                                                             1.1036705
   [7] {domestic=FALSE} => {hair=TRUE} 0.3366337 0.3863636
##
                                                             0.9075053
##
                                                            confidence
       lhs
                                    rhs
                                                  support
## [1] {eggs=TRUE,toothed=TRUE} => {hair=FALSE} 0.1980198 1
## [2] {milk=FALSE,toothed=TRUE} => {hair=FALSE} 0.2079208 1
##
       lift
```

```
## [1] 1.741379
##
  [2] 1.741379
##
       lhs
                                                      support
                                                                confidence
## [1] {milk=FALSE,backbone=TRUE}
                                      => {hair=FALSE} 0.4158416 1.0000000
##
  [2] {eggs=TRUE,backbone=TRUE}
                                      => {hair=FALSE} 0.4059406 0.9761905
  [3] {toothed=FALSE,backbone=TRUE} => {hair=FALSE} 0.2079208 0.9545455
  [4] {airborne=TRUE.backbone=TRUE} => {hair=FALSE} 0.1584158 0.8888889
  [5] {backbone=TRUE,catsize=FALSE} => {hair=FALSE} 0.3069307 0.7750000
##
       lift
##
  [1] 1.741379
  [2] 1.699918
  [3] 1.662226
   [4] 1.547893
  [5] 1.349569
##
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
##
   [1] {milk=FALSE,domestic=FALSE}
                                         {hair=FALSE} 0.5148515 0.9454545
   [2] {eggs=TRUE,domestic=FALSE}
                                       => {hair=FALSE} 0.4950495 0.9259259
  [3] {toothed=FALSE,domestic=FALSE} => {hair=FALSE} 0.3168317 0.8888889
  [4] {domestic=FALSE, catsize=FALSE} => {hair=FALSE} 0.3960396 0.8000000
   [5] {tail=FALSE,domestic=FALSE}
                                       => {hair=FALSE} 0.1584158 0.6956522
##
       lift
## [1] 1.646395
## [2] 1.612388
  [3] 1.547893
## [4] 1.393103
  [5] 1.211394
##
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
## [1]
        {type=fish}
                                           {hair=FALSE} 0.1287129 1.0000000
##
  [2]
        {breathes=FALSE}
                                         => {hair=FALSE} 0.2079208 1.0000000
## [3]
        {eggs=TRUE,fins=TRUE}
                                           {hair=FALSE} 0.1287129 1.0000000
##
  [4]
        {milk=FALSE,fins=TRUE}
                                           {hair=FALSE} 0.1287129 1.0000000
##
  [5]
        {airborne=FALSE,backbone=FALSE} => {hair=FALSE} 0.1188119 1.0000000
  [6]
                                         => {hair=FALSE} 0.1584158 1.0000000
##
        {legs=FALSE,catsize=FALSE}
   [7]
        {eggs=TRUE,legs=FALSE}
                                           {hair=FALSE} 0.1881188 1.0000000
##
                                         => {hair=FALSE} 0.1980198 1.0000000
##
  [8]
        {milk=FALSE,legs=FALSE}
        {aquatic=TRUE, catsize=FALSE}
                                           {hair=FALSE} 0.2277228 1.0000000
## [10] {milk=FALSE,aquatic=TRUE}
                                           {hair=FALSE} 0.2970297 1.0000000
## [11] {milk=FALSE,catsize=TRUE}
                                            {hair=FALSE} 0.1188119 1.0000000
  [12] {milk=FALSE,predator=TRUE}
                                           {hair=FALSE} 0.3366337 1.0000000
## [13] {eggs=TRUE, toothed=TRUE}
                                           {hair=FALSE} 0.1980198 1.0000000
## [14] {milk=FALSE,toothed=TRUE}
                                           {hair=FALSE} 0.2079208 1.0000000
## [15] {milk=FALSE,tail=TRUE}
                                           {hair=FALSE} 0.3960396 1.0000000
## [16] {milk=FALSE,airborne=FALSE}
                                         => {hair=FALSE} 0.3762376 1.0000000
## [17] {milk=FALSE,backbone=TRUE}
                                         => {hair=FALSE} 0.4158416 1.0000000
## [18] {eggs=TRUE,backbone=TRUE}
                                         => {hair=FALSE} 0.4059406 0.9761905
## [19] {eggs=TRUE,tail=TRUE}
                                           {hair=FALSE} 0.3762376 0.9743590
  [20] {eggs=TRUE,airborne=FALSE}
                                         => {hair=FALSE} 0.3564356 0.9729730
## [21] {eggs=TRUE,predator=TRUE}
                                         => {hair=FALSE} 0.3168317 0.9696970
## [22] {eggs=TRUE,aquatic=TRUE}
                                         => {hair=FALSE} 0.2871287 0.9666667
                                         => {hair=FALSE} 0.4950495 0.9615385
## [23] {milk=FALSE, venomous=FALSE}
## [24] {legs=FALSE}
                                         => {hair=FALSE} 0.2178218 0.9565217
## [25] {toothed=FALSE,tail=TRUE}
                                         => {hair=FALSE} 0.2178218 0.9565217
## [26] {toothed=FALSE,backbone=TRUE}
                                         => {hair=FALSE} 0.2079208 0.9545455
```

```
## [27] {predator=TRUE,toothed=FALSE}
                                         => {hair=FALSE} 0.1782178 0.9473684
  [28] {milk=FALSE,domestic=FALSE}
                                         => {hair=FALSE} 0.5148515 0.9454545
                                         => {hair=FALSE} 0.1683168 0.9444444
  [29] {airborne=FALSE,toothed=FALSE}
## [30] {predator=TRUE,catsize=FALSE}
                                         => {hair=FALSE} 0.2574257 0.9285714
  [31] {eggs=TRUE,domestic=FALSE}
                                            {hair=FALSE} 0.4950495 0.9259259
  [32] {aquatic=TRUE, toothed=FALSE}
                                         => {hair=FALSE} 0.1188119 0.9230769
  [33] {eggs=TRUE,catsize=TRUE}
                                           {hair=FALSE} 0.1188119 0.9230769
  [34] {aquatic=TRUE, fins=FALSE}
                                           {hair=FALSE} 0.1683168 0.8947368
  [35] {aquatic=TRUE}
                                            {hair=FALSE} 0.3168317 0.8888889
  [36] {airborne=TRUE,backbone=TRUE}
                                         => {hair=FALSE} 0.1584158 0.8888889
  [37] {toothed=FALSE,domestic=FALSE}
                                         => {hair=FALSE} 0.3168317 0.8888889
## [38] {toothed=FALSE}
                                           {hair=FALSE} 0.3465347 0.8750000
## [39] {backbone=FALSE, venomous=FALSE}
                                            {hair=FALSE} 0.1188119 0.8571429
## [40] {airborne=FALSE,catsize=FALSE}
                                           {hair=FALSE} 0.2871287 0.8055556
## [41] {domestic=FALSE,catsize=FALSE}
                                         => {hair=FALSE} 0.3960396 0.8000000
## [42]
        {tail=TRUE,catsize=FALSE}
                                           {hair=FALSE} 0.2871287 0.7837838
                                         => {hair=FALSE} 0.3861386 0.7800000
## [43]
       {venomous=FALSE, catsize=FALSE}
## [44] {backbone=FALSE}
                                         => {hair=FALSE} 0.1386139 0.7777778
## [45] {backbone=TRUE,catsize=FALSE}
                                         => {hair=FALSE} 0.3069307 0.7750000
## [46] {catsize=FALSE}
                                           {hair=FALSE} 0.4356436 0.7719298
## [47] {airborne=TRUE}
                                           {hair=FALSE} 0.1782178 0.7500000
## [48] {tail=FALSE,domestic=FALSE}
                                           {hair=FALSE} 0.1584158 0.6956522
                                           {hair=FALSE} 0.3564356 0.6428571
  [49] {predator=TRUE}
  [50] {venomous=FALSE.tail=FALSE}
                                            {hair=FALSE} 0.1386139 0.6363636
## [51] {tail=FALSE}
                                         => {hair=FALSE} 0.1584158 0.6153846
  [52] {backbone=TRUE}
                                         => {hair=FALSE} 0.4356436 0.5301205
  [53] {breathes=TRUE}
                                         => {hair=FALSE} 0.3663366 0.4625000
   [54] {legs=TRUE}
                                         => {hair=FALSE} 0.3564356 0.4615385
   [55] {aquatic=FALSE}
                                         => {hair=FALSE} 0.2574257 0.4000000
##
##
        lift
## [1]
        1.7413793
##
   [2]
        1.7413793
##
  [3]
        1.7413793
  [4]
##
        1.7413793
   [5]
        1.7413793
##
##
   [6]
        1.7413793
##
  [7]
        1.7413793
## [8]
        1.7413793
## [9]
        1.7413793
## [10] 1.7413793
  [11] 1.7413793
## [12] 1.7413793
## [13] 1.7413793
## [14] 1.7413793
## [15] 1.7413793
## [16] 1.7413793
  [17] 1.7413793
## [18] 1.6999179
## [19] 1.6967286
## [20] 1.6943150
## [21] 1.6886102
## [22] 1.6833333
## [23] 1.6744032
## [24] 1.6656672
```

```
## [25] 1.6656672
  [26] 1.6622257
  [27] 1.6497278
  [28] 1.6463950
  [29] 1.6446360
## [30] 1.6169951
  [31] 1.6123883
## [32] 1.6074271
  [33] 1.6074271
## [34] 1.5580762
## [35] 1.5478927
## [36] 1.5478927
## [37] 1.5478927
## [38] 1.5237069
## [39] 1.4926108
## [40] 1.4027778
## [41] 1.3931034
## [42] 1.3648649
## [43] 1.3582759
## [44] 1.3544061
## [45] 1.3495690
## [46] 1.3442226
## [47] 1.3060345
## [48] 1.2113943
## [49] 1.1194581
## [50] 1.1081505
## [51] 1.0716180
  [52] 0.9231408
  [53] 0.8053879
  [54] 0.8037135
##
  [55] 0.6965517
##
       lhs
                           rhs
                                        support
                                                  confidence lift
  [1] {milk=TRUE}
                        => {hair=TRUE} 0.3861386 0.9512195 2.2342598
                        => {hair=TRUE} 0.3861386 0.9512195 2.2342598
  [2] {type=mammal}
   [3] {eggs=FALSE}
                        => {hair=TRUE} 0.3762376 0.9047619
                                                             2.1251384
                        => {hair=TRUE} 0.3762376 0.6229508
  [4] {toothed=TRUE}
                                                            1.4632101
  [5] {predator=FALSE} => {hair=TRUE} 0.2277228 0.5111111
## [6] {backbone=TRUE} => {hair=TRUE} 0.3861386 0.4698795
                                                             1.1036705
##
  [7] {domestic=FALSE} => {hair=TRUE} 0.3366337 0.3863636
                                                             0.9075053
##
       lhs
                                    rhs
                                                  support
                                                            confidence
  [1] {eggs=TRUE,toothed=TRUE} => {hair=FALSE} 0.1980198 1
##
   [2] {milk=FALSE,toothed=TRUE} => {hair=FALSE} 0.2079208 1
       lift
##
  [1] 1.741379
   [2] 1.741379
##
##
       lhs
                                         rhs
                                                      support
                                                                confidence
## [1] {milk=FALSE,backbone=TRUE}
                                      => {hair=FALSE} 0.4158416 1.0000000
   [2] {eggs=TRUE,backbone=TRUE}
                                      => {hair=FALSE} 0.4059406 0.9761905
  [3] {toothed=FALSE,backbone=TRUE} => {hair=FALSE} 0.2079208 0.9545455
   [4] {airborne=TRUE,backbone=TRUE} => {hair=FALSE} 0.1584158 0.8888889
##
   [5] {backbone=TRUE,catsize=FALSE} => {hair=FALSE} 0.3069307 0.7750000
##
       lift
## [1] 1.741379
## [2] 1.699918
```

```
[3] 1.662226
   [4] 1.547893
   [5] 1.349569
##
                                                                 confidence
       lhs
                                          rhs
                                                       support
##
  [1] {milk=FALSE,domestic=FALSE}
                                         {hair=FALSE} 0.5148515 0.9454545
   [2] {eggs=TRUE,domestic=FALSE}
                                       => {hair=FALSE} 0.4950495 0.9259259
   [3] {toothed=FALSE,domestic=FALSE} => {hair=FALSE} 0.3168317 0.8888889
   [4] {domestic=FALSE,catsize=FALSE} => {hair=FALSE} 0.3960396 0.8000000
##
   [5] {tail=FALSE,domestic=FALSE}
                                       => {hair=FALSE} 0.1584158 0.6956522
##
       lift
  [1] 1.646395
##
   [2] 1.612388
   [3] 1.547893
##
  [4] 1.393103
##
  [5] 1.211394
       "Número de reglas con consecuente negado"
##
                                                            support
##
   [1]
        {breathes=TRUE,domestic=TRUE}
                                           {aquatic=FALSE} 0.1188119
   [2]
        {fins=FALSE,domestic=TRUE}
                                           {aquatic=FALSE} 0.1188119
##
   [3]
        {backbone=FALSE, breathes=TRUE}
                                         => {aquatic=FALSE} 0.1089109
##
  [4]
        {milk=TRUE,predator=FALSE}
                                         => {aquatic=FALSE} 0.1881188
        {predator=FALSE, type=mammal}
##
  [5]
                                           {aquatic=FALSE} 0.1881188
  [6]
        {eggs=FALSE,predator=FALSE}
                                            {aquatic=FALSE} 0.1881188
##
##
  [7]
        {hair=TRUE, predator=FALSE}
                                            {aquatic=FALSE} 0.2277228
##
  [8]
        {hair=TRUE,catsize=FALSE}
                                           {aquatic=FALSE} 0.1287129
  [9]
        {hair=TRUE,fins=FALSE}
                                           {aquatic=FALSE} 0.3861386
  [10] {eggs=FALSE,legs=TRUE}
                                           {aquatic=FALSE} 0.3564356
  [11] {eggs=FALSE,fins=FALSE}
                                         => {aquatic=FALSE} 0.3564356
## [12] {milk=TRUE,fins=FALSE}
                                         => {aquatic=FALSE} 0.3465347
## [13] {fins=FALSE,type=mammal}
                                           {aquatic=FALSE} 0.3465347
  [14] {predator=FALSE,catsize=TRUE}
                                            {aquatic=FALSE} 0.1485149
  [15] {predator=FALSE,breathes=TRUE}
                                           {aquatic=FALSE} 0.3762376
  [16] {predator=FALSE,fins=FALSE}
                                           {aquatic=FALSE} 0.3762376
  [17] {domestic=TRUE}
                                         => {aquatic=FALSE} 0.1188119
       {predator=FALSE,legs=TRUE}
   [18]
                                           {aquatic=FALSE} 0.3564356
## [19] {hair=TRUE}
                                         => {aquatic=FALSE} 0.3861386
  [20] {eggs=FALSE,breathes=TRUE}
                                           {aquatic=FALSE} 0.3564356
## [21] {toothed=TRUE,fins=FALSE}
                                           {aquatic=FALSE} 0.3762376
  [22] {fins=FALSE,catsize=TRUE}
                                            {aquatic=FALSE} 0.3069307
  [23] {eggs=FALSE}
                                           {aquatic=FALSE} 0.3564356
  [24] {toothed=TRUE,legs=TRUE}
                                           {aquatic=FALSE} 0.3564356
  [25] {milk=TRUE}
                                           {aquatic=FALSE} 0.3465347
## [26] {type=mammal}
                                           {aquatic=FALSE} 0.3465347
  [27] {feathers=FALSE,predator=FALSE}
                                            {aquatic=FALSE} 0.2871287
## [28] {predator=FALSE}
                                           {aquatic=FALSE} 0.3762376
## [29] {breathes=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.6336634
                                           {aquatic=FALSE} 0.3069307
  [30] {legs=TRUE,catsize=TRUE}
  [31] {feathers=FALSE,breathes=TRUE}
                                           {aquatic=FALSE} 0.4950495
  [32] {fins=FALSE,tail=TRUE}
                                         => {aquatic=FALSE} 0.4851485
  [33] {legs=TRUE,tail=TRUE}
                                           {aquatic=FALSE} 0.4653465
## [34] {breathes=TRUE,legs=TRUE}
                                         => {aquatic=FALSE} 0.5940594
## [35] {breathes=TRUE,catsize=FALSE}
                                         => {aquatic=FALSE} 0.3267327
## [36] {airborne=FALSE,breathes=TRUE}
                                         => {aquatic=FALSE} 0.4455446
## [37] {backbone=TRUE,fins=FALSE}
                                           {aquatic=FALSE} 0.5247525
```

```
## [38] {feathers=FALSE,fins=FALSE}
                                         => {aquatic=FALSE} 0.5049505
  [39] {feathers=FALSE,legs=TRUE}
                                            {aquatic=FALSE} 0.4554455
  [40] {venomous=FALSE,fins=FALSE}
                                            {aquatic=FALSE} 0.6039604
  [41] {fins=FALSE,legs=TRUE}
                                            {aquatic=FALSE} 0.5940594
## [42] {fins=FALSE}
                                            {aquatic=FALSE} 0.6435644
## [43] {toothed=FALSE,tail=TRUE}
                                            {aquatic=FALSE} 0.1584158
                                            {aquatic=FALSE} 0.1485149
## [44] {toothed=FALSE,backbone=TRUE}
## [45] {toothed=FALSE}
                                            {aquatic=FALSE} 0.2673267
  Γ46]
       {toothed=TRUE}
                                            {aquatic=FALSE} 0.3762376
  [47] {tail=FALSE}
                                            {aquatic=FALSE} 0.1584158
  [48] {domestic=FALSE}
                                         => {aquatic=FALSE} 0.5247525
                                         => {aquatic=FALSE} 0.3366337
  [49]
        {catsize=FALSE}
##
   [50]
        {eggs=TRUE}
                                         => {aquatic=FALSE} 0.2871287
##
        confidence lift
## [1]
        1.0000000
                   1.5538462
##
  [2]
        1.0000000
                   1.5538462
##
  [3]
        1.0000000
                   1.5538462
  [4]
        1.0000000
                   1.5538462
  [5]
##
        1.0000000
                   1.5538462
   [6]
        1.0000000
                   1.5538462
##
  [7]
        1.0000000
                   1.5538462
  [8]
        1.0000000
                   1.5538462
## [9]
        0.9512195
                   1.4780488
  [10] 0.9473684
                   1.4720648
  [11] 0.9473684
                   1.4720648
  [12] 0.9459459
                   1.4698545
  [13] 0.9459459
                   1.4698545
  [14] 0.9375000
                   1.4567308
## [15] 0.9268293
                   1.4401501
## [16] 0.9268293
                   1.4401501
## [17] 0.9230769
                   1.4343195
  [18] 0.9230769
                   1.4343195
  [19] 0.9069767
                   1.4093023
  [20] 0.8780488
                   1.3643527
   [21] 0.8636364
                   1.3419580
  [22] 0.8611111
                   1.3380342
  [23] 0.8571429
                   1.3318681
## [24] 0.8571429
                   1.3318681
  [25] 0.8536585
                   1.3264540
  [26] 0.8536585
                   1.3264540
  [27] 0.8529412
                   1.3253394
  [28] 0.844444
                   1.3121368
  [29] 0.8421053
                   1.3085020
  [30] 0.8378378
                   1.3018711
## [31] 0.8333333
                   1.2948718
## [32] 0.8305085
                   1.2904824
  [33] 0.8245614
                   1.2812416
  [34] 0.8219178
                   1.2771338
                   1.2506567
  [35] 0.8048780
  [36] 0.8035714
                   1.2486264
##
  [37]
       0.8030303
                   1.2477855
## [38] 0.7968750
                   1.2382212
## [39] 0.7931034
                   1.2323607
## [40] 0.7922078
                   1.2309690
```

```
## [41] 0.7792208
                  1.2107892
                   1.2023810
## [42] 0.7738095
## [43] 0.6956522
                   1.0809365
## [44] 0.6818182
                   1.0594406
## [45] 0.6750000
                   1.0488462
## [46] 0.6229508
                  0.9679697
## [47] 0.6153846
                   0.9562130
## [48] 0.6022727
                   0.9358392
  [49] 0.5964912
                   0.9268556
  [50] 0.4915254 0.7637549
##
       lhs
                                           support
                                                     confidence lift
                        => {aquatic=TRUE} 0.1287129 1.0000000 2.8055556
##
  [1] {type=fish}
  [2] {fins=TRUE}
                        => {aquatic=TRUE} 0.1683168 1.0000000 2.8055556
## [3] {breathes=FALSE} => {aquatic=TRUE} 0.1980198 0.9523810
## [4] {legs=FALSE}
                        => {aquatic=TRUE} 0.1782178 0.7826087
                                                                2.1956522
## [5] {backbone=TRUE}
                        => {aquatic=TRUE} 0.2970297 0.3614458
                                                                1.0140562
  [6] {tail=TRUE}
                        => {aquatic=TRUE} 0.2574257 0.3466667
                                                                0.9725926
  [7] {venomous=FALSE} => {aquatic=TRUE} 0.3168317 0.3440860
  [8] {toothed=FALSE} => {aquatic=TRUE} 0.1287129 0.3250000
                                                                0.9118056
   [9] {breathes=TRUE} => {aquatic=TRUE} 0.1584158 0.2000000 0.5611111
##
       lhs
                                        rhs
                                                         support
                                                                   confidence
## [1] {backbone=TRUE,fins=FALSE}
                                     => {aquatic=FALSE} 0.5247525 0.8030303
## [2] {toothed=FALSE,backbone=TRUE} => {aquatic=FALSE} 0.1485149 0.6818182
## [1] 1.247786
  [2] 1.059441
##
       lhs
                                    rhs
                                                     support
                                                               confidence
                                 => {aquatic=FALSE} 0.4851485 0.8305085
## [1] {fins=FALSE,tail=TRUE}
                                 => {aquatic=FALSE} 0.4653465 0.8245614
   [2] {legs=TRUE,tail=TRUE}
   [3] {toothed=FALSE,tail=TRUE} => {aquatic=FALSE} 0.1584158 0.6956522
##
       lift
##
  [1] 1.290482
  [2] 1.281242
##
   [3] 1.080936
##
                                      rhs
                                                       support
                                                                 confidence
##
   [1] {venomous=FALSE,fins=FALSE} => {aquatic=FALSE} 0.6039604 0.7922078
##
       lift
## [1] 1.230969
##
       lhs
                                        rhs
                                                         support
                                                                   confidence
  [1] {toothed=FALSE,tail=TRUE}
                                     => {aquatic=FALSE} 0.1584158 0.6956522
   [2] {toothed=FALSE,backbone=TRUE} => {aquatic=FALSE} 0.1485149 0.6818182
##
       lift
  [1] 1.080936
##
##
  [2] 1.059441
                                         rhs
                                                          support
                                                                    confidence
## [1] {breathes=TRUE,domestic=TRUE} => {aquatic=FALSE} 0.1188119 1.0000000
  [2] {backbone=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.1089109 1.0000000
  [3] {predator=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.3762376 0.9268293
  [4] {eggs=FALSE,breathes=TRUE}
                                      => {aquatic=FALSE} 0.3564356 0.8780488
## [5] {breathes=TRUE,fins=FALSE}
                                      => {aquatic=FALSE} 0.6336634 0.8421053
## [6] {feathers=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.4950495 0.8333333
## [7] {breathes=TRUE,legs=TRUE}
                                      => {aquatic=FALSE} 0.5940594 0.8219178
## [8] {breathes=TRUE,catsize=FALSE} => {aquatic=FALSE} 0.3267327 0.8048780
## [9] {airborne=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.4455446 0.8035714
```

```
##
       lift
  [1] 1.553846
##
   [2] 1.553846
   [3] 1.440150
   [4] 1.364353
##
   [5] 1.308502
   [6] 1.294872
##
   [7] 1.277134
##
   [8] 1.250657
   [9] 1.248626
       "Número de reglas con consecuente negado"
##
                                                          support
                                                                    confidence
        {type=fish}
##
   [1]
                                            {hair=FALSE} 0.1287129 1.0000000
                                            {hair=FALSE} 0.2079208 1.0000000
##
   [2]
        {breathes=FALSE}
   [3]
                                            {hair=FALSE} 0.1287129 1.0000000
##
        {eggs=TRUE,fins=TRUE}
##
   [4]
        {milk=FALSE,fins=TRUE}
                                            {hair=FALSE} 0.1287129 1.0000000
   [5]
##
        {airborne=FALSE,backbone=FALSE} =>
                                            {hair=FALSE} 0.1188119 1.0000000
##
   [6]
        {legs=FALSE,catsize=FALSE}
                                            {hair=FALSE} 0.1584158 1.0000000
                                            {hair=FALSE} 0.1881188 1.0000000
##
   [7]
        {eggs=TRUE,legs=FALSE}
##
   [8]
        {milk=FALSE,legs=FALSE}
                                            {hair=FALSE} 0.1980198 1.0000000
##
   [9]
        {aquatic=TRUE,catsize=FALSE}
                                            {hair=FALSE} 0.2277228 1.0000000
  [10] {milk=FALSE,aquatic=TRUE}
                                            {hair=FALSE} 0.2970297 1.0000000
                                            {hair=FALSE} 0.1188119 1.0000000
  [11] {milk=FALSE,catsize=TRUE}
##
   [12] {milk=FALSE,predator=TRUE}
                                            {hair=FALSE} 0.3366337 1.0000000
   [13] {eggs=TRUE,toothed=TRUE}
                                            {hair=FALSE} 0.1980198 1.0000000
   [14] {milk=FALSE,toothed=TRUE}
                                            {hair=FALSE} 0.2079208 1.0000000
   [15] {milk=FALSE,tail=TRUE}
                                            {hair=FALSE} 0.3960396 1.0000000
   [16] {milk=FALSE,airborne=FALSE}
                                            {hair=FALSE} 0.3762376 1.0000000
  [17] {milk=FALSE,backbone=TRUE}
                                            {hair=FALSE} 0.4158416 1.0000000
  [18] {eggs=TRUE,backbone=TRUE}
                                            {hair=FALSE} 0.4059406 0.9761905
   [19]
       {eggs=TRUE,tail=TRUE}
                                            {hair=FALSE} 0.3762376 0.9743590
   [20]
       {eggs=TRUE,airborne=FALSE}
                                            {hair=FALSE} 0.3564356 0.9729730
   [21] {eggs=TRUE,predator=TRUE}
                                            {hair=FALSE} 0.3168317 0.9696970
                                            {hair=FALSE} 0.2871287 0.9666667
   [22] {eggs=TRUE,aquatic=TRUE}
   [23] {milk=FALSE, venomous=FALSE}
                                            {hair=FALSE} 0.4950495 0.9615385
                                            {hair=FALSE} 0.2178218 0.9565217
##
  [24] {legs=FALSE}
  [25] {toothed=FALSE,tail=TRUE}
                                            {hair=FALSE} 0.2178218 0.9565217
  [26] {toothed=FALSE,backbone=TRUE}
                                            {hair=FALSE} 0.2079208 0.9545455
   [27] {predator=TRUE, toothed=FALSE}
                                            {hair=FALSE} 0.1782178 0.9473684
   [28] {milk=FALSE,domestic=FALSE}
                                            {hair=FALSE} 0.5148515 0.9454545
   [29] {airborne=FALSE, toothed=FALSE}
                                            {hair=FALSE} 0.1683168 0.9444444
   [30] {predator=TRUE, catsize=FALSE}
                                            {hair=FALSE} 0.2574257 0.9285714
   [31] {eggs=TRUE,domestic=FALSE}
                                            {hair=FALSE} 0.4950495 0.9259259
   [32] {aquatic=TRUE, toothed=FALSE}
                                            {hair=FALSE} 0.1188119 0.9230769
  [33] {eggs=TRUE,catsize=TRUE}
                                            {hair=FALSE} 0.1188119 0.9230769
   [34] {aquatic=TRUE,fins=FALSE}
                                            {hair=FALSE} 0.1683168 0.8947368
   [35]
        {aquatic=TRUE}
                                            {hair=FALSE} 0.3168317 0.8888889
   [36]
       {airborne=TRUE,backbone=TRUE}
                                            {hair=FALSE} 0.1584158 0.8888889
   [37] {toothed=FALSE,domestic=FALSE}
                                            {hair=FALSE} 0.3168317 0.8888889
   [38]
        {toothed=FALSE}
                                            {hair=FALSE} 0.3465347 0.8750000
                                            {hair=FALSE} 0.1188119 0.8571429
       {backbone=FALSE, venomous=FALSE}
##
   [39]
                                         =>
## [40] {airborne=FALSE, catsize=FALSE}
                                            {hair=FALSE} 0.2871287 0.8055556
## [41] {domestic=FALSE, catsize=FALSE}
                                            {hair=FALSE} 0.3960396 0.8000000
## [42] {tail=TRUE,catsize=FALSE}
                                            {hair=FALSE} 0.2871287 0.7837838
```

```
## [43] {venomous=FALSE,catsize=FALSE} => {hair=FALSE} 0.3861386 0.7800000
## [44] {backbone=FALSE}
                                         => {hair=FALSE} 0.1386139 0.7777778
## [45] {backbone=TRUE,catsize=FALSE}
                                         => {hair=FALSE} 0.3069307 0.7750000
                                         => {hair=FALSE} 0.4356436 0.7719298
## [46] {catsize=FALSE}
## [47] {airborne=TRUE}
                                         => {hair=FALSE} 0.1782178 0.7500000
## [48] {tail=FALSE,domestic=FALSE}
                                         => {hair=FALSE} 0.1584158 0.6956522
## [49] {predator=TRUE}
                                         => {hair=FALSE} 0.3564356 0.6428571
## [50] {venomous=FALSE,tail=FALSE}
                                        => {hair=FALSE} 0.1386139 0.6363636
## [51] {tail=FALSE}
                                         => {hair=FALSE} 0.1584158 0.6153846
## [52] {backbone=TRUE}
                                        => {hair=FALSE} 0.4356436 0.5301205
## [53] {breathes=TRUE}
                                        => {hair=FALSE} 0.3663366 0.4625000
## [54] {legs=TRUE}
                                        => {hair=FALSE} 0.3564356 0.4615385
                                        => {hair=FALSE} 0.2574257 0.4000000
##
   [55] {aquatic=FALSE}
##
        lift
## [1]
       1.7413793
## [2]
        1.7413793
## [3]
       1.7413793
## [4]
       1.7413793
## [5]
        1.7413793
##
  [6]
        1.7413793
## [7]
       1.7413793
## [8]
       1.7413793
## [9]
       1.7413793
## [10] 1.7413793
## [11] 1.7413793
## [12] 1.7413793
## [13] 1.7413793
## [14] 1.7413793
## [15] 1.7413793
## [16] 1.7413793
## [17] 1.7413793
## [18] 1.6999179
## [19] 1.6967286
## [20] 1.6943150
## [21] 1.6886102
## [22] 1.6833333
## [23] 1.6744032
## [24] 1.6656672
## [25] 1.6656672
## [26] 1.6622257
## [27] 1.6497278
## [28] 1.6463950
## [29] 1.6446360
## [30] 1.6169951
## [31] 1.6123883
## [32] 1.6074271
## [33] 1.6074271
## [34] 1.5580762
## [35] 1.5478927
## [36] 1.5478927
## [37] 1.5478927
## [38] 1.5237069
## [39] 1.4926108
## [40] 1.4027778
```

```
## [41] 1.3931034
## [42] 1.3648649
## [43] 1.3582759
## [44] 1.3544061
## [45] 1.3495690
## [46] 1.3442226
## [47] 1.3060345
## [48] 1.2113943
## [49] 1.1194581
## [50] 1.1081505
## [51] 1.0716180
## [52] 0.9231408
## [53] 0.8053879
## [54] 0.8037135
## [55] 0.6965517
##
       lhs
                                       support
                                                  confidence lift
## [1] {milk=TRUE}
                        => {hair=TRUE} 0.3861386 0.9512195 2.2342598
  [2] {type=mammal}
                        => {hair=TRUE} 0.3861386 0.9512195 2.2342598
                        => {hair=TRUE} 0.3762376 0.9047619 2.1251384
## [3] {eggs=FALSE}
## [4] {toothed=TRUE}
                        => {hair=TRUE} 0.3762376 0.6229508 1.4632101
## [5] {predator=FALSE} => {hair=TRUE} 0.2277228 0.5111111
                                                            1.2005168
## [6] {backbone=TRUE} => {hair=TRUE} 0.3861386 0.4698795 1.1036705
## [7] {domestic=FALSE} => {hair=TRUE} 0.3366337 0.3863636 0.9075053
                                    rhs
                                                  support
                                                            confidence
  [1] {eggs=TRUE,toothed=TRUE} => {hair=FALSE} 0.1980198 1
   [2] {milk=FALSE,toothed=TRUE} => {hair=FALSE} 0.2079208 1
##
       lift
## [1] 1.741379
##
  [2] 1.741379
##
       lhs
                                        rhs
                                                      support
                                                                confidence
## [1] {milk=FALSE,backbone=TRUE}
                                     => {hair=FALSE} 0.4158416 1.0000000
  [2] {eggs=TRUE,backbone=TRUE}
                                     => {hair=FALSE} 0.4059406 0.9761905
  [3] {toothed=FALSE,backbone=TRUE} => {hair=FALSE} 0.2079208 0.9545455
## [4] {airborne=TRUE,backbone=TRUE} => {hair=FALSE} 0.1584158 0.8888889
   [5] {backbone=TRUE,catsize=FALSE} => {hair=FALSE} 0.3069307 0.7750000
##
##
       lift
## [1] 1.741379
## [2] 1.699918
## [3] 1.662226
## [4] 1.547893
## [5] 1.349569
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,domestic=FALSE}
                                      => {hair=FALSE} 0.5148515 0.9454545
## [2] {eggs=TRUE,domestic=FALSE}
                                      => {hair=FALSE} 0.4950495 0.9259259
## [3] {toothed=FALSE,domestic=FALSE} => {hair=FALSE} 0.3168317 0.8888889
## [4] {domestic=FALSE,catsize=FALSE} => {hair=FALSE} 0.3960396 0.8000000
##
  [5] {tail=FALSE,domestic=FALSE}
                                      => {hair=FALSE} 0.1584158 0.6956522
##
       lift
## [1] 1.646395
## [2] 1.612388
## [3] 1.547893
## [4] 1.393103
## [5] 1.211394
## [1] "Número de reglas con consecuente negado"
```

```
##
                                                             support
##
        {aquatic=TRUE, catsize=TRUE}
  [1]
                                            {predator=TRUE} 0.1188119
   [2]
        {breathes=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.1683168
   [3]
        {aquatic=TRUE,fins=FALSE}
##
                                         => {predator=TRUE} 0.1584158
##
   [4]
        {airborne=FALSE,aquatic=TRUE}
                                            {predator=TRUE} 0.2574257
##
        {aquatic=TRUE,legs=TRUE}
   [5]
                                            {predator=TRUE} 0.1485149
        {feathers=FALSE, aquatic=TRUE}
##
   [6]
                                            {predator=TRUE} 0.2475248
  [7]
        {fins=TRUE,domestic=FALSE}
##
                                            {predator=TRUE} 0.1287129
##
   [8]
        {aquatic=TRUE, breathes=TRUE}
                                            {predator=TRUE} 0.1287129
##
   [9]
        {breathes=FALSE}
                                            {predator=TRUE} 0.1683168
  [10] {aquatic=TRUE}
                                            {predator=TRUE} 0.2871287
   [11] {backbone=TRUE,legs=FALSE}
                                            {predator=TRUE} 0.1485149
   [12] {hair=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1782178
  [13] {legs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.1683168
## [14] {fins=TRUE}
                                            {predator=TRUE} 0.1287129
  [15] {milk=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1584158
   [16] {eggs=TRUE,toothed=TRUE}
                                            {predator=TRUE} 0.1485149
   [17] {hair=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2871287
  [18] {hair=FALSE, feathers=FALSE}
                                            {predator=TRUE} 0.2673267
  [19] {milk=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2673267
  [20] {eggs=TRUE,airborne=FALSE}
                                           {predator=TRUE} 0.2574257
  [21] {airborne=FALSE,domestic=FALSE}
                                           {predator=TRUE} 0.4653465
  [22] {domestic=FALSE,catsize=TRUE}
                                            {predator=TRUE} 0.2574257
  [23] {toothed=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.3465347
  [24] {airborne=FALSE, toothed=FALSE}
                                            {predator=TRUE} 0.1188119
  [25] {hair=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.3564356
  [26] {catsize=TRUE}
                                           {predator=TRUE} 0.2772277
  [27] {feathers=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.4455446
## [28] {backbone=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4455446
## [29] {tail=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4059406
  [30] {feathers=FALSE,milk=FALSE}
                                            {predator=TRUE} 0.2475248
   [31] {eggs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.2079208
   [32] {feathers=FALSE,eggs=TRUE}
                                            {predator=TRUE} 0.2376238
  [33] {feathers=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.3762376
   [34] {milk=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.2376238
##
  [35] {feathers=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.3267327
  [36] {eggs=TRUE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
  [37] {milk=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
                                            {predator=TRUE} 0.2277228
        {eggs=TRUE,tail=TRUE}
  [38]
##
  [39]
       {backbone=TRUE}
                                            {predator=TRUE} 0.4653465
  [40] {eggs=FALSE}
                                            {predator=TRUE} 0.2277228
   [41] {venomous=FALSE,tail=FALSE}
                                            {predator=TRUE} 0.1188119
##
   [42] {legs=TRUE}
                                           {predator=TRUE} 0.3861386
                                           {predator=TRUE} 0.1980198
##
   [43] {hair=TRUE}
##
   [44] {aquatic=FALSE}
                                         => {predator=TRUE} 0.2673267
##
        confidence lift
                   1.6648352
##
  [1]
        0.9230769
   [2]
##
        0.8500000
                   1.5330357
##
   [3]
        0.8421053
                   1.5187970
##
   [4]
        0.8387097
                   1.5126728
   [5]
##
        0.8333333
                   1.5029762
##
  [6]
        0.8333333
                   1.5029762
##
  [7]
        0.8125000
                   1.4654018
## [8]
        0.8125000
                   1.4654018
```

```
## [9]
        0.8095238
                    1.4600340
   [10] 0.8055556
                    1.4528770
   [11] 0.7894737
                    1.4238722
   [12] 0.7826087
                    1.4114907
   [13] 0.7727273
                    1.3936688
   [14] 0.7647059
                    1.3792017
   Γ15 ] 0.7619048
                    1.3741497
   [16] 0.7500000
                    1.3526786
   [17] 0.7250000
                    1.3075893
   [18] 0.7105263
                    1.2814850
   [19] 0.7105263
                    1.2814850
   [20] 0.7027027
                    1.2673745
   [21] 0.6911765
                    1.2465861
   [22] 0.6842105
                    1.2340226
   [23] 0.6730769
                    1.2139423
   [24] 0.6666667
                    1.2023810
   [25] 0.6666667
                    1.2023810
   [26] 0.6363636
                    1.1477273
   [27] 0.6338028
                    1.1431087
   [28] 0.6338028
                    1.1431087
   [29] 0.6307692
                    1.1376374
   [30] 0.6250000
                    1.1272321
   [31] 0.6176471
                    1.1139706
   [32] 0.6153846
                    1.1098901
   [33] 0.6031746
                    1.0878685
   [34] 0.6000000
                    1.0821429
   [35] 0.6000000
                    1.0821429
   [36] 0.5952381
                    1.0735544
   [37] 0.5952381
                    1.0735544
   [38] 0.5897436
                    1.0636447
   [39] 0.5662651
                    1.0212995
   [40] 0.5476190
                    0.9876701
   [41] 0.5454545
                    0.9837662
   [42]
        0.5000000
                    0.9017857
   [43]
        0.4651163
                    0.8388704
   [44]
                   0.7491758
##
        0.4153846
##
        lhs
                                               support
                                                         confidence lift
## [1]
                          => {predator=FALSE} 0.1089109 0.8461538
        {domestic=TRUE}
                                                                     1.8991453
   [2]
                          => {predator=FALSE} 0.1683168 0.7083333
        {airborne=TRUE}
                                                                     1.5898148
   [3]
##
        {type=bird}
                          => {predator=FALSE} 0.1089109 0.5500000
                                                                     1.2344444
   [4]
        {feathers=TRUE}
                          => {predator=FALSE} 0.1089109 0.5500000
                                                                     1.2344444
   [5]
                          => {predator=FALSE} 0.2079208 0.5250000
##
        {toothed=FALSE}
                                                                     1.1783333
##
   [6]
        {catsize=FALSE}
                          => {predator=FALSE} 0.2871287 0.5087719
                                                                     1.1419103
##
   [7]
        {milk=TRUE}
                          => {predator=FALSE} 0.1881188 0.4634146
                                                                     1.0401084
  [8]
        {type=mammal}
                          => {predator=FALSE} 0.1881188 0.4634146
                                                                     1.0401084
   [9]
        {tail=FALSE}
                          => {predator=FALSE} 0.1188119 0.4615385
                                                                     1.0358974
##
   [10] {eggs=FALSE}
                          => {predator=FALSE} 0.1881188 0.4523810
                                                                     1.0153439
   [11]
       {eggs=TRUE}
                             {predator=FALSE} 0.2574257 0.4406780
                                                                     0.9890772
   [12] {milk=FALSE}
                          => {predator=FALSE} 0.2574257 0.4333333
                                                                     0.9725926
   [13] {domestic=FALSE}
                          => {predator=FALSE} 0.3366337 0.3863636
                                                                     0.8671717
   [14] {hair=FALSE}
                          => {predator=FALSE} 0.2178218 0.3793103
                                                                     0.8513410
##
   [15] {catsize=TRUE}
                          => {predator=FALSE} 0.1584158 0.3636364
##
       lhs
                                                                      confidence
                                                            support
                                           rhs
## [1] {airborne=FALSE,toothed=FALSE} => {predator=TRUE} 0.1188119 0.6666667
```

```
##
       lift
  [1] 1.202381
##
##
       lhs
                                                       support
   [1] {venomous=FALSE,tail=FALSE} => {predator=TRUE} 0.1188119 0.5454545
##
##
       lift.
##
  [1] 0.9837662
##
                                       rhs
                                                       support
                                                                  confidence
##
   [1] {eggs=FALSE,domestic=FALSE} => {predator=TRUE} 0.2079208 0.6176471
##
       lift
##
  [1] 1.113971
##
       lhs
                                      rhs
                                                      support
                                                                 confidence
   [1] {eggs=TRUE,toothed=TRUE}
                                   => {predator=TRUE} 0.1485149 0.7500000
   [2] {eggs=TRUE,airborne=FALSE} => {predator=TRUE} 0.2574257 0.7027027
  [3] {feathers=FALSE,eggs=TRUE} => {predator=TRUE} 0.2376238 0.6153846
## [4] {eggs=TRUE,backbone=TRUE}
                                  => {predator=TRUE} 0.2475248 0.5952381
   [5] {eggs=TRUE,tail=TRUE}
                                   => {predator=TRUE} 0.2277228 0.5897436
##
       lift
## [1] 1.352679
## [2] 1.267375
## [3] 1.109890
## [4] 1.073554
## [5] 1.063645
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
## [1] {milk=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1584158 0.7619048
## [2] {milk=FALSE,airborne=FALSE} => {predator=TRUE} 0.2673267 0.7105263
## [3] {feathers=FALSE,milk=FALSE} => {predator=TRUE} 0.2475248 0.6250000
  [4] {milk=FALSE,tail=TRUE}
                                    => {predator=TRUE} 0.2376238 0.6000000
##
   [5] {milk=FALSE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
##
       lift
## [1] 1.374150
## [2] 1.281485
## [3] 1.127232
## [4] 1.082143
## [5] 1.073554
##
                                            rhs
                                                            support
## [1]
        {breathes=FALSE,domestic=FALSE} => {predator=TRUE} 0.1683168
## [2]
        {fins=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.1287129
## [3]
        {legs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.1683168
        {airborne=FALSE,domestic=FALSE} => {predator=TRUE} 0.4653465
## [4]
        {domestic=FALSE, catsize=TRUE}
## [5]
                                         => {predator=TRUE} 0.2574257
        {toothed=TRUE,domestic=FALSE}
  [6]
                                         => {predator=TRUE} 0.3465347
## [7]
        {hair=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.3564356
  [8]
        {feathers=FALSE,domestic=FALSE} => {predator=TRUE} 0.4455446
## [9]
        {backbone=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4455446
## [10] {tail=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4059406
  [11] {eggs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.2079208
##
        confidence lift
## [1]
        0.8500000
                  1.533036
  [2]
        0.8125000
                   1.465402
  [3]
        0.7727273
                   1.393669
  [4]
##
        0.6911765
                   1.246586
## [5]
        0.6842105
                   1.234023
## [6]
        0.6730769
                   1.213942
## [7]
        0.6666667 1.202381
```

```
## [8]
       0.6338028
                   1.143109
  [9]
       0.6338028
                   1.143109
  [10] 0.6307692
                   1.137637
  [11] 0.6176471
                  1.113971
                                                       support
                                                                  confidence
## [1] {hair=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1782178 0.7826087
  [2] {hair=FALSE,airborne=FALSE} => {predator=TRUE} 0.2871287 0.7250000
   [3] {hair=FALSE,feathers=FALSE} => {predator=TRUE} 0.2673267 0.7105263
   [4] {hair=FALSE,domestic=FALSE} => {predator=TRUE} 0.3564356 0.6666667
##
##
       lift
## [1] 1.411491
  [2] 1.307589
##
   [3] 1.281485
  [4] 1.202381
##
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
   [1] {aquatic=TRUE, catsize=TRUE}
                                      => {predator=TRUE} 0.1188119 0.9230769
##
   [2] {domestic=FALSE,catsize=TRUE} => {predator=TRUE} 0.2574257 0.6842105
##
       lift
  [1] 1.664835
##
##
   [2] 1.234023
##
   [1]
      "Número de reglas con consecuente negado"
##
                                                             support
                                         => {catsize=FALSE} 0.1089109
        {backbone=FALSE,breathes=TRUE}
##
  [1]
        {eggs=TRUE,tail=FALSE}
##
   [2]
                                            {catsize=FALSE} 0.1881188
##
  [3]
        {milk=FALSE,tail=FALSE}
                                         => {catsize=FALSE} 0.1881188
  [4]
        {backbone=FALSE}
                                         => {catsize=FALSE} 0.1683168
  [5]
        {hair=FALSE,tail=FALSE}
##
                                         => {catsize=FALSE} 0.1485149
##
   [6]
        {predator=FALSE,tail=FALSE}
                                         => {catsize=FALSE} 0.1089109
  [7]
                                         => {catsize=FALSE} 0.2079208
##
        {airborne=TRUE}
## [8]
        {feathers=FALSE, toothed=FALSE}
                                         => {catsize=FALSE} 0.1683168
## [9]
        {feathers=FALSE,milk=FALSE}
                                         => {catsize=FALSE} 0.3366337
  [10] {eggs=TRUE,predator=FALSE}
                                         => {catsize=FALSE} 0.2178218
  [11] {milk=FALSE,predator=FALSE}
                                         => {catsize=FALSE} 0.2178218
## [12] {milk=FALSE,aquatic=FALSE}
                                         => {catsize=FALSE} 0.2475248
  [13] {milk=FALSE,fins=FALSE}
                                         => {catsize=FALSE} 0.3861386
## [14] {eggs=TRUE,aquatic=FALSE}
                                         => {catsize=FALSE} 0.2376238
## [15] {feathers=FALSE,eggs=TRUE}
                                         => {catsize=FALSE} 0.3168317
## [16] {milk=FALSE,breathes=TRUE}
                                         => {catsize=FALSE} 0.3168317
## [17] {hair=FALSE,predator=FALSE}
                                            {catsize=FALSE} 0.1782178
## [18] {hair=FALSE,fins=FALSE}
                                         => {catsize=FALSE} 0.3465347
## [19] {milk=FALSE,toothed=TRUE}
                                           {catsize=FALSE} 0.1683168
## [20] {hair=FALSE,aquatic=FALSE}
                                         => {catsize=FALSE} 0.2079208
## [21] {eggs=TRUE,fins=FALSE}
                                         => {catsize=FALSE} 0.3663366
## [22] {milk=FALSE}
                                         => {catsize=FALSE} 0.4752475
## [23] {eggs=TRUE,toothed=TRUE}
                                         => {catsize=FALSE} 0.1584158
## [24] {eggs=TRUE,breathes=TRUE}
                                         => {catsize=FALSE} 0.3069307
## [25] {hair=FALSE,feathers=FALSE}
                                           {catsize=FALSE} 0.2970297
## [26] {eggs=TRUE}
                                         => {catsize=FALSE} 0.4554455
  [27] {breathes=FALSE, venomous=FALSE} => {catsize=FALSE} 0.1386139
## [28] {hair=FALSE,legs=TRUE}
                                           {catsize=FALSE} 0.2772277
## [29] {tail=FALSE}
                                         => {catsize=FALSE} 0.1980198
## [30] {breathes=FALSE}
                                         => {catsize=FALSE} 0.1584158
## [31] {aquatic=TRUE,fins=FALSE}
                                         => {catsize=FALSE} 0.1386139
## [32] {type=bird}
                                         => {catsize=FALSE} 0.1386139
```

```
## [33] {feathers=TRUE}
                                         => {catsize=FALSE} 0.1386139
                                         => {catsize=FALSE} 0.1584158
## [34] {legs=FALSE}
## [35] {aquatic=TRUE,legs=TRUE}
                                         => {catsize=FALSE} 0.1188119
## [36] {predator=FALSE,domestic=FALSE} => {catsize=FALSE} 0.2178218
## [37] {aquatic=TRUE}
                                            {catsize=FALSE} 0.2277228
## [38] {fins=FALSE,domestic=FALSE}
                                         => {catsize=FALSE} 0.4158416
## [39] {predator=TRUE}
                                         => {catsize=FALSE} 0.2772277
## [40] {airborne=FALSE}
                                         => {catsize=FALSE} 0.3564356
  [41] {hair=TRUE}
                                         => {catsize=FALSE} 0.1287129
##
  [42] {eggs=FALSE}
                                         => {catsize=FALSE} 0.1089109
        confidence lift
##
        1.0000000
                   1.7719298
  [1]
   [2]
        0.9500000
                   1.6833333
## [3]
        0.9500000
                   1.6833333
## [4]
        0.944444
                   1.6734893
## [5]
        0.9375000
                   1.6611842
##
  [6]
        0.9166667
                   1.6242690
  [7]
        0.8750000
                   1.5504386
  [8]
        0.8500000
                   1.5061404
## [9]
        0.8500000
                   1.5061404
## [10] 0.8461538
                   1.4993252
## [11] 0.8461538
                   1.4993252
## [12] 0.8333333
                   1.4766082
## [13] 0.8297872
                   1.4703247
                   1.4664247
## [14] 0.8275862
## [15] 0.8205128
                   1.4538911
## [16] 0.8205128
                   1.4538911
## [17] 0.8181818
                   1.4497608
## [18] 0.8139535
                   1.4422685
## [19] 0.8095238
                   1.4344194
## [20] 0.8076923
                   1.4311741
## [21] 0.8043478
                   1.4252479
## [22] 0.8000000
                   1.4175439
## [23] 0.8000000
                   1.4175439
## [24] 0.7948718
                   1.4084570
## [25] 0.7894737
                   1.3988920
## [26] 0.7796610
                   1.3815046
## [27] 0.7777778
                   1.3781676
## [28] 0.7777778
                   1.3781676
## [29] 0.7692308
                   1.3630229
  [30] 0.7619048
                   1.3500418
## [31] 0.7368421
                   1.3056325
## [32] 0.7000000
                   1.2403509
## [33] 0.7000000
                   1.2403509
                   1.2326468
## [34] 0.6956522
## [35] 0.6666667
                   1.1812865
                   1.1465428
  [36] 0.6470588
  [37] 0.6388889
                   1.1320663
  [38] 0.5833333
                   1.0336257
  [39] 0.5000000
                   0.8859649
## [40] 0.4675325
                   0.8284347
## [41] 0.3023256
                   0.5356997
## [42] 0.2619048
                   0.4640769
##
       lhs
                                          support
                                                     confidence lift
                           rhs
```

```
## [1] {milk=TRUE}
                       => {catsize=TRUE} 0.3168317 0.7804878 1.7915743
                       => {catsize=TRUE} 0.3168317 0.7804878 1.7915743
## [2] {type=mammal}
## [3] {eggs=FALSE}
                       => {catsize=TRUE} 0.3069307 0.7380952
## [4] {hair=TRUE}
                       => {catsize=TRUE} 0.2970297 0.6976744
                                                              1.6014799
## [5] {aquatic=FALSE} => {catsize=TRUE} 0.3069307 0.4769231
                                                              1.0947552
## [6] {aquatic=TRUE} => {catsize=TRUE} 0.1287129 0.3611111 0.8289141
## [7] {hair=FALSE}
                       => {catsize=TRUE} 0.1386139 0.2413793
## [8] {milk=FALSE}
                       => {catsize=TRUE} 0.1188119 0.2000000
                                                               0.4590909
##
       lhs
                                                                confidence
                                     rhs
                                                      support
## [1] {milk=FALSE,aquatic=FALSE} => {catsize=FALSE} 0.2475248 0.8333333
  [2] {eggs=TRUE,aquatic=FALSE} => {catsize=FALSE} 0.2376238 0.8275862
  [3] {hair=FALSE,aquatic=FALSE} => {catsize=FALSE} 0.2079208 0.8076923
##
       lift
## [1] 1.476608
## [2] 1.466425
## [3] 1.431174
##
       lhs
                                    rhs
                                                     support
                                                               confidence
  [1] {aquatic=TRUE,fins=FALSE} => {catsize=FALSE} 0.1386139 0.7368421
   [2] {aquatic=TRUE,legs=TRUE} => {catsize=FALSE} 0.1188119 0.6666667
##
##
       lift
## [1] 1.305633
## [2] 1.181287
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,tail=FALSE}
                                   => {catsize=FALSE} 0.1485149 0.9375000
## [2] {hair=FALSE,predator=FALSE} => {catsize=FALSE} 0.1782178 0.8181818
## [3] {hair=FALSE,fins=FALSE}
                                   => {catsize=FALSE} 0.3465347 0.8139535
## [4] {hair=FALSE,aquatic=FALSE}
                                   => {catsize=FALSE} 0.2079208 0.8076923
## [5] {hair=FALSE,feathers=FALSE} => {catsize=FALSE} 0.2970297 0.7894737
## [6] {hair=FALSE,legs=TRUE}
                                   => {catsize=FALSE} 0.2772277 0.7777778
##
       lift
## [1] 1.661184
## [2] 1.449761
## [3] 1.442268
## [4] 1.431174
## [5] 1.398892
## [6] 1.378168
##
       lhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,tail=FALSE}
                                   => {catsize=FALSE} 0.1881188 0.9500000
## [2] {feathers=FALSE,milk=FALSE} => {catsize=FALSE} 0.3366337 0.8500000
## [3] {milk=FALSE,predator=FALSE} => {catsize=FALSE} 0.2178218 0.8461538
## [4] {milk=FALSE,aquatic=FALSE} => {catsize=FALSE} 0.2475248 0.8333333
## [5] {milk=FALSE,fins=FALSE}
                                   => {catsize=FALSE} 0.3861386 0.8297872
## [6] {milk=FALSE,breathes=TRUE} => {catsize=FALSE} 0.3168317 0.8205128
## [7] {milk=FALSE,toothed=TRUE}
                                   => {catsize=FALSE} 0.1683168 0.8095238
       lift
## [1] 1.683333
## [2] 1.506140
## [3] 1.499325
## [4] 1.476608
## [5] 1.470325
## [6] 1.453891
## [7] 1.434419
## [1] "Número de reglas con consecuente negado"
##
        lhs
                                                            support
```

```
{backbone=FALSE,breathes=TRUE}
                                         => {catsize=FALSE} 0.1089109
                                           {catsize=FALSE} 0.1881188
##
   [2]
        {eggs=TRUE,tail=FALSE}
##
  [3]
        {milk=FALSE,tail=FALSE}
                                            {catsize=FALSE} 0.1881188
  [4]
##
        {backbone=FALSE}
                                            {catsize=FALSE} 0.1683168
##
   [5]
        {hair=FALSE,tail=FALSE}
                                            {catsize=FALSE} 0.1485149
   [6]
                                            {catsize=FALSE} 0.1089109
##
        {predator=FALSE,tail=FALSE}
                                            {catsize=FALSE} 0.2079208
  [7]
        {airborne=TRUE}
  [8]
##
        {feathers=FALSE, toothed=FALSE}
                                            {catsize=FALSE} 0.1683168
   [9]
        {feathers=FALSE, milk=FALSE}
                                            {catsize=FALSE} 0.3366337
  [10] {eggs=TRUE,predator=FALSE}
                                            {catsize=FALSE} 0.2178218
  [11] {milk=FALSE,predator=FALSE}
                                         => {catsize=FALSE} 0.2178218
  [12] {milk=FALSE,aquatic=FALSE}
                                           {catsize=FALSE} 0.2475248
  [13] {milk=FALSE,fins=FALSE}
                                           {catsize=FALSE} 0.3861386
  [14] {eggs=TRUE,aquatic=FALSE}
                                         => {catsize=FALSE} 0.2376238
## [15] {feathers=FALSE,eggs=TRUE}
                                         => {catsize=FALSE} 0.3168317
   [16] {milk=FALSE,breathes=TRUE}
                                            {catsize=FALSE} 0.3168317
                                           {catsize=FALSE} 0.1782178
  [17] {hair=FALSE, predator=FALSE}
  [18] {hair=FALSE,fins=FALSE}
                                           {catsize=FALSE} 0.3465347
  [19] {milk=FALSE,toothed=TRUE}
                                            {catsize=FALSE} 0.1683168
  [20] {hair=FALSE,aquatic=FALSE}
                                            {catsize=FALSE} 0.2079208
## [21] {eggs=TRUE,fins=FALSE}
                                            {catsize=FALSE} 0.3663366
## [22] {milk=FALSE}
                                            {catsize=FALSE} 0.4752475
                                            {catsize=FALSE} 0.1584158
## [23] {eggs=TRUE,toothed=TRUE}
  [24] {eggs=TRUE,breathes=TRUE}
                                            {catsize=FALSE} 0.3069307
  [25]
       {hair=FALSE, feathers=FALSE}
                                            {catsize=FALSE} 0.2970297
  [26] {eggs=TRUE}
                                            {catsize=FALSE} 0.4554455
  [27] {breathes=FALSE, venomous=FALSE} =>
                                            {catsize=FALSE} 0.1386139
  [28] {hair=FALSE,legs=TRUE}
                                            {catsize=FALSE} 0.2772277
## [29] {tail=FALSE}
                                         => {catsize=FALSE} 0.1980198
  [30] {breathes=FALSE}
                                           {catsize=FALSE} 0.1584158
  [31] {aquatic=TRUE,fins=FALSE}
                                           {catsize=FALSE} 0.1386139
##
   [32]
        {type=bird}
                                            {catsize=FALSE} 0.1386139
  [33]
       {feathers=TRUE}
                                            {catsize=FALSE} 0.1386139
                                           {catsize=FALSE} 0.1584158
##
  [34] {legs=FALSE}
       {aquatic=TRUE,legs=TRUE}
                                            {catsize=FALSE} 0.1188119
   [36] {predator=FALSE,domestic=FALSE} =>
                                            {catsize=FALSE} 0.2178218
##
  [37] {aquatic=TRUE}
                                            {catsize=FALSE} 0.2277228
  [38] {fins=FALSE,domestic=FALSE}
                                            {catsize=FALSE} 0.4158416
   [39] {predator=TRUE}
                                            {catsize=FALSE} 0.2772277
  [40] {airborne=FALSE}
                                           {catsize=FALSE} 0.3564356
   [41] {hair=TRUE}
                                         => {catsize=FALSE} 0.1287129
   [42] {eggs=FALSE}
                                         => {catsize=FALSE} 0.1089109
##
        confidence lift
##
  [1]
        1.0000000 1.7719298
  [2]
        0.9500000
                   1.6833333
  [3]
        0.9500000
##
                   1.6833333
##
   [4]
        0.944444
                   1.6734893
##
  [5]
        0.9375000
                   1.6611842
##
  [6]
        0.9166667
                   1.6242690
##
   [7]
        0.8750000
                   1.5504386
  [8]
##
        0.8500000
                   1.5061404
## [9]
        0.8500000
                   1.5061404
## [10] 0.8461538
                   1.4993252
## [11] 0.8461538
                  1.4993252
```

```
## [12] 0.8333333
                   1.4766082
  [13] 0.8297872
                   1.4703247
  [14] 0.8275862
                   1.4664247
  [15] 0.8205128
                   1.4538911
  [16] 0.8205128
                   1.4538911
  [17] 0.8181818
                   1.4497608
  [18] 0.8139535
                   1.4422685
## [19] 0.8095238
                   1.4344194
  [20] 0.8076923
                   1.4311741
  [21] 0.8043478
                   1.4252479
  [22] 0.8000000
                   1.4175439
## [23] 0.8000000
                   1.4175439
                   1.4084570
## [24] 0.7948718
## [25] 0.7894737
                   1.3988920
## [26] 0.7796610
                   1.3815046
  [27] 0.7777778
                   1.3781676
  [28] 0.7777778
                   1.3781676
  [29] 0.7692308
                   1.3630229
                   1.3500418
  [30] 0.7619048
                   1.3056325
  [31] 0.7368421
##
  [32] 0.7000000
                   1.2403509
  [33] 0.7000000
                   1.2403509
  [34] 0.6956522
                   1.2326468
   [35] 0.6666667
                   1.1812865
  [36] 0.6470588
                   1.1465428
  [37] 0.6388889
                   1.1320663
  [38] 0.5833333
                   1.0336257
  [39] 0.5000000
                   0.8859649
## [40] 0.4675325
                   0.8284347
## [41] 0.3023256
                   0.5356997
## [42] 0.2619048
                   0.4640769
##
       lhs
                           rhs
                                                     confidence lift
                                           support
  [1] {milk=TRUE}
                        => {catsize=TRUE} 0.3168317 0.7804878 1.7915743
                        => {catsize=TRUE} 0.3168317 0.7804878
                                                                1.7915743
   [2] {type=mammal}
   [3] {eggs=FALSE}
                        => {catsize=TRUE} 0.3069307 0.7380952
                                                                1.6942641
                        => {catsize=TRUE} 0.2970297 0.6976744
##
   [4] {hair=TRUE}
                                                                1.6014799
   [5] {aquatic=FALSE} => {catsize=TRUE} 0.3069307 0.4769231
   [6] {aquatic=TRUE}
                        => {catsize=TRUE} 0.1287129 0.3611111
                                                                0.8289141
   [7] {hair=FALSE}
                        => {catsize=TRUE} 0.1386139 0.2413793
                                                                0.5540752
##
   [8] {milk=FALSE}
                        => {catsize=TRUE} 0.1188119 0.2000000
                                                                0.4590909
##
       lhs
                                      rhs
                                                       support
                                                                  confidence
   [1] {milk=FALSE, aquatic=FALSE} => {catsize=FALSE} 0.2475248 0.8333333
   [2] {eggs=TRUE,aquatic=FALSE} => {catsize=FALSE} 0.2376238 0.8275862
   [3] {\text{hair=FALSE, aquatic=FALSE}} \Rightarrow {\text{catsize=FALSE}} 0.2079208 0.8076923
##
##
       lift
  [1] 1.476608
##
##
   [2] 1.466425
##
   [3] 1.431174
##
       lhs
                                     rhs
                                                      support
                                                                confidence
##
   [1] {aquatic=TRUE,fins=FALSE} => {catsize=FALSE} 0.1386139 0.7368421
##
   [2] {aquatic=TRUE,legs=TRUE} => {catsize=FALSE} 0.1188119 0.6666667
##
       lift
## [1] 1.305633
## [2] 1.181287
```

```
##
                                                       support
                                                                 confidence
## [1] {hair=FALSE,tail=FALSE}
                                    => {catsize=FALSE} 0.1485149 0.9375000
  [2] {hair=FALSE, predator=FALSE} => {catsize=FALSE} 0.1782178 0.8181818
   [3] {hair=FALSE,fins=FALSE}
                                    => {catsize=FALSE} 0.3465347 0.8139535
   [4] {hair=FALSE,aquatic=FALSE}
                                  => {catsize=FALSE} 0.2079208 0.8076923
  [5] {hair=FALSE, feathers=FALSE} => {catsize=FALSE} 0.2970297 0.7894737
   [6] {hair=FALSE,legs=TRUE}
                                    => {catsize=FALSE} 0.2772277 0.7777778
##
       lift
## [1] 1.661184
  [2] 1.449761
##
  [3] 1.442268
  [4] 1.431174
  [5] 1.398892
  [6] 1.378168
##
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,tail=FALSE}
                                      {catsize=FALSE} 0.1881188 0.9500000
   [2] {feathers=FALSE,milk=FALSE} => {catsize=FALSE} 0.3366337 0.8500000
  [3] {milk=FALSE,predator=FALSE} => {catsize=FALSE} 0.2178218 0.8461538
  [4] {milk=FALSE, aquatic=FALSE} => {catsize=FALSE} 0.2475248 0.8333333
  [5] {milk=FALSE,fins=FALSE}
                                    => {catsize=FALSE} 0.3861386 0.8297872
  [6] {milk=FALSE,breathes=TRUE}
                                   => {catsize=FALSE} 0.3168317 0.8205128
  [7] {milk=FALSE,toothed=TRUE}
                                    => {catsize=FALSE} 0.1683168 0.8095238
##
       lift
## [1] 1.683333
  [2] 1.506140
  [3] 1.499325
## [4] 1.476608
##
  [5] 1.470325
## [6] 1.453891
  [7] 1.434419
##
  [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
##
  [1]
        {type=fish}
                                         => {feathers=FALSE} 0.1287129
  [2]
                                         => {feathers=FALSE} 0.1683168
##
        {fins=TRUE}
##
  [3]
        {backbone=FALSE}
                                           {feathers=FALSE} 0.1782178
##
  [4]
                                         => {feathers=FALSE} 0.2079208
        {breathes=FALSE}
## [5]
        {legs=FALSE}
                                           {feathers=FALSE} 0.2277228
## [6]
        {tail=FALSE}
                                           {feathers=FALSE} 0.2574257
  [7]
                                            {feathers=FALSE} 0.4158416
##
        {eggs=FALSE}
                                           {feathers=FALSE} 0.4257426
##
  [8]
        {hair=TRUE}
  [9]
        {airborne=FALSE, catsize=FALSE}
                                           {feathers=FALSE} 0.3465347
  [10] {airborne=FALSE, predator=FALSE} =>
                                           {feathers=FALSE} 0.2673267
## [11] {airborne=FALSE}
                                         => {feathers=FALSE} 0.7227723
## [12] {catsize=TRUE}
                                         => {feathers=FALSE} 0.3762376
## [13] {predator=TRUE}
                                         => {feathers=FALSE} 0.4653465
                                         => {feathers=FALSE} 0.2970297
## [14] {aquatic=TRUE}
## [15] {aquatic=FALSE}
                                         => {feathers=FALSE} 0.5049505
## [16] {predator=FALSE}
                                         => {feathers=FALSE} 0.3366337
## [17] {catsize=FALSE}
                                         => {feathers=FALSE} 0.4257426
## [18] {breathes=TRUE}
                                         => {feathers=FALSE} 0.5940594
                                         => {feathers=FALSE} 0.5742574
## [19] {legs=TRUE}
## [20] {milk=FALSE}
                                         => {feathers=FALSE} 0.3960396
## [21] {eggs=TRUE}
                                         => {feathers=FALSE} 0.3861386
## [22] {hair=FALSE}
                                         => {feathers=FALSE} 0.3762376
```

```
[23] {toothed=FALSE}
                                         => {feathers=FALSE} 0.1980198
##
        confidence lift
##
  [1]
        1.0000000
                   1.2469136
  [2]
##
        1.0000000
                   1.2469136
   [3]
        1.0000000
                   1.2469136
   [4]
##
        1.0000000
                   1.2469136
  [5]
        1.0000000
                   1.2469136
                   1.2469136
##
  [6]
        1.0000000
##
   [7]
        1.0000000
                   1.2469136
##
   [8]
        1.0000000
                   1.2469136
  [9]
        0.9722222
                   1.2122771
   [10]
       0.9642857
                   1.2023810
   [11] 0.9480519
                   1.1821388
  [12] 0.8636364
                   1.0768799
  [13] 0.8392857
                   1.0465168
   [14] 0.8333333
                   1.0390947
   [15] 0.7846154
                   0.9783476
   [16] 0.7555556
                   0.9421125
   [17] 0.7543860
                   0.9406541
   [18] 0.7500000
                   0.9351852
##
  [19] 0.7435897
                   0.9271921
  [20] 0.6666667
                   0.8312757
  [21] 0.6610169
                   0.8242310
   [22] 0.6551724
                   0.8169434
##
   [23] 0.5000000
                   0.6234568
       lhs
                                            support
                                                       confidence lift
##
   [1] {type=bird}
                         => {feathers=TRUE} 0.1980198 1.0000000
                                                                  5.0500000
   [2] {hair=FALSE}
                         => {feathers=TRUE} 0.1980198 0.3448276
                                                                  1.7413793
                        => {feathers=TRUE} 0.1386139 0.2153846
   [3] {aquatic=FALSE}
                                                                  1.0876923
   [4] {venomous=FALSE} => {feathers=TRUE} 0.1980198 0.2150538
                                                                  1.0860215
       {domestic=FALSE} => {feathers=TRUE} 0.1683168 0.1931818
                                                                  0.9755682
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                         support
                                                                    confidence
##
   [1]
        {milk=TRUE,predator=FALSE}
                                            {hair=TRUE} 0.1881188 1.0000000
   [2]
        {milk=TRUE,aquatic=FALSE}
                                            {hair=TRUE} 0.3465347 1.0000000
##
                                            {hair=TRUE} 0.3762376 1.0000000
##
   [3]
        {milk=TRUE,legs=TRUE}
  [4]
        {milk=TRUE,fins=FALSE}
                                             {hair=TRUE} 0.3663366 1.0000000
  [5]
        {predator=FALSE, type=mammal}
                                            {hair=TRUE} 0.1881188 1.0000000
##
        {aquatic=FALSE, type=mammal}
                                             {hair=TRUE} 0.3465347 1.0000000
##
   [6]
        {legs=TRUE, type=mammal}
##
  [7]
                                             {hair=TRUE} 0.3762376 1.0000000
                                             {hair=TRUE} 0.3663366 1.0000000
  [8]
        {fins=FALSE,type=mammal}
        {eggs=FALSE,predator=FALSE}
                                            {hair=TRUE} 0.1881188 1.0000000
   [9]
   [10] {eggs=FALSE,legs=TRUE}
                                             {hair=TRUE} 0.3663366 0.9736842
  [11] {eggs=FALSE,aquatic=FALSE}
                                             {hair=TRUE} 0.3465347 0.9722222
##
  [12] {milk=TRUE}
                                            {hair=TRUE} 0.3861386 0.9512195
                                            {hair=TRUE} 0.3861386 0.9512195
## [13] {type=mammal}
  [14]
       {eggs=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.9500000
   [15] {eggs=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3564356 0.9473684
  [16] {eggs=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.9268293
   [17] {aquatic=FALSE, toothed=TRUE}
                                            {hair=TRUE} 0.3465347 0.9210526
##
  [18]
       {eggs=FALSE}
                                            {hair=TRUE} 0.3762376 0.9047619
  [19] {toothed=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3663366 0.8809524
## [20] {aquatic=FALSE,catsize=TRUE}
                                         =>
                                            {hair=TRUE} 0.2574257 0.8387097
## [21] {toothed=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2871287 0.8285714
```

```
[22] {toothed=TRUE,fins=FALSE}
                                         => {hair=TRUE} 0.3564356 0.8181818
   [23] {toothed=TRUE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.8085106
  [24] {predator=FALSE,toothed=TRUE}
                                            {hair=TRUE} 0.1881188 0.7916667
   [25] {feathers=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2970297 0.7894737
##
   [26] {legs=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2871287 0.7837838
  [27] {fins=FALSE,catsize=TRUE}
##
                                            {hair=TRUE} 0.2772277 0.7777778
  [28] {breathes=TRUE.catsize=TRUE}
                                            {hair=TRUE} 0.2970297 0.7692308
  [29] {feathers=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3861386 0.7647059
   [30] {predator=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.1188119 0.7500000
   [31] {feathers=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.7241379
   [32] {airborne=FALSE,aquatic=FALSE}
                                           {hair=TRUE} 0.3267327 0.7173913
   [33] {feathers=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.4257426 0.7166667
   [34] {feathers=FALSE, predator=FALSE}
                                            {hair=TRUE} 0.2277228 0.6764706
   [35] {toothed=TRUE, venomous=FALSE}
                                           {hair=TRUE} 0.3762376 0.6666667
   [36] {airborne=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.3564356 0.6666667
   [37]
        {airborne=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3663366 0.6607143
   [38]
       {aquatic=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3465347 0.6603774
   [39] {aquatic=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3861386 0.6500000
   [40] {feathers=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.4059406 0.6406250
   [41] {toothed=TRUE}
                                            {hair=TRUE} 0.3762376 0.6229508
##
  [42] {feathers=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3861386 0.6190476
  [43] {aquatic=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.2970297 0.6122449
  [44] {aquatic=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.6093750
   [45] {airborne=FALSE,predator=FALSE} =>
##
                                            {hair=TRUE} 0.1683168 0.6071429
   [46] {aquatic=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3663366 0.6065574
   [47] {feathers=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.6000000
   [48] {backbone=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3762376 0.5937500
##
   [49] {predator=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.2277228 0.5897436
   [50] {airborne=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.3465347 0.5833333
   [51] {legs=TRUE,tail=TRUE}
                                           {hair=TRUE} 0.3267327 0.5789474
   [52] {breathes=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.5753425
##
   [53]
        {airborne=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3663366 0.5692308
   [54]
       {backbone=TRUE, breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.5652174
   [55] {feathers=FALSE, venomous=FALSE} =>
                                            {hair=TRUE} 0.4059406 0.5616438
       {predator=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.2277228 0.5609756
   [57]
##
       {predator=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.2277228 0.5609756
   [58] {backbone=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.3663366 0.5606061
   [59] {breathes=TRUE, venomous=FALSE}
                                            {hair=TRUE} 0.4059406 0.5466667
##
       {airborne=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.3069307 0.5438596
   [60]
##
   [61] {fins=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.3168317 0.5423729
   [62] {breathes=TRUE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.5409836
   [63] {venomous=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3960396 0.5405405
##
   Γ641
       {breathes=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.4059406 0.5394737
   [65] {predator=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.1881188 0.5277778
  [66] {airborne=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3663366 0.5211268
        {predator=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.1683168 0.5151515
##
   [67]
##
   [68]
        {predator=FALSE}
                                            {hair=TRUE} 0.2277228 0.5111111
   [69]
       {venomous=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.3861386 0.5064935
   [70] {backbone=TRUE, venomous=FALSE}
                                           {hair=TRUE} 0.3861386 0.4936709
   [71]
        {backbone=TRUE}
                                           {hair=TRUE} 0.3861386 0.4698795
                                            {hair=TRUE} 0.3267327 0.4647887
       {venomous=FALSE,tail=TRUE}
##
  [73] {domestic=FALSE}
                                         => {hair=TRUE} 0.3366337 0.3863636
##
        lift
## [1]
       2.3488372
```

- ## [2] 2.3488372
- ## [3] 2.3488372
- ## [4] 2.3488372
- ## [5] 2.3488372
- ## [0] 2.0400012
- ## [6] 2.3488372
- ## [7] 2.3488372
- ## [8] 2.3488372
- ## [9] 2.3488372
- ## [10] 2.2870257
- ## [11] 2.2835917
- ... 5....
- ## [12] 2.2342598
- ## [13] 2.2342598
- ## [14] 2.2313953
- ## [15] 2.2252142
- ## [16] 2.1769711
- ## [17] 2.1634027
- ## [18] 2.1251384
- ## [19] 2.0692137
- ## [20] 1.9699925
- ## [21] 1.9461794
- ## [22] 1.9217759
- ## [23] 1.8990599
- ## [24] 1.8594961
- ## [25] 1.8543452
- ## [26] 1.8409805
- ## [27] 1.8268734
- ## [28] 1.8067979
- ## [29] 1.7961696
- ## [30] 1.7616279
- ## [31] 1.7008821
- ## [32] 1.6850354
- ## [33] 1.6833333
- ## [34] 1.5889193
- ## [35] 1.5658915
- ## [36] 1.5658915
- ## [37] 1.5519103 ## [38] 1.5511189
- ## [39] 1.5267442
- ## [40] 1.5047238
- ## [41] 1.4632101
- ## [42] 1.4540421
- ## [43] 1.4380636
- ## [44] 1.4313227
- ## [45] 1.4260797
- ## [46] 1.4247045
- ## [40] 1.4247045 ## [47] 1.4093023
- ## [48] 1.3946221
- ## [49] 1.3852117
- ## [50] 1.3701550
- ## [51] 1.3598531
- ## [52] 1.3513858
- ## [53] 1.3370304
- ## [54] 1.3276036 ## [55] 1.3192099

```
## [56] 1.3176404
   [57] 1.3176404
  [58] 1.3167724
  [59] 1.2840310
  [60] 1.2774378
  [61] 1.2739456
  [62] 1.2706824
## [63] 1.2696417
  [64] 1.2671359
  [65] 1.2396641
  [66] 1.2240419
  [67] 1.2100070
   [68] 1.2005168
  [69] 1.1896708
## [70] 1.1595525
  [71] 1.1036705
  [72] 1.0917131
  [73] 0.9075053
##
                                                    confidence lift
        lhs
                                          support
                            rhs
##
  [1]
        {type=fish}
                         => {hair=FALSE} 0.1287129 1.0000000
##
  [2]
        {breathes=FALSE} => {hair=FALSE} 0.2079208 1.0000000
                                                               1.7413793
  [3]
                         => {hair=FALSE} 0.2178218 0.9565217
        {legs=FALSE}
## [4]
                         => {hair=FALSE} 0.3168317 0.8888889
        {aquatic=TRUE}
                                                                1.5478927
  [5]
                         => {hair=FALSE} 0.3465347 0.8750000
        {toothed=FALSE}
                                                                1.5237069
##
  [6]
        {backbone=FALSE} => {hair=FALSE} 0.1386139 0.7777778
                                                                1.3544061
  [7]
        {catsize=FALSE}
                         => {hair=FALSE} 0.4356436 0.7719298
                                                                1.3442226
  [8]
                         => {hair=FALSE} 0.1782178 0.7500000
##
        {airborne=TRUE}
                                                                1.3060345
   [9]
        {predator=TRUE}
                         => {hair=FALSE} 0.3564356 0.6428571
                                                                1.1194581
                         => {hair=FALSE} 0.1584158 0.6153846
## [10] {tail=FALSE}
                                                                1.0716180
## [11] {backbone=TRUE}
                         => {hair=FALSE} 0.4356436 0.5301205
                                                                0.9231408
## [12] {breathes=TRUE}
                         => {hair=FALSE} 0.3663366 0.4625000
                                                                0.8053879
  [13] {legs=TRUE}
                         => {hair=FALSE} 0.3564356 0.4615385
                                                                0.8037135
##
  [14] {aquatic=FALSE}
                         => {hair=FALSE} 0.2574257 0.4000000
                                                                0.6965517
##
       lhs
                                          rhs
                                                                 confidence
                                                      support
   [1] {aquatic=FALSE,backbone=TRUE} => {hair=TRUE} 0.3465347 0.6603774
   [2] {feathers=FALSE,backbone=TRUE} => {hair=TRUE} 0.3861386 0.6190476
  [3] {backbone=TRUE,legs=TRUE}
                                       => {hair=TRUE} 0.3762376 0.5937500
## [4] {airborne=FALSE,backbone=TRUE} => {hair=TRUE} 0.3663366 0.5692308
  [5] {backbone=TRUE, breathes=TRUE} => {hair=TRUE} 0.3861386 0.5652174
  [6] {backbone=TRUE,fins=FALSE}
                                       => {hair=TRUE} 0.3663366 0.5606061
  [7] {predator=FALSE,backbone=TRUE} => {hair=TRUE} 0.1881188 0.5277778
  [8] {backbone=TRUE, venomous=FALSE} => {hair=TRUE} 0.3861386 0.4936709
##
       lift
## [1] 1.551119
## [2] 1.454042
## [3] 1.394622
  [4] 1.337030
  [5] 1.327604
  [6] 1.316772
##
  [7]
      1.239664
##
  [8] 1.159553
##
        lhs
                                           rhs
                                                       support
                                                                  confidence
## [1]
        {eggs=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3762376 0.9268293
## [2]
        {toothed=TRUE,breathes=TRUE}
                                        => {hair=TRUE} 0.3762376 0.8085106
```

```
## [3]
        {breathes=TRUE,catsize=TRUE}
                                        => {hair=TRUE} 0.2970297 0.7692308
##
  [4]
        {feathers=FALSE,breathes=TRUE} => {hair=TRUE} 0.4257426 0.7166667
  [5]
        {airborne=FALSE,breathes=TRUE} => {hair=TRUE} 0.3663366 0.6607143
        {aquatic=FALSE,breathes=TRUE}
  [6]
                                       => {hair=TRUE} 0.3861386 0.6093750
##
##
   [7]
        {breathes=TRUE,legs=TRUE}
                                        => {hair=TRUE} 0.4158416 0.5753425
  [8]
        {backbone=TRUE,breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.5652174
##
        {predator=FALSE,breathes=TRUE} => {hair=TRUE} 0.2277228 0.5609756
## [10] {breathes=TRUE, venomous=FALSE} => {hair=TRUE} 0.4059406 0.5466667
   [11] {breathes=TRUE,tail=TRUE}
                                        => {hair=TRUE} 0.3267327 0.5409836
   [12] {breathes=TRUE,fins=FALSE}
##
                                        => {hair=TRUE} 0.4059406 0.5394737
##
        lift
##
  [1]
        2.176971
##
   [2]
        1.899060
  [3]
##
        1.806798
## [4]
        1.683333
##
  [5]
        1.551910
  [6]
##
        1.431323
##
  [7]
        1.351386
  [8]
##
        1.327604
##
   [9]
        1.317640
##
  [10] 1.284031
## [11] 1.270682
## [12] 1.267136
##
        lhs
                                                   support
                                                              confidence
## [1]
        {milk=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.3762376 1.0000000
  [2]
        {legs=TRUE, type=mammal}
                                    => {hair=TRUE} 0.3762376 1.0000000
  [3]
        {eggs=FALSE,legs=TRUE}
                                    => {hair=TRUE} 0.3663366 0.9736842
##
##
   [4]
        {toothed=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.3663366 0.8809524
##
  [5]
        {legs=TRUE,catsize=TRUE}
                                    => {hair=TRUE} 0.2871287 0.7837838
## [6]
        {feathers=FALSE,legs=TRUE} => {hair=TRUE} 0.4158416 0.7241379
## [7]
        {airborne=FALSE,legs=TRUE} => {hair=TRUE} 0.3564356 0.6666667
##
  [8]
        {aquatic=FALSE,legs=TRUE}
                                    => {hair=TRUE} 0.3861386 0.6500000
  [9]
        {backbone=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.3762376 0.5937500
  [10] {predator=FALSE,legs=TRUE} => {hair=TRUE} 0.2277228 0.5897436
   [11] {legs=TRUE,tail=TRUE}
                                    => {hair=TRUE} 0.3267327 0.5789474
  [12] {breathes=TRUE,legs=TRUE} => {hair=TRUE} 0.4158416 0.5753425
##
  [13] {venomous=FALSE,legs=TRUE} => {hair=TRUE} 0.3960396 0.5405405
##
        lift
##
  [1]
        2.348837
##
  [2]
        2.348837
  [3]
        2.287026
  [4]
        2.069214
##
##
   [5]
        1.840981
##
  [6]
        1.700882
  [7]
        1.565891
## [8]
        1.526744
##
  [9]
        1.394622
  [10] 1.385212
  [11] 1.359853
##
  [12] 1.351386
##
  [13] 1.269642
##
        lhs
                                           rhs
                                                        support
                                                                  confidence
## [1]
        {milk=TRUE,aquatic=FALSE}
                                        => {hair=TRUE} 0.3465347 1.0000000
## [2]
        {aquatic=FALSE, type=mammal}
                                        => {hair=TRUE} 0.3465347 1.0000000
```

```
{eggs=FALSE,aquatic=FALSE}
                                        => {hair=TRUE} 0.3465347 0.9722222
##
   [4]
        {aquatic=FALSE, toothed=TRUE}
                                        => {hair=TRUE} 0.3465347 0.9210526
   [5]
        {aquatic=FALSE, catsize=TRUE}
                                        => {hair=TRUE} 0.2574257 0.8387097
   [6]
        {feathers=FALSE, aquatic=FALSE} => {hair=TRUE} 0.3861386 0.7647059
##
        {airborne=FALSE,aquatic=FALSE}
##
   [7]
                                        => {hair=TRUE} 0.3267327 0.7173913
##
   [8]
        {aquatic=FALSE,backbone=TRUE}
                                        => {hair=TRUE} 0.3465347 0.6603774
   [9]
        {aquatic=FALSE,legs=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6500000
   [10] {aquatic=FALSE,tail=TRUE}
                                        => {hair=TRUE} 0.2970297 0.6122449
   [11] {aquatic=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6093750
##
   [12] {aquatic=FALSE, venomous=FALSE} => {hair=TRUE} 0.3663366 0.6065574
##
        lift
   [1]
##
        2.348837
##
   [2]
        2.348837
##
   [3]
        2.283592
  [4]
        2.163403
##
##
   [5]
        1.969992
   [6]
##
        1.796170
   [7]
        1.685035
   [8]
##
        1.551119
##
   [9]
        1.526744
##
  [10] 1.438064
  [11] 1.431323
  [12] 1.424705
##
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
  [1]
        {milk=TRUE,predator=FALSE}
                                            {hair=TRUE} 0.1881188 1.0000000
   [2]
                                            {hair=TRUE} 0.3465347 1.0000000
##
        {milk=TRUE,aquatic=FALSE}
##
   [3]
        {milk=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3762376 1.0000000
  [4]
##
        {milk=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.3663366 1.0000000
##
  [5]
        {predator=FALSE,type=mammal}
                                            {hair=TRUE} 0.1881188 1.0000000
##
   [6]
        {aquatic=FALSE, type=mammal}
                                            {hair=TRUE} 0.3465347 1.0000000
##
   [7]
        {legs=TRUE, type=mammal}
                                            {hair=TRUE} 0.3762376 1.0000000
  [8]
        {fins=FALSE, type=mammal}
                                            {hair=TRUE} 0.3663366 1.0000000
##
  [9]
        {eggs=FALSE,predator=FALSE}
                                            {hair=TRUE} 0.1881188 1.0000000
   [10] {eggs=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3663366 0.9736842
##
  [11] {eggs=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3465347 0.9722222
  [12] {milk=TRUE}
                                            {hair=TRUE} 0.3861386 0.9512195
                                            {hair=TRUE} 0.3861386 0.9512195
  [13] {type=mammal}
  [14] {eggs=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.9500000
  [15] {eggs=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3564356 0.9473684
  [16] {eggs=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.9268293
  [17] {aquatic=FALSE,toothed=TRUE}
                                            {hair=TRUE} 0.3465347 0.9210526
  [18] {eggs=FALSE}
                                            {hair=TRUE} 0.3762376 0.9047619
  [19] {toothed=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3663366 0.8809524
## [20] {aquatic=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2574257 0.8387097
  [21] {toothed=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2871287 0.8285714
  [22] {toothed=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.3564356 0.8181818
  [23] {toothed=TRUE,breathes=TRUE}
                                         => {hair=TRUE} 0.3762376 0.8085106
                                         => {hair=TRUE} 0.1881188 0.7916667
  [24] {predator=FALSE,toothed=TRUE}
  [25] {feathers=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2970297 0.7894737
  [26] {legs=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2871287 0.7837838
## [27] {fins=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2772277 0.7777778
## [28] {breathes=TRUE,catsize=TRUE}
                                         => {hair=TRUE} 0.2970297 0.7692308
## [29] {feathers=FALSE, aquatic=FALSE}
                                            {hair=TRUE} 0.3861386 0.7647059
```

```
## [30] {predator=FALSE,catsize=TRUE}
                                         => {hair=TRUE} 0.1188119 0.7500000
   [31] {feathers=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.7241379
   [32] {airborne=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3267327 0.7173913
  [33] {feathers=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.4257426 0.7166667
##
   [34] {feathers=FALSE, predator=FALSE}
                                            {hair=TRUE} 0.2277228 0.6764706
  [35] {toothed=TRUE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.6666667
##
  [36] {airborne=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3564356 0.6666667
  [37] {airborne=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3663366 0.6607143
   [38]
       {aquatic=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3465347 0.6603774
   [39]
       {aquatic=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3861386 0.6500000
   [40] {feathers=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.4059406 0.6406250
   [41] {toothed=TRUE}
                                            {hair=TRUE} 0.3762376 0.6229508
   [42]
       {feathers=FALSE, backbone=TRUE}
                                            {hair=TRUE} 0.3861386 0.6190476
  [43] {aquatic=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.2970297 0.6122449
  [44] {aquatic=FALSE,breathes=TRUE}
                                           {hair=TRUE} 0.3861386 0.6093750
   [45]
        {airborne=FALSE, predator=FALSE}
                                            {hair=TRUE} 0.1683168 0.6071429
   [46]
        {aquatic=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3663366 0.6065574
       {feathers=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.6000000
   [47]
   [48] {backbone=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3762376 0.5937500
   [49] {predator=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.2277228 0.5897436
##
  [50] {airborne=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3465347 0.5833333
  [51] {legs=TRUE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.5789474
  [52] {breathes=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.5753425
##
       {airborne=FALSE.backbone=TRUE}
##
   [53]
                                            {hair=TRUE} 0.3663366 0.5692308
  [54]
       {backbone=TRUE, breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.5652174
   [55] {feathers=FALSE, venomous=FALSE} =>
                                            {hair=TRUE} 0.4059406 0.5616438
   [56] {predator=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.2277228 0.5609756
##
   [57] {predator=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.2277228 0.5609756
   [58] {backbone=TRUE,fins=FALSE}
                                           {hair=TRUE} 0.3663366 0.5606061
  [59] {breathes=TRUE, venomous=FALSE}
                                         => {hair=TRUE} 0.4059406 0.5466667
   [60] {airborne=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.3069307 0.5438596
##
   [61]
       {fins=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.3168317 0.5423729
       {breathes=TRUE,tail=TRUE}
                                           {hair=TRUE} 0.3267327 0.5409836
   [63] {venomous=FALSE,legs=TRUE}
                                         => {hair=TRUE} 0.3960396 0.5405405
   [64]
        {breathes=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.4059406 0.5394737
##
   [65]
       {predator=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.1881188 0.5277778
   [66] {airborne=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3663366 0.5211268
       {predator=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.1683168 0.5151515
##
   [67]
        {predator=FALSE}
                                            {hair=TRUE} 0.2277228 0.5111111
##
   [68]
##
   [69]
       {venomous=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3861386 0.5064935
   [70] {backbone=TRUE, venomous=FALSE}
                                            {hair=TRUE} 0.3861386 0.4936709
                                           {hair=TRUE} 0.3861386 0.4698795
   [71] {backbone=TRUE}
##
   [72]
        {venomous=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.3267327 0.4647887
##
       {domestic=FALSE}
                                         => {hair=TRUE} 0.3366337 0.3863636
   [73]
##
        lift
  [1]
##
        2.3488372
##
   [2]
        2.3488372
##
   [3]
        2.3488372
##
   [4]
        2.3488372
##
   [5]
        2.3488372
##
   [6]
        2.3488372
##
  [7]
        2.3488372
## [8]
        2.3488372
## [9]
        2.3488372
```

- ## [10] 2.2870257
- ## [11] 2.2835917
- ## [12] 2.2342598
- ## [13] 2.2342598
- ## [14] 2.2313953
- ## [15] 2.2252142
- ## [16] 2.1769711
- ## [17] 2.1634027
- ## [18] 2.1251384
- ## [19] 2.0692137
- ... [10] 2.0002101
- ## [20] 1.9699925
- ## [21] 1.9461794
- ## [22] 1.9217759
- ## [23] 1.8990599
- ## [24] 1.8594961
- ## [25] 1.8543452
- ## [26] 1.8409805
- ## [27] 1.8268734
- ## [28] 1.8067979
- ## [29] 1.7961696
- ## [30] 1.7616279
- ## [31] 1.7008821
- ## [32] 1.6850354
- ## [33] 1.6833333
- ... [04] 4 5000400
- ## [34] 1.5889193
- ## [35] 1.5658915
- ## [36] 1.5658915
- ## [37] 1.5519103
- ## [38] 1.5511189
- ## [39] 1.5267442
- ## [40] 1.5047238
- ## [41] 1.4632101
- ## [42] 1.4540421
- ## [43] 1.4380636
- ## [44] 1.4313227
- ## [45] 1.4260797 ## [46] 1.4247045
- ## [47] 1.4093023
- ## [48] 1.3946221
- ## [49] 1.3852117
- ## [50] 1.3701550
- ## [51] 1.3598531
- ## [52] 1.3513858
- ## [53] 1.3370304
- ## [54] 1.3276036
- ## [55] 1.3192099
- ## [56] 1.3176404
- ## [57] 1.3176404
- ## [58] 1.3167724
- ## [59] 1.2840310
- ## [60] 1.2774378
- ## [61] 1.2739456
- ## [62] 1.2706824 ## [63] 1.2696417

```
[64] 1.2671359
##
   [65] 1.2396641
   [66] 1.2240419
   [67] 1.2100070
##
##
   [68]
       1.2005168
   [69] 1.1896708
##
   [70] 1.1595525
##
   [71] 1.1036705
   [72] 1.0917131
##
   [73] 0.9075053
##
        lhs
                             rhs
                                                     confidence lift
                                           support
##
   [1]
        {type=fish}
                          => {hair=FALSE} 0.1287129 1.0000000
                                                                1.7413793
        {breathes=FALSE}
##
   [2]
                             {hair=FALSE} 0.2079208 1.0000000
                                                                1.7413793
##
   [3]
        {legs=FALSE}
                             {hair=FALSE} 0.2178218 0.9565217
                                                                 1.6656672
   [4]
                          => {hair=FALSE} 0.3168317 0.8888889
##
        {aquatic=TRUE}
                                                                 1.5478927
##
   [5]
        {toothed=FALSE}
                             {hair=FALSE} 0.3465347 0.8750000
                                                                 1.5237069
##
   [6]
        {backbone=FALSE}
                             {hair=FALSE} 0.1386139 0.7777778
                                                                 1.3544061
   [7]
        {catsize=FALSE}
                          => {hair=FALSE} 0.4356436 0.7719298
##
                                                                 1.3442226
##
   [8]
        {airborne=TRUE}
                          => {hair=FALSE} 0.1782178 0.7500000
                                                                 1.3060345
##
   [9]
        {predator=TRUE}
                             {hair=FALSE} 0.3564356 0.6428571
                                                                 1.1194581
##
   [10] {tail=FALSE}
                          => {hair=FALSE} 0.1584158 0.6153846
                                                                 1.0716180
   [11] {backbone=TRUE}
                          => {hair=FALSE} 0.4356436 0.5301205
                                                                 0.9231408
   [12] {breathes=TRUE}
                          => {hair=FALSE} 0.3663366 0.4625000
##
                                                                 0.8053879
##
   [13] {legs=TRUE}
                          => {hair=FALSE} 0.3564356 0.4615385
                                                                 0.8037135
##
   [14] {aquatic=FALSE}
                          => {hair=FALSE} 0.2574257 0.4000000
                                                                 0.6965517
##
       lhs
                                           rhs
                                                       support
                                                                  confidence
##
   [1] {aquatic=FALSE,backbone=TRUE}
                                          {hair=TRUE} 0.3465347 0.6603774
                                       =>
##
   [2] {feathers=FALSE,backbone=TRUE} => {hair=TRUE} 0.3861386 0.6190476
   [3] {backbone=TRUE,legs=TRUE}
                                       => {hair=TRUE} 0.3762376 0.5937500
   [4] {airborne=FALSE,backbone=TRUE} => {hair=TRUE} 0.3663366 0.5692308
   [5] {backbone=TRUE,breathes=TRUE}
                                       => {hair=TRUE} 0.3861386 0.5652174
##
   [6] {backbone=TRUE,fins=FALSE}
                                       => {hair=TRUE} 0.3663366 0.5606061
   [7] {predator=FALSE,backbone=TRUE} => {hair=TRUE} 0.1881188 0.5277778
   [8] {backbone=TRUE, venomous=FALSE} => {hair=TRUE} 0.3861386 0.4936709
##
##
       lift
##
  [1] 1.551119
   [2] 1.454042
   [3] 1.394622
##
##
   [4] 1.337030
##
   [5] 1.327604
   [6] 1.316772
   [7] 1.239664
##
##
   [8] 1.159553
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
##
  [1]
        {eggs=FALSE,breathes=TRUE}
                                         => {hair=TRUE} 0.3762376 0.9268293
   [2]
                                        => {hair=TRUE} 0.3762376 0.8085106
##
        {toothed=TRUE,breathes=TRUE}
##
   [3]
        {breathes=TRUE, catsize=TRUE}
                                           {hair=TRUE} 0.2970297 0.7692308
##
   [4]
        {feathers=FALSE,breathes=TRUE} =>
                                           {hair=TRUE} 0.4257426 0.7166667
##
   [5]
        {airborne=FALSE,breathes=TRUE} => {hair=TRUE} 0.3663366 0.6607143
##
   [6]
        {aquatic=FALSE, breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6093750
##
   [7]
        {breathes=TRUE,legs=TRUE}
                                        => {hair=TRUE} 0.4158416 0.5753425
##
   [8]
        {backbone=TRUE,breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.5652174
##
   [9]
        {predator=FALSE,breathes=TRUE} => {hair=TRUE} 0.2277228 0.5609756
## [10] {breathes=TRUE, venomous=FALSE} => {hair=TRUE} 0.4059406 0.5466667
```

```
## [11] {breathes=TRUE,tail=TRUE}
                                         => {hair=TRUE} 0.3267327 0.5409836
   [12] {breathes=TRUE,fins=FALSE}
                                         => {hair=TRUE} 0.4059406 0.5394737
##
##
        lift
##
  [1]
        2.176971
##
   [2]
        1.899060
   [3]
##
        1.806798
   [4]
        1.683333
   [5]
##
        1.551910
##
   [6]
        1.431323
##
   [7]
        1.351386
   [8]
        1.327604
   [9]
##
        1.317640
##
   [10]
       1.284031
   [11] 1.270682
##
   [12] 1.267136
##
##
        lhs
                                        rhs
                                                               confidence
                                                     support
##
   [1]
        {milk=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.3762376 1.0000000
        {legs=TRUE, type=mammal}
                                    => {hair=TRUE} 0.3762376 1.0000000
   [3]
        {eggs=FALSE,legs=TRUE}
##
                                     => {hair=TRUE} 0.3663366 0.9736842
##
   [4]
        {toothed=TRUE,legs=TRUE}
                                        {hair=TRUE} 0.3663366 0.8809524
##
   [5]
        {legs=TRUE,catsize=TRUE}
                                     => {hair=TRUE} 0.2871287 0.7837838
   [6]
        {feathers=FALSE,legs=TRUE} =>
                                       {hair=TRUE} 0.4158416 0.7241379
##
   [7]
##
        {airborne=FALSE,legs=TRUE} =>
                                       {hair=TRUE} 0.3564356 0.6666667
   [8]
        {aquatic=FALSE,legs=TRUE}
##
                                    => {hair=TRUE} 0.3861386 0.6500000
##
   [9]
        {backbone=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.3762376 0.5937500
   [10] {predator=FALSE,legs=TRUE} => {hair=TRUE} 0.2277228 0.5897436
   [11] {legs=TRUE,tail=TRUE}
                                    => {hair=TRUE} 0.3267327 0.5789474
##
   [12] {breathes=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.4158416 0.5753425
   [13] {venomous=FALSE,legs=TRUE} => {hair=TRUE} 0.3960396 0.5405405
##
##
        lift
##
   [1]
        2.348837
##
   [2]
        2.348837
##
   [3]
        2.287026
   [4]
##
        2.069214
   [5]
        1.840981
##
##
   [6]
        1.700882
##
   [7]
        1.565891
##
   [8]
        1.526744
   [9]
        1.394622
##
##
   [10] 1.385212
   [11] 1.359853
   [12] 1.351386
##
##
   Г137
       1.269642
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
  [1]
        {milk=TRUE,aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 1.0000000
   [2]
                                         => {hair=TRUE} 0.3465347 1.0000000
##
        {aquatic=FALSE, type=mammal}
##
   [3]
        {eggs=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3465347 0.9722222
   [4]
##
        {aquatic=FALSE, toothed=TRUE}
                                            {hair=TRUE} 0.3465347 0.9210526
##
   [5]
        {aquatic=FALSE,catsize=TRUE}
                                         => {hair=TRUE} 0.2574257 0.8387097
##
   [6]
        {feathers=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3861386 0.7647059
##
   [7]
        {airborne=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3267327 0.7173913
                                         =>
   [8]
        {aquatic=FALSE,backbone=TRUE}
                                         => {hair=TRUE} 0.3465347 0.6603774
## [9]
        {aquatic=FALSE,legs=TRUE}
                                         => {hair=TRUE} 0.3861386 0.6500000
## [10] {aquatic=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.2970297 0.6122449
```

```
## [11] {aquatic=FALSE,breathes=TRUE} => {hair=TRUE} 0.3861386 0.6093750
   [12] {aquatic=FALSE, venomous=FALSE} => {hair=TRUE} 0.3663366 0.6065574
##
##
        lift
##
  [1]
        2.348837
##
   [2]
        2.348837
##
   [3]
        2.283592
##
   [4]
        2.163403
##
   [5]
        1.969992
##
   [6]
        1.796170
##
   [7]
        1.685035
   [8]
        1.551119
##
   [9]
        1.526744
##
   [10] 1.438064
##
  [11] 1.431323
  [12] 1.424705
   [1] "Número de reglas con consecuente negado"
##
                                                          support
                                                                    confidence
##
   [1]
        {milk=TRUE,toothed=TRUE}
                                            {eggs=FALSE} 0.3960396 1.0000000
   [2]
        {milk=TRUE,aquatic=FALSE}
##
                                           {eggs=FALSE} 0.3465347 1.0000000
   [3]
        {toothed=TRUE, type=mammal}
                                         => {eggs=FALSE} 0.3960396 1.0000000
##
   [4]
        {aquatic=FALSE, type=mammal}
                                         => {eggs=FALSE} 0.3465347 1.0000000
  [5]
        {hair=TRUE, toothed=TRUE}
##
                                            {eggs=FALSE} 0.3762376 1.0000000
  [6]
##
        {milk=TRUE}
                                            {eggs=FALSE} 0.3960396 0.9756098
##
   [7]
        {tvpe=mammal}
                                            {eggs=FALSE} 0.3960396 0.9756098
##
   [8]
        {hair=TRUE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3762376 0.9743590
  [9]
        {hair=TRUE,airborne=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.9729730
  [10] {hair=TRUE,tail=TRUE}
##
                                         => {eggs=FALSE} 0.3168317 0.9696970
  [11] {hair=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2871287 0.9666667
  [12] {hair=TRUE, predator=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.9500000
  [13] {aquatic=FALSE, toothed=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.9210526
  [14] {toothed=TRUE,catsize=TRUE}
                                           {eggs=FALSE} 0.3069307 0.8857143
  [15] {toothed=TRUE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.8809524
  [16] {toothed=TRUE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.8510638
  [17] {toothed=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.8409091
   [18] {aquatic=FALSE,catsize=TRUE}
                                            {eggs=FALSE} 0.2574257 0.8387097
##
  [19] {feathers=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.8157895
  [20] {breathes=TRUE,catsize=TRUE}
                                           {eggs=FALSE} 0.3069307 0.7948718
  [21] {predator=FALSE,toothed=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.7916667
  [22] {legs=TRUE,catsize=TRUE}
                                           {eggs=FALSE} 0.2772277 0.7567568
  [23] {airborne=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.7560976
  [24] {predator=FALSE, catsize=TRUE}
                                         => {eggs=FALSE} 0.1188119 0.7500000
  [25] {fins=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2673267 0.7500000
  [26] {airborne=FALSE,aquatic=FALSE}
                                         => {eggs=FALSE} 0.3366337 0.7391304
  [27] {feathers=FALSE, aquatic=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.7058824
## [28] {toothed=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.7017544
## [29] {airborne=FALSE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3861386 0.6964286
  [30] {feathers=FALSE, breathes=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.6833333
  [31] {toothed=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.6730769
  [32] {airborne=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3564356 0.6666667
   [33] {aquatic=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.6603774
##
  [34] {feathers=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3762376 0.6551724
## [35] {feathers=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3564356 0.6545455
## [36] {feathers=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.6507937
## [37] {aquatic=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.6326531
```

```
## [38] {aquatic=FALSE,predator=TRUE}
                                         => {eggs=FALSE} 0.1683168 0.6296296
   [39] {airborne=FALSE,predator=FALSE} =>
                                            {eggs=FALSE} 0.1683168 0.6071429
  [40] {airborne=FALSE,backbone=TRUE}
                                           {eggs=FALSE} 0.3861386 0.6000000
  [41] {airborne=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.6000000
  [42] {airborne=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3366337 0.5964912
  [43] {feathers=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3762376 0.5937500
  [44] {backbone=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.5797101
  [45] {legs=TRUE,tail=TRUE}
                                           {eggs=FALSE} 0.3267327 0.5789474
   [46] {backbone=TRUE,legs=TRUE}
                                           {eggs=FALSE} 0.3663366 0.5781250
   [47] {aquatic=FALSE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3465347 0.5737705
  [48] {breathes=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.5737705
   [49] {predator=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.2178218 0.5641026
                                         => {eggs=FALSE} 0.3663366 0.5606061
   [50] {backbone=TRUE,fins=FALSE}
  [51] {fins=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3267327 0.5593220
  [52] {feathers=FALSE,predator=FALSE} => {eggs=FALSE} 0.1881188 0.5588235
        {feathers=FALSE,airborne=FALSE}
                                            {eggs=FALSE} 0.3960396 0.5479452
   [54]
       {feathers=FALSE, venomous=FALSE} =>
                                           {eggs=FALSE} 0.3960396 0.5479452
   [55] {airborne=FALSE, venomous=FALSE}
                                           {eggs=FALSE} 0.3762376 0.5352113
   [56] {breathes=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5333333
   [57] {predator=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.5277778
##
   [58] {predator=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.1683168 0.5151515
  [59] {backbone=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5063291
   [60] {venomous=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.5000000
   [61] {backbone=TRUE}
##
                                         => {eggs=FALSE} 0.4059406 0.4939759
##
   [62] {venomous=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.4675325
        lift
##
   [1]
        2.404762
##
   [2]
        2.404762
##
   [3]
        2.404762
##
  [4]
        2.404762
##
  [5]
        2.404762
##
   [6]
        2.346109
##
   [7]
        2.346109
   [8]
##
        2.343101
   [9]
        2.339768
##
  [10] 2.331890
  [11] 2.324603
## [12] 2.284524
  [13] 2.214912
##
  [14] 2.129932
  [15] 2.118481
  [16] 2.046606
  [17] 2.022186
  [18] 2.016897
## [19] 1.961779
## [20] 1.911477
##
  [21] 1.903770
  [22] 1.819820
  [23] 1.818235
  [24] 1.803571
## [25] 1.803571
## [26] 1.777433
## [27] 1.697479
## [28] 1.687552
```

```
## [29] 1.674745
   [30] 1.643254
   [31] 1.618590
   [32] 1.603175
   [33] 1.588050
##
   [34] 1.575534
   [35] 1.574026
   [36] 1.565004
   [37] 1.521380
   [38] 1.514109
   [39] 1.460034
   [40] 1.442857
   [41] 1.442857
  [42] 1.434419
  [43] 1.427827
   [44] 1.394065
   [45] 1.392231
##
   [46] 1.390253
   [47] 1.379781
   [48] 1.379781
##
  [49] 1.356532
  [50] 1.348124
##
   [51] 1.345036
##
   [52] 1.343838
   [53] 1.317678
   [54] 1.317678
   [55] 1.287056
##
   [56] 1.282540
   [57] 1.269180
   [58] 1.238817
   [59] 1.217601
##
   [60] 1.202381
   [61] 1.187894
   [62] 1.124304
##
##
                                                    confidence lift
        lhs
                             rhs
                                          support
##
  [1]
        {type=fish}
                          => {eggs=TRUE} 0.1287129 1.0000000
                                                               1.7118644
   [2]
        {type=bird}
                          => {eggs=TRUE} 0.1980198 1.0000000
                                                               1.7118644
##
   [3]
        {feathers=TRUE}
                          => {eggs=TRUE} 0.1980198 1.0000000
                                                               1.7118644
##
   [4]
        {toothed=FALSE}
                          => {eggs=TRUE} 0.3861386 0.9750000
                                                               1.6690678
##
   [5]
        {breathes=FALSE} => {eggs=TRUE} 0.1980198 0.9523810
                                                               1.6303471
   [6]
                          => {eggs=TRUE} 0.5346535 0.9310345
        {hair=FALSE}
                                                               1.5938048
   [7]
                          => {eggs=TRUE} 0.2178218 0.9166667
##
        {airborne=TRUE}
                                                               1.5692090
##
   [8]
        {aquatic=TRUE}
                          => {eggs=TRUE} 0.2970297 0.8333333
                                                               1.4265537
##
   [9]
                          => {eggs=TRUE} 0.1881188 0.8260870
        {legs=FALSE}
                                                               1.4141489
  [10] {tail=FALSE}
                          => {eggs=TRUE} 0.1980198 0.7692308
                                                               1.3168188
   [11] {fins=TRUE}
                          => {eggs=TRUE} 0.1287129 0.7647059
                                                               1.3090728
   [12] {predator=TRUE}
                          => {eggs=TRUE} 0.3267327 0.5892857
                                                               1.0087772
                          => {eggs=TRUE} 0.1287129 0.2954545
   [13] {catsize=TRUE}
                                                               0.5057781
##
       lhs
                                          rhs
                                                       support
                                                                  confidence
##
   [1] {hair=TRUE,predator=TRUE}
                                      => {eggs=FALSE} 0.1881188 0.9500000
   [2] {aquatic=FALSE,predator=TRUE} => {eggs=FALSE} 0.1683168 0.6296296
   [3] {predator=TRUE,breathes=TRUE} => {eggs=FALSE} 0.2178218 0.5641026
##
       lift
## [1] 2.284524
```

```
[2] 1.514109
##
   [3] 1.356532
##
       lhs
                                                      support
                                                                 confidence
  [1] {hair=TRUE,catsize=TRUE}
##
                                      => {eggs=FALSE} 0.2871287 0.9666667
##
   [2] {toothed=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.8857143
   [3] {aquatic=FALSE, catsize=TRUE}
                                      => {eggs=FALSE} 0.2574257 0.8387097
  [4] {feathers=FALSE,catsize=TRUE}
                                     => {eggs=FALSE} 0.3069307 0.8157895
   [5] {breathes=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.7948718
   [6] {legs=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2772277 0.7567568
   [7] {airborne=FALSE, catsize=TRUE} => {eggs=FALSE} 0.3069307 0.7560976
   [8] {predator=FALSE,catsize=TRUE} => {eggs=FALSE} 0.1188119 0.7500000
   [9] {fins=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2673267 0.7500000
##
##
       lift
##
  [1] 2.324603
  [2] 2.129932
##
   [3] 2.016897
##
   [4] 1.961779
   [5] 1.911477
  [6] 1.819820
   [7] 1.818235
##
   [8] 1.803571
  [9] 1.803571
##
  [1] "Número de reglas con consecuente negado"
                                                         support
                                                                   confidence
##
  [1]
        {milk=TRUE, toothed=TRUE}
                                         => {eggs=FALSE} 0.3960396 1.0000000
   [2]
        {milk=TRUE,aquatic=FALSE}
                                         => {eggs=FALSE} 0.3465347 1.0000000
   [3]
        {toothed=TRUE, type=mammal}
##
                                         => {eggs=FALSE} 0.3960396 1.0000000
##
   [4]
        {aquatic=FALSE, type=mammal}
                                         => {eggs=FALSE} 0.3465347 1.0000000
   [5]
        {hair=TRUE, toothed=TRUE}
##
                                         => {eggs=FALSE} 0.3762376 1.0000000
##
  [6]
        {milk=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.9756098
##
  [7]
        {type=mammal}
                                           {eggs=FALSE} 0.3960396 0.9756098
##
   [8]
        {hair=TRUE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3762376 0.9743590
  [9]
        {hair=TRUE,airborne=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.9729730
  [10] {hair=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3168317 0.9696970
       {hair=TRUE,catsize=TRUE}
                                           {eggs=FALSE} 0.2871287 0.9666667
##
  [12] {hair=TRUE,predator=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.9500000
  [13] {aquatic=FALSE,toothed=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.9210526
  [14] {toothed=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.8857143
  [15] {toothed=TRUE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.8809524
  [16] {toothed=TRUE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.8510638
  [17] {toothed=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.8409091
  [18] {aquatic=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2574257 0.8387097
  [19] {feathers=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.8157895
  [20] {breathes=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.7948718
## [21] {predator=FALSE,toothed=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.7916667
  [22] {legs=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2772277 0.7567568
  [23] {airborne=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.7560976
  [24] {predator=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.1188119 0.7500000
  [25] {fins=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2673267 0.7500000
  [26] {airborne=FALSE,aquatic=FALSE}
                                         => {eggs=FALSE} 0.3366337 0.7391304
## [27] {feathers=FALSE,aquatic=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.7058824
## [28] {toothed=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.7017544
## [29] {airborne=FALSE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3861386 0.6964286
## [30] {feathers=FALSE, breathes=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.6833333
```

```
## [31] {toothed=TRUE,tail=TRUE}
                                           {eggs=FALSE} 0.3465347 0.6730769
   [32] {airborne=FALSE,legs=TRUE}
                                            {eggs=FALSE} 0.3564356 0.6666667
  [33] {aquatic=FALSE,backbone=TRUE}
                                           {eggs=FALSE} 0.3465347 0.6603774
  [34] {feathers=FALSE,legs=TRUE}
                                           {eggs=FALSE} 0.3762376 0.6551724
##
   [35] {feathers=FALSE,tail=TRUE}
                                            {eggs=FALSE} 0.3564356 0.6545455
  [36] {feathers=FALSE,backbone=TRUE}
                                           {eggs=FALSE} 0.4059406 0.6507937
##
  [37] {aquatic=FALSE,tail=TRUE}
                                           {eggs=FALSE} 0.3069307 0.6326531
   [38] {aquatic=FALSE,predator=TRUE}
                                           {eggs=FALSE} 0.1683168 0.6296296
   [39] {airborne=FALSE,predator=FALSE} =>
                                            {eggs=FALSE} 0.1683168 0.6071429
   [40] {airborne=FALSE,backbone=TRUE}
                                            {eggs=FALSE} 0.3861386 0.6000000
  [41] {airborne=FALSE,fins=FALSE}
                                           {eggs=FALSE} 0.3564356 0.6000000
   [42] {airborne=FALSE,tail=TRUE}
                                           {eggs=FALSE} 0.3366337 0.5964912
   [43] {feathers=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3762376 0.5937500
  [44] {backbone=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.5797101
  [45] {legs=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3267327 0.5789474
   [46]
        {backbone=TRUE,legs=TRUE}
                                            {eggs=FALSE} 0.3663366 0.5781250
        {aquatic=FALSE, venomous=FALSE}
   [47]
                                           {eggs=FALSE} 0.3465347 0.5737705
       {breathes=TRUE,tail=TRUE}
                                           {eggs=FALSE} 0.3465347 0.5737705
   [49] {predator=TRUE,breathes=TRUE}
                                         => {eggs=FALSE} 0.2178218 0.5641026
   [50] {backbone=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.5606061
##
   [51] {fins=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3267327 0.5593220
  [52] {feathers=FALSE,predator=FALSE} => {eggs=FALSE} 0.1881188 0.5588235
   [53] {feathers=FALSE,airborne=FALSE}
                                        =>
                                            {eggs=FALSE} 0.3960396 0.5479452
   [54] {feathers=FALSE, venomous=FALSE}
##
                                            {eggs=FALSE} 0.3960396 0.5479452
   [55] {airborne=FALSE, venomous=FALSE} =>
                                           {eggs=FALSE} 0.3762376 0.5352113
                                         => {eggs=FALSE} 0.3960396 0.5333333
   [56] {breathes=TRUE, venomous=FALSE}
   [57] {predator=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.5277778
##
   [58] {predator=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.1683168 0.5151515
   [59] {backbone=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5063291
   [60] {venomous=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.5000000
##
   [61]
       {backbone=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.4939759
##
   [62]
       {venomous=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.4675325
##
        lift
##
   [1]
        2.404762
##
   [2]
        2.404762
   [3]
       2.404762
##
##
   [4]
        2.404762
  [5]
        2.404762
##
   [6]
##
        2.346109
##
  [7]
        2.346109
  [8]
        2.343101
   [9]
##
        2.339768
##
   [10] 2.331890
##
  [11] 2.324603
  [12] 2.284524
##
  [13] 2.214912
##
   [14] 2.129932
   [15] 2.118481
  [16] 2.046606
   [17] 2.022186
##
  [18] 2.016897
## [19] 1.961779
## [20] 1.911477
## [21] 1.903770
```

```
## [22] 1.819820
   [23] 1.818235
   [24] 1.803571
   [25] 1.803571
   [26] 1.777433
   [27] 1.697479
   [28] 1.687552
  [29] 1.674745
   [30] 1.643254
   [31] 1.618590
   [32] 1.603175
   [33] 1.588050
   [34] 1.575534
   [35] 1.574026
   [36] 1.565004
   [37] 1.521380
   [38] 1.514109
   [39] 1.460034
   [40] 1.442857
   [41] 1.442857
##
  [42] 1.434419
  [43] 1.427827
## [44] 1.394065
   [45] 1.392231
   [46] 1.390253
   [47] 1.379781
   [48] 1.379781
   [49] 1.356532
   [50] 1.348124
   [51] 1.345036
   [52] 1.343838
##
   [53] 1.317678
   [54] 1.317678
   [55] 1.287056
   [56] 1.282540
##
   [57] 1.269180
   [58] 1.238817
   [59] 1.217601
   [60] 1.202381
   [61] 1.187894
##
   [62] 1.124304
##
        lhs
                                          support
                                                    confidence lift
##
   [1]
        {type=fish}
                          => {eggs=TRUE} 0.1287129 1.0000000
                                                               1.7118644
##
   [2]
        {type=bird}
                          => {eggs=TRUE} 0.1980198 1.0000000
                                                               1.7118644
   [3]
        {feathers=TRUE}
                          => {eggs=TRUE} 0.1980198 1.0000000
                                                               1.7118644
   [4]
##
        {toothed=FALSE}
                          => {eggs=TRUE} 0.3861386 0.9750000
                                                               1.6690678
   [5]
##
        {breathes=FALSE}
                         => {eggs=TRUE} 0.1980198 0.9523810
                                                               1.6303471
   [6]
##
        {hair=FALSE}
                          => {eggs=TRUE} 0.5346535 0.9310345
                                                                1.5938048
   [7]
        {airborne=TRUE}
                          => {eggs=TRUE} 0.2178218 0.9166667
                                                                1.5692090
##
   [8]
        {aquatic=TRUE}
                          => {eggs=TRUE} 0.2970297 0.8333333
                                                                1.4265537
##
   [9]
        {legs=FALSE}
                          => {eggs=TRUE} 0.1881188 0.8260870
                                                                1.4141489
## [10] {tail=FALSE}
                          => {eggs=TRUE} 0.1980198 0.7692308
                                                               1.3168188
## [11] {fins=TRUE}
                          => {eggs=TRUE} 0.1287129 0.7647059
                                                               1.3090728
## [12] {predator=TRUE}
                          => {eggs=TRUE} 0.3267327 0.5892857
```

```
## [13] {catsize=TRUE}
                         => {eggs=TRUE} 0.1287129 0.2954545 0.5057781
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
  [1] {hair=TRUE,predator=TRUE}
##
                                      => {eggs=FALSE} 0.1881188 0.9500000
   [2] {aquatic=FALSE,predator=TRUE} => {eggs=FALSE} 0.1683168 0.6296296
##
   [3] {predator=TRUE,breathes=TRUE} => {eggs=FALSE} 0.2178218 0.5641026
##
       lift
  [1] 2.284524
##
  [2] 1.514109
##
   [3] 1.356532
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
  [1] {hair=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2871287 0.9666667
##
   [2] {toothed=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.8857143
   [3] {aquatic=FALSE, catsize=TRUE}
                                      => {eggs=FALSE} 0.2574257 0.8387097
  [4] {feathers=FALSE,catsize=TRUE}
                                     => {eggs=FALSE} 0.3069307 0.8157895
  [5] {breathes=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.7948718
   [6] {legs=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2772277 0.7567568
   [7] {airborne=FALSE, catsize=TRUE} => {eggs=FALSE} 0.3069307 0.7560976
   [8] {predator=FALSE,catsize=TRUE} => {eggs=FALSE} 0.1188119 0.7500000
   [9] {fins=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2673267 0.7500000
##
##
       lift
## [1] 2.324603
  [2] 2.129932
  [3] 2.016897
##
##
   [4] 1.961779
##
  [5] 1.911477
  [6] 1.819820
  [7] 1.818235
##
##
   [8] 1.803571
##
  [9] 1.803571
   [1] "Número de reglas con consecuente negado"
##
##
                                                          support
                                                                    confidence
        {milk=TRUE,toothed=TRUE}
##
  [1]
                                         => {eggs=FALSE} 0.3960396 1.0000000
##
   [2]
        {milk=TRUE,aquatic=FALSE}
                                           {eggs=FALSE} 0.3465347 1.0000000
  [3]
        {toothed=TRUE, type=mammal}
                                         => {eggs=FALSE} 0.3960396 1.0000000
##
   [4]
        {aquatic=FALSE, type=mammal}
                                         => {eggs=FALSE} 0.3465347 1.0000000
##
##
   [5]
        {hair=TRUE, toothed=TRUE}
                                         => {eggs=FALSE} 0.3762376 1.0000000
##
  [6]
        {milk=TRUE}
                                           {eggs=FALSE} 0.3960396 0.9756098
  [7]
                                         => {eggs=FALSE} 0.3960396 0.9756098
##
        {type=mammal}
        {hair=TRUE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3762376 0.9743590
##
  [8]
##
  [9]
        {hair=TRUE,airborne=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.9729730
  [10] {hair=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3168317 0.9696970
  [11] {hair=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2871287 0.9666667
## [12] {hair=TRUE,predator=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.9500000
  [13] {aquatic=FALSE,toothed=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.9210526
## [14] {toothed=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.8857143
## [15] {toothed=TRUE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.8809524
  [16] {toothed=TRUE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.8510638
  [17] {toothed=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.8409091
  [18] {aquatic=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2574257 0.8387097
  [19] {feathers=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.8157895
## [20] {breathes=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.7948718
## [21] {predator=FALSE,toothed=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.7916667
## [22] {legs=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2772277 0.7567568
## [23] {airborne=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.7560976
```

```
## [24] {predator=FALSE, catsize=TRUE}
                                         => {eggs=FALSE} 0.1188119 0.7500000
   [25] {fins=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.2673267 0.7500000
  [26] {airborne=FALSE,aquatic=FALSE}
                                           {eggs=FALSE} 0.3366337 0.7391304
  [27] {feathers=FALSE,aquatic=FALSE}
                                           {eggs=FALSE} 0.3564356 0.7058824
   [28] {toothed=TRUE, venomous=FALSE}
                                           {eggs=FALSE} 0.3960396 0.7017544
  [29] {airborne=FALSE,breathes=TRUE}
                                           {eggs=FALSE} 0.3861386 0.6964286
  [30] {feathers=FALSE, breathes=TRUE}
                                           {eggs=FALSE} 0.4059406 0.6833333
  [31] {toothed=TRUE,tail=TRUE}
                                           {eggs=FALSE} 0.3465347 0.6730769
   [32] {airborne=FALSE,legs=TRUE}
                                           {eggs=FALSE} 0.3564356 0.6666667
   [33] {aquatic=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.6603774
   [34] {feathers=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3762376 0.6551724
   [35] {feathers=FALSE,tail=TRUE}
                                           {eggs=FALSE} 0.3564356 0.6545455
   [36] {feathers=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.6507937
   [37] {aquatic=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.6326531
  [38] {aquatic=FALSE,predator=TRUE}
                                         => {eggs=FALSE} 0.1683168 0.6296296
       {airborne=FALSE, predator=FALSE}
                                            {eggs=FALSE} 0.1683168 0.6071429
   [40] {airborne=FALSE,backbone=TRUE}
                                           {eggs=FALSE} 0.3861386 0.6000000
   [41] {airborne=FALSE,fins=FALSE}
                                           {eggs=FALSE} 0.3564356 0.6000000
   [42] {airborne=FALSE,tail=TRUE}
                                           {eggs=FALSE} 0.3366337 0.5964912
   [43] {feathers=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3762376 0.5937500
##
  [44] {backbone=TRUE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.5797101
  [45] {legs=TRUE,tail=TRUE}
                                           {eggs=FALSE} 0.3267327 0.5789474
  [46] {backbone=TRUE,legs=TRUE}
                                           {eggs=FALSE} 0.3663366 0.5781250
   [47] {aquatic=FALSE, venomous=FALSE}
                                           {eggs=FALSE} 0.3465347 0.5737705
   [48] {breathes=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.5737705
   [49] {predator=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.2178218 0.5641026
   [50] {backbone=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.5606061
   [51] {fins=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3267327 0.5593220
   [52] {feathers=FALSE,predator=FALSE}
                                        => {eggs=FALSE} 0.1881188 0.5588235
   [53] {feathers=FALSE,airborne=FALSE}
                                            {eggs=FALSE} 0.3960396 0.5479452
       {feathers=FALSE, venomous=FALSE}
                                            {eggs=FALSE} 0.3960396 0.5479452
##
   [55]
        {airborne=FALSE, venomous=FALSE}
                                            {eggs=FALSE} 0.3762376 0.5352113
       {breathes=TRUE, venomous=FALSE}
                                           {eggs=FALSE} 0.3960396 0.5333333
   [57] {predator=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.5277778
   [58] {predator=FALSE,tail=TRUE}
                                           {eggs=FALSE} 0.1683168 0.5151515
   [59] {backbone=TRUE, venomous=FALSE}
##
                                         => {eggs=FALSE} 0.3960396 0.5063291
   [60] {venomous=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.5000000
   [61] {backbone=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.4939759
##
   [62] {venomous=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.4675325
##
##
        lift
##
  [1]
        2.404762
   [2]
        2.404762
##
##
   [3]
        2.404762
##
   [4]
        2.404762
##
  [5]
        2.404762
   [6]
        2.346109
##
##
   [7]
        2.346109
##
   [8]
        2.343101
   [9]
        2.339768
   [10]
       2.331890
##
  [11] 2.324603
## [12] 2.284524
## [13] 2.214912
## [14] 2.129932
```

```
## [15] 2.118481
  [16] 2.046606
  [17] 2.022186
  [18] 2.016897
  [19] 1.961779
  [20] 1.911477
  [21] 1.903770
## [22] 1.819820
   [23] 1.818235
  [24] 1.803571
  [25] 1.803571
  [26] 1.777433
  [27] 1.697479
  [28] 1.687552
  [29] 1.674745
   [30] 1.643254
   [31] 1.618590
   [32] 1.603175
  [33] 1.588050
   [34] 1.575534
  [35] 1.574026
##
  [36] 1.565004
  [37] 1.521380
   [38] 1.514109
  [39] 1.460034
  [40] 1.442857
  [41] 1.442857
  [42] 1.434419
  [43] 1.427827
  [44] 1.394065
  [45] 1.392231
##
   [46] 1.390253
  [47] 1.379781
  [48] 1.379781
   [49] 1.356532
  [50] 1.348124
##
  [51] 1.345036
  [52] 1.343838
   [53] 1.317678
##
   [54] 1.317678
   [55] 1.287056
   [56] 1.282540
   [57] 1.269180
   [58] 1.238817
  [59] 1.217601
   [60] 1.202381
##
   [61] 1.187894
##
   [62] 1.124304
##
        lhs
                                                    confidence lift
                                         support
##
   [1]
        {type=fish}
                          => {eggs=TRUE} 0.1287129 1.0000000
                                                               1.7118644
##
   [2]
                          => {eggs=TRUE} 0.1980198 1.0000000
        {type=bird}
                                                               1.7118644
   [3]
        {feathers=TRUE}
                          => {eggs=TRUE} 0.1980198 1.0000000
##
  [4]
        {toothed=FALSE}
                         => {eggs=TRUE} 0.3861386 0.9750000
                                                               1.6690678
## [5]
        {breathes=FALSE} => {eggs=TRUE} 0.1980198 0.9523810 1.6303471
```

```
## [6]
        {hair=FALSE}
                         => {eggs=TRUE} 0.5346535 0.9310345
                                                               1.5938048
        {airborne=TRUE}
##
  [7]
                         => {eggs=TRUE} 0.2178218 0.9166667
                                                               1.5692090
                         => {eggs=TRUE} 0.2970297 0.8333333
  [8]
        {aquatic=TRUE}
                                                               1.4265537
  [9]
                         => {eggs=TRUE} 0.1881188 0.8260870
##
        {legs=FALSE}
                                                               1.4141489
##
  [10] {tail=FALSE}
                         => {eggs=TRUE} 0.1980198 0.7692308
                                                               1.3168188
##
  [11] {fins=TRUE}
                         => {eggs=TRUE} 0.1287129 0.7647059
                                                               1.3090728
  [12] {predator=TRUE}
                         => {eggs=TRUE} 0.3267327 0.5892857
                                                               1.0087772
                         => {eggs=TRUE} 0.1287129 0.2954545
  [13] {catsize=TRUE}
                                                              0.5057781
##
       lhs
                                         rhs
                                                                 confidence
                                                      support
##
  [1] {hair=TRUE,predator=TRUE}
                                      => {eggs=FALSE} 0.1881188 0.9500000
   [2] {aquatic=FALSE,predator=TRUE} => {eggs=FALSE} 0.1683168 0.6296296
   [3] {predator=TRUE,breathes=TRUE} => {eggs=FALSE} 0.2178218 0.5641026
##
##
       lift
##
  [1] 2.284524
  [2] 1.514109
##
##
   [3] 1.356532
##
       lhs
                                                      support
                                                                 confidence
                                         rhs
  [1] {hair=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2871287 0.9666667
##
  [2] {toothed=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.8857143
  [3] {aquatic=FALSE, catsize=TRUE}
                                      => {eggs=FALSE} 0.2574257 0.8387097
  [4] {feathers=FALSE,catsize=TRUE} => {eggs=FALSE} 0.3069307 0.8157895
## [5] {breathes=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.7948718
## [6] {legs=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2772277 0.7567568
  [7] {airborne=FALSE, catsize=TRUE} => {eggs=FALSE} 0.3069307 0.7560976
   [8] {predator=FALSE,catsize=TRUE} => {eggs=FALSE} 0.1188119 0.7500000
   [9] {fins=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2673267 0.7500000
##
       lift
## [1] 2.324603
  [2] 2.129932
## [3] 2.016897
## [4] 1.961779
##
  [5] 1.911477
  [6] 1.819820
  [7] 1.818235
   [8] 1.803571
##
  [9] 1.803571
  [1] "Número de reglas con consecuente negado"
##
                                                             support
        {backbone=FALSE, breathes=TRUE}
##
   [1]
                                            {catsize=FALSE} 0.1089109
##
  [2]
        {eggs=TRUE,tail=FALSE}
                                           {catsize=FALSE} 0.1881188
  [3]
        {milk=FALSE,tail=FALSE}
                                         => {catsize=FALSE} 0.1881188
  [4]
##
        {backbone=FALSE}
                                           {catsize=FALSE} 0.1683168
##
   [5]
        {hair=FALSE,tail=FALSE}
                                         => {catsize=FALSE} 0.1485149
##
  [6]
        {predator=FALSE, tail=FALSE}
                                         => {catsize=FALSE} 0.1089109
## [7]
        {airborne=TRUE}
                                         => {catsize=FALSE} 0.2079208
## [8]
        {feathers=FALSE, toothed=FALSE}
                                           {catsize=FALSE} 0.1683168
## [9]
        {feathers=FALSE,milk=FALSE}
                                           {catsize=FALSE} 0.3366337
  [10] {eggs=TRUE,predator=FALSE}
                                         => {catsize=FALSE} 0.2178218
## [11] {milk=FALSE,predator=FALSE}
                                         => {catsize=FALSE} 0.2178218
## [12] {milk=FALSE,aquatic=FALSE}
                                         => {catsize=FALSE} 0.2475248
## [13] {milk=FALSE,fins=FALSE}
                                         => {catsize=FALSE} 0.3861386
## [14] {eggs=TRUE,aquatic=FALSE}
                                         => {catsize=FALSE} 0.2376238
## [15] {feathers=FALSE,eggs=TRUE}
                                         => {catsize=FALSE} 0.3168317
## [16] {milk=FALSE,breathes=TRUE}
                                         => {catsize=FALSE} 0.3168317
```

```
## [17] {hair=FALSE, predator=FALSE}
                                         => {catsize=FALSE} 0.1782178
                                         => {catsize=FALSE} 0.3465347
## [18] {hair=FALSE,fins=FALSE}
  [19] {milk=FALSE,toothed=TRUE}
                                         => {catsize=FALSE} 0.1683168
  [20] {hair=FALSE,aquatic=FALSE}
                                            {catsize=FALSE} 0.2079208
  [21] {eggs=TRUE,fins=FALSE}
                                            {catsize=FALSE} 0.3663366
## [22] {milk=FALSE}
                                            {catsize=FALSE} 0.4752475
## [23] {eggs=TRUE,toothed=TRUE}
                                            {catsize=FALSE} 0.1584158
## [24] {eggs=TRUE,breathes=TRUE}
                                            {catsize=FALSE} 0.3069307
  [25]
       {hair=FALSE,feathers=FALSE}
                                            {catsize=FALSE} 0.2970297
  [26] {eggs=TRUE}
                                           {catsize=FALSE} 0.4554455
  [27] {breathes=FALSE, venomous=FALSE} => {catsize=FALSE} 0.1386139
## [28] {hair=FALSE,legs=TRUE}
                                           {catsize=FALSE} 0.2772277
## [29] {tail=FALSE}
                                           {catsize=FALSE} 0.1980198
## [30] {breathes=FALSE}
                                         => {catsize=FALSE} 0.1584158
## [31] {aquatic=TRUE,fins=FALSE}
                                         => {catsize=FALSE} 0.1386139
  [32]
        {type=bird}
                                            {catsize=FALSE} 0.1386139
                                         => {catsize=FALSE} 0.1386139
  [33]
       {feathers=TRUE}
  [34] {legs=FALSE}
                                         => {catsize=FALSE} 0.1584158
  [35] {aquatic=TRUE,legs=TRUE}
                                           {catsize=FALSE} 0.1188119
  [36] {predator=FALSE,domestic=FALSE} =>
                                            {catsize=FALSE} 0.2178218
##
  [37] {aquatic=TRUE}
                                         => {catsize=FALSE} 0.2277228
  [38] {fins=FALSE,domestic=FALSE}
                                         => {catsize=FALSE} 0.4158416
## [39] {predator=TRUE}
                                         => {catsize=FALSE} 0.2772277
                                           {catsize=FALSE} 0.3564356
  [40] {airborne=FALSE}
  [41] {hair=TRUE}
                                         => {catsize=FALSE} 0.1287129
   [42] {eggs=FALSE}
                                         => {catsize=FALSE} 0.1089109
##
        confidence lift
##
   [1]
        1.0000000
                   1.7719298
##
  [2]
        0.9500000
                   1.6833333
                   1.6833333
##
  [3]
        0.9500000
## [4]
        0.944444
                   1.6734893
##
  [5]
        0.9375000
                   1.6611842
##
  [6]
        0.9166667
                   1.6242690
  [7]
##
        0.8750000
                   1.5504386
                   1.5061404
   [8]
        0.8500000
##
  [9]
        0.8500000
                   1.5061404
  [10] 0.8461538
                   1.4993252
## [11] 0.8461538
                   1.4993252
  [12] 0.8333333
                   1.4766082
  [13] 0.8297872
                   1.4703247
  [14] 0.8275862
                   1.4664247
  [15] 0.8205128
                   1.4538911
  [16] 0.8205128
                   1.4538911
## [17] 0.8181818
                   1.4497608
## [18] 0.8139535
                   1.4422685
## [19] 0.8095238
                   1.4344194
  [20] 0.8076923
                   1.4311741
## [21] 0.8043478
                   1.4252479
  [22] 0.8000000
                   1.4175439
## [23] 0.8000000
                   1.4175439
## [24] 0.7948718
                   1.4084570
## [25] 0.7894737
                   1.3988920
## [26] 0.7796610
                   1.3815046
## [27] 0.7777778 1.3781676
```

```
## [28] 0.7777778
                   1.3781676
## [29] 0.7692308
                   1.3630229
## [30] 0.7619048
                   1.3500418
## [31] 0.7368421
                   1.3056325
  [32] 0.7000000
                   1.2403509
## [33] 0.7000000
                   1.2403509
  [34] 0.6956522
                   1.2326468
## [35] 0.6666667
                   1.1812865
  [36] 0.6470588
                   1.1465428
## [37] 0.6388889
                   1.1320663
## [38] 0.5833333
                   1.0336257
## [39] 0.5000000
                   0.8859649
## [40] 0.4675325
                   0.8284347
## [41] 0.3023256
                   0.5356997
## [42] 0.2619048
                   0.4640769
##
       lhs
                                                    confidence lift
                          rhs
                                          support
## [1] {milk=TRUE}
                       => {catsize=TRUE} 0.3168317 0.7804878 1.7915743
  [2] {type=mammal}
                       => {catsize=TRUE} 0.3168317 0.7804878
                       => {catsize=TRUE} 0.3069307 0.7380952
  [3] {eggs=FALSE}
                                                              1.6942641
## [4] {hair=TRUE}
                       => {catsize=TRUE} 0.2970297 0.6976744
## [5] {aquatic=FALSE} => {catsize=TRUE} 0.3069307 0.4769231
                                                              1.0947552
## [6] {aquatic=TRUE} => {catsize=TRUE} 0.1287129 0.3611111
                       => {catsize=TRUE} 0.1386139 0.2413793
## [7] {hair=FALSE}
                                                               0.5540752
                       => {catsize=TRUE} 0.1188119 0.2000000
##
  [8] {milk=FALSE}
                                                               0.4590909
##
       lhs
                                      rhs
                                                      support
                                                                confidence
## [1] {milk=FALSE,aquatic=FALSE} => {catsize=FALSE} 0.2475248 0.8333333
   [2] {eggs=TRUE,aquatic=FALSE} => {catsize=FALSE} 0.2376238 0.8275862
   [3] {hair=FALSE,aquatic=FALSE} => {catsize=FALSE} 0.2079208 0.8076923
##
##
       lift
## [1] 1.476608
## [2] 1.466425
##
  [3] 1.431174
##
                                    rhs
                                                     support
                                                               confidence
##
  [1] {aquatic=TRUE,fins=FALSE} => {catsize=FALSE} 0.1386139 0.7368421
   [2] {aquatic=TRUE,legs=TRUE} => {catsize=FALSE} 0.1188119 0.6666667
##
##
       lift
## [1] 1.305633
## [2] 1.181287
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,tail=FALSE}
                                   => {catsize=FALSE} 0.1485149 0.9375000
## [2] {hair=FALSE, predator=FALSE} => {catsize=FALSE} 0.1782178 0.8181818
## [3] {hair=FALSE,fins=FALSE}
                                   => {catsize=FALSE} 0.3465347 0.8139535
## [4] {hair=FALSE,aquatic=FALSE} => {catsize=FALSE} 0.2079208 0.8076923
## [5] {hair=FALSE,feathers=FALSE} => {catsize=FALSE} 0.2970297 0.7894737
                                   => {catsize=FALSE} 0.2772277 0.7777778
## [6] {hair=FALSE,legs=TRUE}
##
       lift
## [1] 1.661184
## [2] 1.449761
## [3] 1.442268
## [4] 1.431174
## [5] 1.398892
## [6] 1.378168
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,tail=FALSE}
                                   => {catsize=FALSE} 0.1881188 0.9500000
```

```
## [2] {feathers=FALSE,milk=FALSE} => {catsize=FALSE} 0.3366337 0.8500000
   [3] {milk=FALSE,predator=FALSE} => {catsize=FALSE} 0.2178218 0.8461538
  [4] {milk=FALSE, aquatic=FALSE} => {catsize=FALSE} 0.2475248 0.8333333
  [5] {milk=FALSE,fins=FALSE}
                                    => {catsize=FALSE} 0.3861386 0.8297872
   [6] {milk=FALSE,breathes=TRUE}
                                   => {catsize=FALSE} 0.3168317 0.8205128
   [7] {milk=FALSE,toothed=TRUE}
                                    => {catsize=FALSE} 0.1683168 0.8095238
##
##
       lift
## [1] 1.683333
##
   [2] 1.506140
   [3] 1.499325
  [4] 1.476608
##
   [5] 1.470325
##
   [6] 1.453891
##
   [7] 1.434419
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                        support
                                                                   confidence
##
  [1]
        {hair=TRUE,eggs=FALSE}
                                         => {milk=TRUE} 0.3762376 1.0000000
   [2]
        {eggs=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3069307 1.0000000
   [3]
##
        {eggs=FALSE,predator=FALSE}
                                           {milk=TRUE} 0.1881188 1.0000000
##
   [4]
        {eggs=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3960396 1.0000000
##
   [5]
        {hair=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2970297 1.0000000
  [6]
##
        {hair=TRUE, predator=TRUE}
                                            {milk=TRUE} 0.1980198 1.0000000
  [7]
##
        {hair=TRUE, toothed=TRUE}
                                            {milk=TRUE} 0.3762376 1.0000000
##
   [8]
        {hair=TRUE.tail=TRUE}
                                            {milk=TRUE} 0.3267327 1.0000000
##
  [9]
        {hair=TRUE,airborne=FALSE}
                                            {milk=TRUE} 0.3663366 1.0000000
  [10] {hair=TRUE,backbone=TRUE}
                                           {milk=TRUE} 0.3861386 1.0000000
                                           {milk=TRUE} 0.3960396 0.9756098
   [11] {eggs=FALSE,breathes=TRUE}
##
  [12] {eggs=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.3960396 0.9756098
  [13] {eggs=FALSE,legs=TRUE}
                                         => {milk=TRUE} 0.3663366 0.9736842
  [14] {hair=TRUE, venomous=FALSE}
                                         => {milk=TRUE} 0.3861386 0.9512195
   [15] {aquatic=FALSE,toothed=TRUE}
                                           {milk=TRUE} 0.3465347 0.9210526
   [16]
       {hair=TRUE,domestic=FALSE}
                                           {milk=TRUE} 0.3069307 0.9117647
   [17] {toothed=TRUE,catsize=TRUE}
                                           {milk=TRUE} 0.3069307 0.8857143
  [18] {toothed=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3663366 0.8809524
   [19] {toothed=TRUE,breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.8510638
##
  [20] {feathers=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.8421053
  [21] {aquatic=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.2574257 0.8387097
  [22] {breathes=TRUE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.8205128
       {toothed=TRUE,fins=FALSE}
                                            {milk=TRUE} 0.3564356 0.8181818
  [23]
  [24] {predator=FALSE,toothed=TRUE}
                                            {milk=TRUE} 0.1881188 0.7916667
  [25] {legs=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2871287 0.7837838
  [26] {airborne=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7804878
  [27] {fins=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.2772277 0.7777778
  [28] {predator=FALSE,catsize=TRUE}
                                         => {milk=TRUE} 0.1188119 0.7500000
## [29] {backbone=TRUE,catsize=TRUE}
                                         => {milk=TRUE} 0.3168317 0.7441860
  [30] {venomous=FALSE,catsize=TRUE}
                                         => {milk=TRUE} 0.3168317 0.7441860
  [31] {airborne=FALSE,aquatic=FALSE}
                                           {milk=TRUE} 0.3267327 0.7173913
  [32] {toothed=TRUE, venomous=FALSE}
                                         => {milk=TRUE} 0.3960396 0.7017544
  [33] {airborne=FALSE,breathes=TRUE}
                                         => {milk=TRUE} 0.3861386 0.6964286
  [34] {feathers=FALSE, aquatic=FALSE}
                                           {milk=TRUE} 0.3465347 0.6862745
##
  [35] {feathers=FALSE,breathes=TRUE}
                                         => {milk=TRUE} 0.4059406 0.6833333
## [36] {airborne=FALSE,legs=TRUE}
                                         => {milk=TRUE} 0.3564356 0.6666667
## [37] {aquatic=FALSE,backbone=TRUE}
                                         => {milk=TRUE} 0.3465347 0.6603774
## [38] {toothed=TRUE}
                                           {milk=TRUE} 0.3960396 0.6557377
```

```
## [39] {feathers=FALSE,legs=TRUE}
                                         => {milk=TRUE} 0.3762376 0.6551724
                                            {milk=TRUE} 0.4059406 0.6507937
  [40] {feathers=FALSE,backbone=TRUE}
  [41] {feathers=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.3465347 0.6363636
                                           {milk=TRUE} 0.2970297 0.6122449
  [42] {aquatic=FALSE,tail=TRUE}
  [43] {airborne=FALSE,predator=FALSE}
                                            {milk=TRUE} 0.1683168 0.6071429
  [44] {airborne=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 0.6000000
  [45] {backbone=TRUE,breathes=TRUE}
                                            {milk=TRUE} 0.4059406 0.5942029
  [46] {backbone=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.5937500
   [47] {aquatic=FALSE,predator=TRUE}
                                            {milk=TRUE} 0.1584158 0.5925926
   [48] {aquatic=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3465347 0.5833333
  [49] {airborne=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3465347 0.5833333
   [50] {airborne=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
   [51] {legs=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
  [52] {feathers=FALSE,fins=FALSE}
                                         => {milk=TRUE} 0.3663366 0.5781250
                                         => {milk=TRUE} 0.3465347 0.5737705
  [53] {aquatic=FALSE, venomous=FALSE}
   [54]
        {breathes=TRUE, tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.5737705
   [55]
       {predator=TRUE, breathes=TRUE}
                                         => {milk=TRUE} 0.2178218 0.5641026
   [56] {feathers=FALSE, venomous=FALSE} =>
                                           {milk=TRUE} 0.4059406 0.5616438
   [57] {backbone=TRUE,fins=FALSE}
                                         => {milk=TRUE} 0.3663366 0.5606061
   [58] {feathers=FALSE, predator=FALSE} =>
                                            {milk=TRUE} 0.1881188 0.5588235
                                            {milk=TRUE} 0.3861386 0.5492958
##
  [59] {airborne=FALSE, venomous=FALSE} =>
  [60] {aquatic=FALSE, breathes=TRUE}
                                            {milk=TRUE} 0.3465347 0.5468750
  [61] {breathes=TRUE, venomous=FALSE}
                                            {milk=TRUE} 0.4059406 0.5466667
       {fins=FALSE,tail=TRUE}
##
   [62]
                                            {milk=TRUE} 0.3168317 0.5423729
##
   [63]
       {feathers=FALSE,airborne=FALSE} =>
                                            {milk=TRUE} 0.3861386 0.5342466
   [64] {predator=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.1881188 0.5277778
   [65] {breathes=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5205479
   [66] {backbone=TRUE, venomous=FALSE}
                                         => {milk=TRUE} 0.4059406 0.5189873
       {predator=FALSE,tail=TRUE}
   [67]
                                         => {milk=TRUE} 0.1683168 0.5151515
   [68] {venomous=FALSE,legs=TRUE}
                                         => {milk=TRUE} 0.3762376 0.5135135
   [69]
       {feathers=FALSE}
                                         => {milk=TRUE} 0.4059406 0.5061728
   [70]
       {venomous=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.3465347 0.4929577
   [71] {venomous=FALSE,fins=FALSE}
                                         => {milk=TRUE} 0.3663366 0.4805195
   [72] {predator=FALSE,venomous=FALSE} => {milk=TRUE} 0.1881188 0.4418605
   [73]
        {predator=TRUE}
                                         => {milk=TRUE} 0.2178218 0.3928571
##
##
        lift
##
  [1]
        2.463415
##
  [2]
        2.463415
   [3]
        2.463415
##
   [4]
##
        2.463415
   [5]
        2.463415
   [6]
##
        2.463415
##
   [7]
        2.463415
##
   [8]
        2.463415
  [9]
        2.463415
## [10] 2.463415
##
  [11] 2.403331
  [12] 2.403331
  [13] 2.398588
  [14] 2.343248
## [15] 2.268935
## [16] 2.246055
## [17] 2.181882
## [18] 2.170151
```

- ## [19] 2.096523
- ## [20] 2.074454
- ## [21] 2.066090
- ## [22] 2.021263
- ## [23] 2.015521
- ## [24] 1.950203
- ## [25] 1.930784
- ## [26] 1.922665
- ## [27] 1.915989
- [28] 1.847561
- ## [29] 1.833239
- ## [30] 1.833239
- ## [31] 1.767232
- ## [32] 1.728712
- ## [33] 1.715592
- ## [34] 1.690579
- ## [35] 1.683333
- [36] 1.642276
- ## [37] 1.626783
- ## [38] 1.615354
- ## [39] 1.613961
- ## [40] 1.603175
- ## [41] 1.567627
- ## [42] 1.508213
- ## [43] 1.495645
- ## [44] 1.478049
- ## [45] 1.463768
- ## [46] 1.462652
- ## [47] 1.459801
- ## [48] 1.436992 ## [49] 1.436992
- ## [50] 1.426187
- [51] 1.426187
- ## [52] 1.424162
- [53] 1.413435
- ## [54] 1.413435
- ## [55] 1.389619
- ## [56] 1.383562
- ## [57] 1.381005
- ## [58] 1.376614
- ## [59] 1.353143
- ## [60] 1.347180
- ## [61] 1.346667
- ## [62] 1.336089
- ## [63] 1.316071
- ## [64] 1.300136
- ## [65] 1.282325
- [66] 1.278481
- ## [67] 1.269032
- ## [68] 1.264997
- ## [69] 1.246914
- ## [70] 1.214359
- ## [71] 1.183719
- ## [72] 1.088486

```
[73] 0.967770
        lhs
##
                            rhs
                                          support
                                                    confidence lift
##
  [1]
        {type=fish}
                         => {milk=FALSE} 0.1287129 1.0000000
  [2]
        {backbone=FALSE} => {milk=FALSE} 0.1782178 1.0000000
##
                                                               1.6833333
##
   [3]
        {type=bird}
                         => {milk=FALSE} 0.1980198 1.0000000
                                                               1.6833333
  [4]
                         => {milk=FALSE} 0.1980198 1.0000000
##
        {feathers=TRUE}
                                                               1.6833333
  [5]
        fbreathes=FALSE} => {milk=FALSE} 0.2079208 1.0000000
                                                               1.6833333
## [6]
        {eggs=TRUE}
                         => {milk=FALSE} 0.5742574 0.9830508
                                                               1.6548023
##
  [7]
        {hair=FALSE}
                         => {milk=FALSE} 0.5544554 0.9655172
                                                               1.6252874
##
  [8]
        {airborne=TRUE}
                         => {milk=FALSE} 0.2178218 0.9166667
                                                               1.5430556
  [9]
        {legs=FALSE}
                         => {milk=FALSE} 0.1980198 0.8695652
                                                               1.4637681
                         => {milk=FALSE} 0.2970297 0.8333333
  [10] {aquatic=TRUE}
                                                               1.4027778
  [11] {tail=FALSE}
                         => {milk=FALSE} 0.1980198 0.7692308
                                                               1.2948718
## [12] {fins=TRUE}
                         => {milk=FALSE} 0.1287129 0.7647059
                                                               1.2872549
                         => {milk=FALSE} 0.3366337 0.6071429
## [13] {predator=TRUE}
                                                               1.0220238
## [14] {fins=FALSE}
                         => {milk=FALSE} 0.4653465 0.5595238
                                                               0.9418651
                         => {milk=FALSE} 0.3960396 0.5333333
  [15] {tail=TRUE}
                                                               0.8977778
                         => {milk=FALSE} 0.4158416 0.5060241
  [16] {backbone=TRUE}
                                                               0.8518072
  [17] {aquatic=FALSE}
                         => {milk=FALSE} 0.2970297 0.4615385
                                                               0.7769231
   [18] {toothed=TRUE}
                         => {milk=FALSE} 0.2079208 0.3442623
                                                               0.5795082
##
       lhs
                                         rhs
                                                               confidence
                                                     support
                                      => {milk=TRUE} 0.1980198 1.0000000
## [1] {hair=TRUE,predator=TRUE}
  [2] {aquatic=FALSE,predator=TRUE} => {milk=TRUE} 0.1584158 0.5925926
   [3] {predator=TRUE,breathes=TRUE} => {milk=TRUE} 0.2178218 0.5641026
##
##
       lift
  [1] 2.463415
   [2] 1.459801
##
##
   [3] 1.389619
##
       lhs
                                       rhs
                                                   support
                                                             confidence
  [1] {toothed=TRUE,fins=FALSE}
                                   => {milk=TRUE} 0.3564356 0.8181818
  [2] {fins=FALSE,catsize=TRUE}
                                    => {milk=TRUE} 0.2772277 0.7777778
   [3] {airborne=FALSE,fins=FALSE} => {milk=TRUE} 0.3465347 0.5833333
  [4] {feathers=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5781250
  [5] {backbone=TRUE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5606061
   [6] {fins=FALSE,tail=TRUE}
                                    => {milk=TRUE} 0.3168317 0.5423729
   [7] {venomous=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.4805195
##
##
       lift
## [1] 2.015521
  [2] 1.915989
##
  [3] 1.436992
  [4] 1.424162
  [5] 1.381005
##
   [6] 1.336089
##
   [7] 1.183719
##
       lhs
                                      rhs
                                                  support
                                                            confidence
## [1] {hair=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 1.0000000
  [2] {feathers=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.6363636
  [3] {aquatic=FALSE,tail=TRUE}
                                 => {milk=TRUE} 0.2970297 0.6122449
  [4] {airborne=FALSE,tail=TRUE} => {milk=TRUE} 0.3267327 0.5789474
  [5] {legs=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 0.5789474
  [6] {breathes=TRUE,tail=TRUE}
                                  => {milk=TRUE} 0.3465347 0.5737705
## [7] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
## [8] {predator=FALSE,tail=TRUE} => {milk=TRUE} 0.1683168 0.5151515
## [9] {venomous=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.4929577
```

```
##
       lift
## [1] 2.463415
   [2] 1.567627
   [3] 1.508213
   [4] 1.426187
   [5] 1.426187
##
   [6] 1.413435
##
   [7] 1.336089
   [8] 1.269032
##
   [9] 1.214359
##
        lhs
                                            rhs
                                                                   confidence
                                                         support
                                         => {milk=TRUE} 0.3861386 1.0000000
##
   [1]
        {hair=TRUE,backbone=TRUE}
##
   [2]
        {eggs=FALSE,backbone=TRUE}
                                         => {milk=TRUE} 0.3960396 0.9756098
   [3]
##
        {backbone=TRUE, catsize=TRUE}
                                         => {milk=TRUE} 0.3168317 0.7441860
##
  [4]
        {aquatic=FALSE,backbone=TRUE}
                                         => {milk=TRUE} 0.3465347 0.6603774
##
   [5]
        {feathers=FALSE,backbone=TRUE} =>
                                            {milk=TRUE} 0.4059406 0.6507937
   [6]
##
        {airborne=FALSE,backbone=TRUE} => {milk=TRUE} 0.3861386 0.6000000
##
   [7]
        {backbone=TRUE,breathes=TRUE}
                                         => {milk=TRUE} 0.4059406 0.5942029
   [8]
        {backbone=TRUE,legs=TRUE}
##
                                         => {milk=TRUE} 0.3762376 0.5937500
##
   [9]
        {backbone=TRUE, fins=FALSE}
                                         => {milk=TRUE} 0.3663366 0.5606061
##
   [10]
       {predator=FALSE,backbone=TRUE} => {milk=TRUE} 0.1881188 0.5277778
   [11] {backbone=TRUE,venomous=FALSE} => {milk=TRUE} 0.4059406 0.5189873
##
##
        lift
        2.463415
##
   Г17
   [2]
##
        2.403331
   [3]
        1.833239
   [4]
##
        1.626783
##
   [5]
        1.603175
   [6]
##
        1.478049
##
   [7]
        1.463768
##
   [8]
        1.462652
##
   [9]
        1.381005
##
   [10] 1.300136
##
   [11] 1.278481
##
                                            rhs
                                                         support
                                                                   confidence
##
  Г17
        {aquatic=FALSE, toothed=TRUE}
                                         => {milk=TRUE} 0.3465347 0.9210526
   [2]
        {aquatic=FALSE, catsize=TRUE}
                                         => {milk=TRUE} 0.2574257 0.8387097
   [3]
        {airborne=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3267327 0.7173913
##
   [4]
        {feathers=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3465347 0.6862745
##
   [5]
        {aquatic=FALSE,backbone=TRUE}
                                         => {milk=TRUE} 0.3465347 0.6603774
##
        {aquatic=FALSE,tail=TRUE}
   [6]
                                         => {milk=TRUE} 0.2970297 0.6122449
   [7]
        {aquatic=FALSE,predator=TRUE}
                                         => {milk=TRUE} 0.1584158 0.5925926
##
##
   [8]
        {aquatic=FALSE,legs=TRUE}
                                         => {milk=TRUE} 0.3465347 0.5833333
##
   [9]
        {aquatic=FALSE, venomous=FALSE} => {milk=TRUE} 0.3465347 0.5737705
   [10] {aquatic=FALSE,breathes=TRUE} => {milk=TRUE} 0.3465347 0.5468750
##
##
        lift
##
   [1]
        2.268935
   [2]
##
        2.066090
##
   [3]
        1.767232
##
   [4]
        1.690579
   [5]
##
        1.626783
##
   [6]
        1.508213
## [7]
        1.459801
## [8]
        1.436992
```

```
## [9]
       1.413435
##
  「10〕 1.347180
##
       lhs
                                                     support
                                                                confidence
                                      => {milk=TRUE} 0.3762376 1.0000000
##
  [1] {hair=TRUE,toothed=TRUE}
##
   [2] {aquatic=FALSE, toothed=TRUE}
                                      => {milk=TRUE} 0.3465347 0.9210526
   [3] {toothed=TRUE,catsize=TRUE}
                                      => {milk=TRUE} 0.3069307 0.8857143
  [4] {toothed=TRUE,legs=TRUE}
                                      => {milk=TRUE} 0.3663366 0.8809524
  [5] {toothed=TRUE,breathes=TRUE}
                                      => {milk=TRUE} 0.3960396 0.8510638
   [6] {toothed=TRUE,fins=FALSE}
                                      => {milk=TRUE} 0.3564356 0.8181818
   [7] {predator=FALSE,toothed=TRUE} => {milk=TRUE} 0.1881188 0.7916667
   [8] {toothed=TRUE, venomous=FALSE} => {milk=TRUE} 0.3960396 0.7017544
##
       lift
##
  [1] 2.463415
##
  [2] 2.268935
  [3] 2.181882
   [4] 2.170151
##
   [5] 2.096523
   [6] 2.015521
##
  [7] 1.950203
##
   [8] 1.728712
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                        support
                                                                   confidence
##
  [1]
        {hair=TRUE,eggs=FALSE}
                                           {milk=TRUE} 0.3762376 1.0000000
##
   [2]
        {eggs=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3069307 1.0000000
##
  [3]
        {eggs=FALSE,predator=FALSE}
                                           {milk=TRUE} 0.1881188 1.0000000
   [4]
        {eggs=FALSE, venomous=FALSE}
                                           {milk=TRUE} 0.3960396 1.0000000
   [5]
                                           {milk=TRUE} 0.2970297 1.0000000
##
        {hair=TRUE,catsize=TRUE}
##
   [6]
        {hair=TRUE, predator=TRUE}
                                           {milk=TRUE} 0.1980198 1.0000000
##
   [7]
        {hair=TRUE, toothed=TRUE}
                                         => {milk=TRUE} 0.3762376 1.0000000
##
  [8]
        {hair=TRUE,tail=TRUE}
                                         => {milk=TRUE} 0.3267327 1.0000000
##
  [9]
        {hair=TRUE,airborne=FALSE}
                                           {milk=TRUE} 0.3663366 1.0000000
  [10] {hair=TRUE,backbone=TRUE}
                                           {milk=TRUE} 0.3861386 1.0000000
  [11] {eggs=FALSE,breathes=TRUE}
                                         => {milk=TRUE} 0.3960396 0.9756098
  [12] {eggs=FALSE,backbone=TRUE}
                                         => {milk=TRUE} 0.3960396 0.9756098
   [13] {eggs=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3663366 0.9736842
##
  [14] {hair=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.3861386 0.9512195
  [15] {aquatic=FALSE,toothed=TRUE}
                                           {milk=TRUE} 0.3465347 0.9210526
## [16] {hair=TRUE,domestic=FALSE}
                                         => {milk=TRUE} 0.3069307 0.9117647
  [17] {toothed=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3069307 0.8857143
  [18] {toothed=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3663366 0.8809524
  [19] {toothed=TRUE,breathes=TRUE}
                                           {milk=TRUE} 0.3960396 0.8510638
  [20] {feathers=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.8421053
## [21] {aquatic=FALSE, catsize=TRUE}
                                           {milk=TRUE} 0.2574257 0.8387097
## [22] {breathes=TRUE,catsize=TRUE}
                                         => {milk=TRUE} 0.3168317 0.8205128
## [23] {toothed=TRUE,fins=FALSE}
                                         => {milk=TRUE} 0.3564356 0.8181818
## [24] {predator=FALSE,toothed=TRUE}
                                         => {milk=TRUE} 0.1881188 0.7916667
  [25] {legs=TRUE,catsize=TRUE}
                                         => {milk=TRUE} 0.2871287 0.7837838
  [26] {airborne=FALSE,catsize=TRUE}
                                         => {milk=TRUE} 0.3168317 0.7804878
                                         => {milk=TRUE} 0.2772277 0.7777778
  [27] {fins=FALSE,catsize=TRUE}
  [28] {predator=FALSE,catsize=TRUE}
                                         => {milk=TRUE} 0.1188119 0.7500000
## [29] {backbone=TRUE,catsize=TRUE}
                                         => {milk=TRUE} 0.3168317 0.7441860
## [30] {venomous=FALSE, catsize=TRUE}
                                         => {milk=TRUE} 0.3168317 0.7441860
## [31] {airborne=FALSE,aquatic=FALSE}
                                         => {milk=TRUE} 0.3267327 0.7173913
## [32] {toothed=TRUE, venomous=FALSE}
                                         => {milk=TRUE} 0.3960396 0.7017544
```

```
## [33] {airborne=FALSE,breathes=TRUE}
                                         => {milk=TRUE} 0.3861386 0.6964286
  [34] {feathers=FALSE, aquatic=FALSE}
                                            {milk=TRUE} 0.3465347 0.6862745
  [35] {feathers=FALSE, breathes=TRUE}
                                            {milk=TRUE} 0.4059406 0.6833333
  [36] {airborne=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3564356 0.6666667
##
   [37] {aquatic=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3465347 0.6603774
  [38] {toothed=TRUE}
##
                                           {milk=TRUE} 0.3960396 0.6557377
  [39] {feathers=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.6551724
  [40] {feathers=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.4059406 0.6507937
  [41] {feathers=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.3465347 0.6363636
  [42] {aquatic=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.2970297 0.6122449
  [43] {airborne=FALSE,predator=FALSE} =>
                                           {milk=TRUE} 0.1683168 0.6071429
  [44] {airborne=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.3861386 0.6000000
  [45] {backbone=TRUE, breathes=TRUE}
                                           {milk=TRUE} 0.4059406 0.5942029
  [46] {backbone=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5937500
  [47] {aquatic=FALSE,predator=TRUE}
                                         => {milk=TRUE} 0.1584158 0.5925926
   [48] {aquatic=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3465347 0.5833333
   [49] {airborne=FALSE,fins=FALSE}
                                         => {milk=TRUE} 0.3465347 0.5833333
   [50] {airborne=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
  [51] {legs=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
   [52] {feathers=FALSE,fins=FALSE}
                                            {milk=TRUE} 0.3663366 0.5781250
                                           {milk=TRUE} 0.3465347 0.5737705
##
  [53] {aquatic=FALSE, venomous=FALSE}
  [54] {breathes=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.5737705
  [55]
       {predator=TRUE,breathes=TRUE}
                                           {milk=TRUE} 0.2178218 0.5641026
       {feathers=FALSE.venomous=FALSE} =>
   [56]
                                            {milk=TRUE} 0.4059406 0.5616438
   [57]
       {backbone=TRUE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.5606061
   [58] {feathers=FALSE, predator=FALSE} =>
                                           {milk=TRUE} 0.1881188 0.5588235
   [59] {airborne=FALSE, venomous=FALSE} =>
                                           {milk=TRUE} 0.3861386 0.5492958
   [60] {aquatic=FALSE, breathes=TRUE}
                                           {milk=TRUE} 0.3465347 0.5468750
  [61] {breathes=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.4059406 0.5466667
  [62] {fins=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.3168317 0.5423729
  [63] {feathers=FALSE,airborne=FALSE} =>
                                           {milk=TRUE} 0.3861386 0.5342466
       {predator=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.1881188 0.5277778
   [65] {breathes=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5205479
   [66] {backbone=TRUE, venomous=FALSE}
                                        => {milk=TRUE} 0.4059406 0.5189873
   [67] {predator=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.1683168 0.5151515
   [68] {venomous=FALSE,legs=TRUE}
##
                                         => {milk=TRUE} 0.3762376 0.5135135
  [69] {feathers=FALSE}
                                           {milk=TRUE} 0.4059406 0.5061728
  [70] {venomous=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.4929577
  [71] {venomous=FALSE,fins=FALSE}
                                            {milk=TRUE} 0.3663366 0.4805195
   [72] {predator=FALSE, venomous=FALSE} =>
                                           {milk=TRUE} 0.1881188 0.4418605
   [73] {predator=TRUE}
                                         => {milk=TRUE} 0.2178218 0.3928571
##
        lift
##
   Г17
        2.463415
##
   [2]
       2.463415
  [3]
##
        2.463415
  [4]
        2.463415
##
##
   [5]
        2.463415
##
   [6]
        2.463415
   [7]
        2.463415
##
   [8]
        2.463415
##
  [9]
        2.463415
## [10] 2.463415
## [11] 2.403331
## [12] 2.403331
```

- ## [13] 2.398588
- ## [14] 2.343248
- ## [15] 2.268935
- ## [16] 2.246055
- ## [17] 2.181882
- ## [17] 2.101002
- ## [18] 2.170151
- ## [19] 2.096523
- ## [20] 2.074454
- ## [21] 2.066090
- ## [22] 2.021263
- ## [23] 2.015521
- ## [24] 1.950203
- ## [25] 1.930784
- ## [26] 1.922665
- ## [27] 1.915989
- ## [28] 1.847561
- ## [29] 1.833239
- ## [30] 1.833239
- ## [31] 1.767232
- ... 5013 1 701202
- ## [32] 1.728712
- ## [33] 1.715592
- ## [34] 1.690579
- ## [35] 1.683333
- ## [36] 1.642276
- ## [37] 1.626783
- ## [38] 1.615354
- ## [39] 1.613961
- ## [40] 1.603175
- ## [41] 1.567627
- ## [42] 1.508213
- ## [43] 1.495645
- ## [44] 1.478049
- ## [45] 1.463768 ## [46] 1.462652
- ## [47] 1.459801
- ## [48] 1.436992
- ## [49] 1.436992
- ## [50] 1.426187
- ## [51] 1.426187
- ## [31] 1.420107
- ## [52] 1.424162 ## [53] 1.413435
- ## [54] 1.413435
- "" [51] 1.110100
- ## [55] 1.389619
- ## [56] 1.383562
- ## [57] 1.381005
- ## [58] 1.376614
- ## [59] 1.353143
- ## [60] 1.347180
- ## [61] 1.346667 ## [62] 1.336089
- ## [63] 1.316071
- ## [64] 1.300136
- ## [65] 1.282325
- ## [66] 1.278481

```
## [67] 1.269032
  [68] 1.264997
  [69] 1.246914
  [70] 1.214359
  [71] 1.183719
##
  [72] 1.088486
##
  [73] 0.967770
##
        lhs
                             rhs
                                          support
                                                    confidence lift
## [1]
                         => {milk=FALSE} 0.1287129 1.0000000
                                                               1.6833333
        {type=fish}
##
  [2]
        {backbone=FALSE}
                         => {milk=FALSE} 0.1782178 1.0000000
                                                                1.6833333
  [3]
        {type=bird}
                         => {milk=FALSE} 0.1980198 1.0000000
                                                                1.6833333
  [4]
                         => {milk=FALSE} 0.1980198 1.0000000
##
        {feathers=TRUE}
                                                                1.6833333
##
  [5]
        {breathes=FALSE} => {milk=FALSE} 0.2079208 1.0000000
                                                                1.6833333
##
  [6]
        {eggs=TRUE}
                         => {milk=FALSE} 0.5742574 0.9830508
                                                                1.6548023
## [7]
                         => {milk=FALSE} 0.5544554 0.9655172
        {hair=FALSE}
                                                                1.6252874
## [8]
        {airborne=TRUE}
                         => {milk=FALSE} 0.2178218 0.9166667
                                                                1.5430556
                         => {milk=FALSE} 0.1980198 0.8695652
##
  [9]
        {legs=FALSE}
                                                                1.4637681
  [10] {aquatic=TRUE}
                         => {milk=FALSE} 0.2970297 0.8333333
                                                                1.4027778
                         => {milk=FALSE} 0.1980198 0.7692308
## [11] {tail=FALSE}
                                                               1.2948718
## [12] {fins=TRUE}
                         => {milk=FALSE} 0.1287129 0.7647059
                                                                1.2872549
## [13] {predator=TRUE}
                         => {milk=FALSE} 0.3366337 0.6071429
                                                                1.0220238
                         => {milk=FALSE} 0.4653465 0.5595238
## [14] {fins=FALSE}
                                                                0.9418651
                         => {milk=FALSE} 0.3960396 0.5333333
## [15] {tail=TRUE}
                                                                0.8977778
                         => {milk=FALSE} 0.4158416 0.5060241
## [16] {backbone=TRUE}
                                                                0.8518072
  [17] {aquatic=FALSE}
                         => {milk=FALSE} 0.2970297 0.4615385
                                                                0.7769231
  [18] {toothed=TRUE}
                         => {milk=FALSE} 0.2079208 0.3442623
                                                                0.5795082
##
       lhs
                                         rhs
                                                     support
                                                                confidence
##
  [1] {hair=TRUE,predator=TRUE}
                                      => {milk=TRUE} 0.1980198 1.0000000
   [2] {aquatic=FALSE,predator=TRUE} => {milk=TRUE} 0.1584158 0.5925926
   [3] {predator=TRUE,breathes=TRUE} => {milk=TRUE} 0.2178218 0.5641026
##
       lift
## [1] 2.463415
  [2] 1.459801
##
  [3] 1.389619
##
       lhs
                                       rhs
                                                   support
                                                             confidence
## [1] {toothed=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3564356 0.8181818
  [2] {fins=FALSE,catsize=TRUE}
                                    => {milk=TRUE} 0.2772277 0.7777778
## [3] {airborne=FALSE,fins=FALSE} => {milk=TRUE} 0.3465347 0.5833333
## [4] {feathers=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5781250
  [5] {backbone=TRUE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5606061
  [6] {fins=FALSE,tail=TRUE}
                                    => {milk=TRUE} 0.3168317 0.5423729
  [7] {venomous=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.4805195
##
##
       lift
## [1] 2.015521
## [2] 1.915989
## [3] 1.436992
## [4] 1.424162
  [5] 1.381005
## [6] 1.336089
## [7] 1.183719
##
       lhs
                                      rhs
                                                  support
                                                             confidence
## [1] {hair=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 1.0000000
## [2] {feathers=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.6363636
## [3] {aquatic=FALSE,tail=TRUE} => {milk=TRUE} 0.2970297 0.6122449
```

```
## [4] {airborne=FALSE,tail=TRUE} => {milk=TRUE} 0.3267327 0.5789474
  [5] {legs=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 0.5789474
  [6] {breathes=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3465347 0.5737705
  [7] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
   [8] {predator=FALSE,tail=TRUE} => {milk=TRUE} 0.1683168 0.5151515
   [9] {venomous=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.4929577
##
##
       lift
## [1] 2.463415
##
   [2] 1.567627
##
  [3] 1.508213
  [4] 1.426187
  [5] 1.426187
##
   [6] 1.413435
##
  [7] 1.336089
## [8] 1.269032
##
   [9] 1.214359
##
        lhs
                                            rhs
                                                        support
                                                                  confidence
##
  [1]
        {hair=TRUE,backbone=TRUE}
                                        => {milk=TRUE} 0.3861386 1.0000000
        {eggs=FALSE,backbone=TRUE}
##
   [2]
                                        => {milk=TRUE} 0.3960396 0.9756098
##
   [3]
        {backbone=TRUE, catsize=TRUE}
                                        => {milk=TRUE} 0.3168317 0.7441860
                                        => {milk=TRUE} 0.3465347 0.6603774
##
  [4]
        {aquatic=FALSE,backbone=TRUE}
  [5]
        {feathers=FALSE,backbone=TRUE} => {milk=TRUE} 0.4059406 0.6507937
##
  [6]
##
        {airborne=FALSE,backbone=TRUE} => {milk=TRUE} 0.3861386 0.6000000
        {backbone=TRUE.breathes=TRUE}
##
   [7]
                                        => {milk=TRUE} 0.4059406 0.5942029
##
  [8]
        {backbone=TRUE,legs=TRUE}
                                        => {milk=TRUE} 0.3762376 0.5937500
   [9]
        {backbone=TRUE,fins=FALSE}
                                        => {milk=TRUE} 0.3663366 0.5606061
       {predator=FALSE,backbone=TRUE} => {milk=TRUE} 0.1881188 0.5277778
##
   [10]
##
        {backbone=TRUE, venomous=FALSE} => {milk=TRUE} 0.4059406 0.5189873
##
        lift
## [1]
        2.463415
##
   [2]
        2.403331
##
   [3]
        1.833239
##
   [4]
        1.626783
   [5]
##
        1.603175
   [6]
##
        1.478049
##
   [7]
        1.463768
##
  [8]
        1.462652
  [9]
        1.381005
##
  [10] 1.300136
  [11] 1.278481
##
##
        lhs
                                           rhs
                                                        support
                                                                  confidence
        {aquatic=FALSE, toothed=TRUE}
                                        => {milk=TRUE} 0.3465347 0.9210526
##
  [1]
##
   [2]
        {aquatic=FALSE, catsize=TRUE}
                                        => {milk=TRUE} 0.2574257 0.8387097
##
   [3]
        {airborne=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3267327 0.7173913
##
  [4]
        {feathers=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3465347 0.6862745
  [5]
##
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
##
   [6]
        {aquatic=FALSE,tail=TRUE}
                                        => {milk=TRUE} 0.2970297 0.6122449
##
   [7]
        {aquatic=FALSE, predator=TRUE}
                                        => {milk=TRUE} 0.1584158 0.5925926
   [8]
        {aquatic=FALSE,legs=TRUE}
                                        => {milk=TRUE} 0.3465347 0.5833333
##
   [9]
        {aquatic=FALSE, venomous=FALSE} => {milk=TRUE} 0.3465347 0.5737705
        {aquatic=FALSE,breathes=TRUE} => {milk=TRUE} 0.3465347 0.5468750
##
   [10]
##
        lift
## [1]
        2.268935
## [2]
        2.066090
```

```
[3]
        1.767232
##
   [4]
        1.690579
##
   [5]
        1.626783
   [6]
##
        1.508213
##
   [7]
        1.459801
   [8]
##
        1.436992
##
   [9]
        1.413435
##
   [10] 1.347180
##
       lhs
                                          rhs
                                                      support
                                                                confidence
##
   [1] {hair=TRUE,toothed=TRUE}
                                      => {milk=TRUE} 0.3762376 1.0000000
   [2] {aquatic=FALSE,toothed=TRUE}
                                      => {milk=TRUE} 0.3465347 0.9210526
   [3] {toothed=TRUE,catsize=TRUE}
                                         {milk=TRUE} 0.3069307 0.8857143
   [4] {toothed=TRUE,legs=TRUE}
                                         {milk=TRUE} 0.3663366 0.8809524
##
   [5] {toothed=TRUE, breathes=TRUE}
                                         {milk=TRUE} 0.3960396 0.8510638
   [6] {toothed=TRUE,fins=FALSE}
                                      => {milk=TRUE} 0.3564356 0.8181818
   [7] {predator=FALSE,toothed=TRUE} =>
                                         {milk=TRUE} 0.1881188 0.7916667
##
   [8] {toothed=TRUE, venomous=FALSE} => {milk=TRUE} 0.3960396 0.7017544
##
       lift
   [1] 2.463415
##
   [2] 2.268935
##
   [3] 2.181882
   [4] 2.170151
##
   [5] 2.096523
##
   [6] 2.015521
##
   [7] 1.950203
   [8] 1.728712
##
       "Número de reglas con consecuente negado"
##
                                             rhs
        lhs
                                                         support
                                                                    confidence
##
   [1]
        {hair=TRUE,eggs=FALSE}
                                            {milk=TRUE} 0.3762376 1.0000000
##
   [2]
                                            {milk=TRUE} 0.3069307 1.0000000
        {eggs=FALSE,catsize=TRUE}
##
   [3]
        {eggs=FALSE,predator=FALSE}
                                             {milk=TRUE} 0.1881188 1.0000000
##
   [4]
        {eggs=FALSE, venomous=FALSE}
                                             {milk=TRUE} 0.3960396 1.0000000
##
   [5]
        {hair=TRUE,catsize=TRUE}
                                             {milk=TRUE} 0.2970297 1.0000000
##
   [6]
                                             {milk=TRUE} 0.1980198 1.0000000
        {hair=TRUE, predator=TRUE}
   [7]
                                             {milk=TRUE} 0.3762376 1.0000000
##
        {hair=TRUE, toothed=TRUE}
##
   [8]
        {hair=TRUE,tail=TRUE}
                                             {milk=TRUE} 0.3267327 1.0000000
        {hair=TRUE,airborne=FALSE}
                                             {milk=TRUE} 0.3663366 1.0000000
       {hair=TRUE,backbone=TRUE}
                                             {milk=TRUE} 0.3861386 1.0000000
##
   [10]
   [11] {eggs=FALSE,breathes=TRUE}
                                             {milk=TRUE} 0.3960396 0.9756098
##
   [12] {eggs=FALSE,backbone=TRUE}
                                             {milk=TRUE} 0.3960396 0.9756098
##
   [13] {eggs=FALSE,legs=TRUE}
                                             {milk=TRUE} 0.3663366 0.9736842
   [14] {hair=TRUE, venomous=FALSE}
                                             {milk=TRUE} 0.3861386 0.9512195
   [15] {aquatic=FALSE,toothed=TRUE}
                                             {milk=TRUE} 0.3465347 0.9210526
   [16] {hair=TRUE,domestic=FALSE}
                                            {milk=TRUE} 0.3069307 0.9117647
   [17] {toothed=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3069307 0.8857143
   [18] {toothed=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3663366 0.8809524
   [19] {toothed=TRUE,breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.8510638
   [20] {feathers=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.8421053
   [21] {aquatic=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.2574257 0.8387097
       {breathes=TRUE, catsize=TRUE}
                                             {milk=TRUE} 0.3168317 0.8205128
##
   [23]
       {toothed=TRUE,fins=FALSE}
                                            {milk=TRUE} 0.3564356 0.8181818
   [24] {predator=FALSE,toothed=TRUE}
                                            {milk=TRUE} 0.1881188 0.7916667
  [25] {legs=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2871287 0.7837838
## [26] {airborne=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.7804878
```

```
## [27] {fins=FALSE,catsize=TRUE}
                                         => {milk=TRUE} 0.2772277 0.7777778
  [28] {predator=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.1188119 0.7500000
  [29] {backbone=TRUE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
  [30] {venomous=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
##
   [31] {airborne=FALSE,aquatic=FALSE}
                                            {milk=TRUE} 0.3267327 0.7173913
  [32] {toothed=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.3960396 0.7017544
##
  [33] {airborne=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.3861386 0.6964286
  [34] {feathers=FALSE,aquatic=FALSE}
                                            {milk=TRUE} 0.3465347 0.6862745
   [35] {feathers=FALSE, breathes=TRUE}
                                            fmilk=TRUE} 0.4059406 0.6833333
   [36] {airborne=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3564356 0.6666667
   [37] {aquatic=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.3465347 0.6603774
   [38] {toothed=TRUE}
                                           {milk=TRUE} 0.3960396 0.6557377
   [39] {feathers=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.6551724
  [40] {feathers=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.4059406 0.6507937
                                           {milk=TRUE} 0.3465347 0.6363636
  [41] {feathers=FALSE,tail=TRUE}
   [42] {aquatic=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.2970297 0.6122449
   [43] {airborne=FALSE,predator=FALSE} =>
                                            {milk=TRUE} 0.1683168 0.6071429
   [44] {airborne=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 0.6000000
  [45] {backbone=TRUE,breathes=TRUE}
                                           {milk=TRUE} 0.4059406 0.5942029
  [46] {backbone=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.5937500
##
  [47] {aquatic=FALSE,predator=TRUE}
                                            {milk=TRUE} 0.1584158 0.5925926
  [48] {aquatic=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3465347 0.5833333
  [49] {airborne=FALSE,fins=FALSE}
                                            {milk=TRUE} 0.3465347 0.5833333
   [50] {airborne=FALSE.tail=TRUE}
##
                                            {milk=TRUE} 0.3267327 0.5789474
##
   [51] {legs=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
   [52] {feathers=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.5781250
   [53] {aquatic=FALSE, venomous=FALSE}
                                           {milk=TRUE} 0.3465347 0.5737705
   [54] {breathes=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.5737705
   [55] {predator=TRUE,breathes=TRUE}
                                           {milk=TRUE} 0.2178218 0.5641026
   [56] {feathers=FALSE, venomous=FALSE} =>
                                           {milk=TRUE} 0.4059406 0.5616438
   [57] {backbone=TRUE,fins=FALSE}
                                            {milk=TRUE} 0.3663366 0.5606061
##
   [58]
       {feathers=FALSE,predator=FALSE} =>
                                            {milk=TRUE} 0.1881188 0.5588235
   [59] {airborne=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3861386 0.5492958
   [60] {aquatic=FALSE,breathes=TRUE}
                                           {milk=TRUE} 0.3465347 0.5468750
   [61] {breathes=TRUE, venomous=FALSE}
                                            {milk=TRUE} 0.4059406 0.5466667
##
   [62] {fins=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3168317 0.5423729
   [63] {feathers=FALSE,airborne=FALSE} =>
                                            {milk=TRUE} 0.3861386 0.5342466
  [64] {predator=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.1881188 0.5277778
##
        {breathes=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.5205479
##
   [65]
##
   [66]
       {backbone=TRUE, venomous=FALSE}
                                            {milk=TRUE} 0.4059406 0.5189873
   [67]
       {predator=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.1683168 0.5151515
   [68] {venomous=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5135135
   [69] {feathers=FALSE}
                                           {milk=TRUE} 0.4059406 0.5061728
  [70] {venomous=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.3465347 0.4929577
  [71] {venomous=FALSE,fins=FALSE}
                                         => {milk=TRUE} 0.3663366 0.4805195
   [72] {predator=FALSE, venomous=FALSE} =>
                                           {milk=TRUE} 0.1881188 0.4418605
##
   [73] {predator=TRUE}
                                           {milk=TRUE} 0.2178218 0.3928571
##
        lift
##
  [1]
        2.463415
##
   [2]
        2.463415
   [3]
##
        2.463415
##
  [4]
        2.463415
## [5]
        2.463415
## [6]
        2.463415
```

- **##** [7] 2.463415
- ## [8] 2.463415
- ## [9] 2.463415
- ## [10] 2.463415
- ## [11] 2.403331
- ## [12] 2.403331
- "" [40] 0 000500
- ## [13] 2.398588
- ## [14] 2.343248
- ## [15] 2.268935
- ## [16] 2.246055
- ## [17] 2.181882
- ## [18] 2.170151
- ## [19] 2.096523
- ## [20] 2.074454
- ## [21] 2.066090
- ## [22] 2.021263
- ## [23] 2.015521
- ## [24] 1.950203
- ## [25] 1.930784
- ## [26] 1.922665
- ## [27] 1.915989
- ## [28] 1.847561
- ## [20] 1.04/301
- ## [29] 1.833239
- ## [30] 1.833239
- ## [31] 1.767232
- ## [32] 1.728712
- ## [33] 1.715592
- ## [34] 1.690579
- ## [35] 1.683333
- ## [36] 1.642276
- ## [37] 1.626783
- ## [38] 1.615354
- ## [39] 1.613961
- ## [40] 1.603175
- ## [41] 1.567627
- ## [42] 1.508213
- ## [43] 1.495645
- ## [44] 1.478049
- ## [45] 1.463768
- ## [46] 1.462652 ## [47] 1.459801
- ## [48] 1.436992
- ## [49] 1.436992
- ## [50] 1.426187
- ## [51] 1.426187
- ## [52] 1.424162
- ## [53] 1.413435
- ## [54] 1.413435
- ## [55] 1.389619
- ## [56] 1.383562
- ## [57] 1.381005
- ## [58] 1.376614
- ## [59] 1.353143
- ## [60] 1.347180

```
## [61] 1.346667
   [62] 1.336089
   [63] 1.316071
  [64] 1.300136
##
##
   [65] 1.282325
   [66] 1.278481
##
   [67] 1.269032
##
  [68] 1.264997
##
   [69] 1.246914
   [70] 1.214359
  [71] 1.183719
##
  [72] 1.088486
##
   [73] 0.967770
##
        lhs
                             rhs
                                          support
                                                     confidence lift
## [1]
        {type=fish}
                          => {milk=FALSE} 0.1287129 1.0000000
                                                                1.6833333
##
   [2]
        {backbone=FALSE} => {milk=FALSE} 0.1782178 1.0000000
                                                                1.6833333
   [3]
##
                          => {milk=FALSE} 0.1980198 1.0000000
        {type=bird}
                                                                1.6833333
##
  [4]
                          => {milk=FALSE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                                1.6833333
        {breathes=FALSE} => {milk=FALSE} 0.2079208 1.0000000
##
  [5]
                                                                1.6833333
##
   [6]
        {eggs=TRUE}
                             {milk=FALSE} 0.5742574 0.9830508
                                                                1.6548023
##
  [7]
        {hair=FALSE}
                          => {milk=FALSE} 0.5544554 0.9655172
                                                                1.6252874
  [8]
                             {milk=FALSE} 0.2178218 0.9166667
##
        {airborne=TRUE}
                                                                1.5430556
                          => {milk=FALSE} 0.1980198 0.8695652
##
  [9]
        {legs=FALSE}
                                                                1.4637681
                             {milk=FALSE} 0.2970297 0.8333333
##
  [10] {aquatic=TRUE}
                                                                1.4027778
  [11] {tail=FALSE}
                          => {milk=FALSE} 0.1980198 0.7692308
                                                                1.2948718
  [12] {fins=TRUE}
                          => {milk=FALSE} 0.1287129 0.7647059
                                                                1.2872549
                          => {milk=FALSE} 0.3366337 0.6071429
  [13] {predator=TRUE}
                                                                1.0220238
   [14] {fins=FALSE}
                          => {milk=FALSE} 0.4653465 0.5595238
                                                                0.9418651
  [15] {tail=TRUE}
                          => {milk=FALSE} 0.3960396 0.5333333
                                                                0.8977778
  [16] {backbone=TRUE}
                          => {milk=FALSE} 0.4158416 0.5060241
                                                                0.8518072
   [17] {aquatic=FALSE}
                          => {milk=FALSE} 0.2970297 0.4615385
                                                                0.7769231
##
   [18] {toothed=TRUE}
                          => {milk=FALSE} 0.2079208 0.3442623
                                                                0.5795082
##
       lhs
                                         rhs
                                                      support
                                                                confidence
##
  [1] {hair=TRUE,predator=TRUE}
                                      => {milk=TRUE} 0.1980198 1.0000000
   [2] {aquatic=FALSE,predator=TRUE} => {milk=TRUE} 0.1584158 0.5925926
   [3] {predator=TRUE,breathes=TRUE} => {milk=TRUE} 0.2178218 0.5641026
##
##
       lift
##
  [1] 2.463415
   [2] 1.459801
##
   [3] 1.389619
##
       lhs
                                       rhs
                                                    support
                                                              confidence
  [1] {toothed=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3564356 0.8181818
   [2] {fins=FALSE,catsize=TRUE}
                                    => {milk=TRUE} 0.2772277 0.7777778
   [3] {airborne=FALSE,fins=FALSE} => {milk=TRUE} 0.3465347 0.5833333
  [4] {feathers=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5781250
   [5] {backbone=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3663366 0.5606061
   [6] {fins=FALSE,tail=TRUE}
                                    => {milk=TRUE} 0.3168317 0.5423729
##
   [7] {venomous=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.4805195
##
       lift
##
  [1] 2.015521
##
  [2] 1.915989
## [3] 1.436992
## [4] 1.424162
## [5] 1.381005
```

```
## [6] 1.336089
##
   [7] 1.183719
##
       lhs
                                                   support
                                                             confidence
  [1] {hair=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 1.0000000
##
##
   [2] {feathers=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.6363636
   [3] {aquatic=FALSE,tail=TRUE}
                                  => {milk=TRUE} 0.2970297 0.6122449
   [4] {airborne=FALSE,tail=TRUE} => {milk=TRUE} 0.3267327 0.5789474
   [5] {legs=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 0.5789474
##
   [6] {breathes=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3465347 0.5737705
   [7] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
   [8] {predator=FALSE,tail=TRUE} => {milk=TRUE} 0.1683168 0.5151515
   [9] {venomous=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.4929577
##
##
       lift
##
   [1] 2.463415
   [2] 1.567627
##
   [3] 1.508213
##
   [4] 1.426187
   [5] 1.426187
##
   [6] 1.413435
   [7] 1.336089
##
   [8] 1.269032
##
   [9] 1.214359
##
        lhs
                                           rhs
                                                        support
                                                                   confidence
##
   Г17
        {hair=TRUE,backbone=TRUE}
                                        => {milk=TRUE} 0.3861386 1.0000000
##
   [2]
        {eggs=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3960396 0.9756098
   [3]
        {backbone=TRUE,catsize=TRUE}
                                        => {milk=TRUE} 0.3168317 0.7441860
   [4]
        {aquatic=FALSE, backbone=TRUE}
##
                                        => {milk=TRUE} 0.3465347 0.6603774
##
   [5]
        {feathers=FALSE,backbone=TRUE} => {milk=TRUE} 0.4059406 0.6507937
        {airborne=FALSE,backbone=TRUE} => {milk=TRUE} 0.3861386 0.6000000
   [6]
##
##
   [7]
        {backbone=TRUE,breathes=TRUE}
                                        => {milk=TRUE} 0.4059406 0.5942029
##
   [8]
        {backbone=TRUE,legs=TRUE}
                                        => {milk=TRUE} 0.3762376 0.5937500
##
   [9]
        {backbone=TRUE,fins=FALSE}
                                        => {milk=TRUE} 0.3663366 0.5606061
   [10] {predator=FALSE,backbone=TRUE} => {milk=TRUE} 0.1881188 0.5277778
   [11] {backbone=TRUE, venomous=FALSE} => {milk=TRUE} 0.4059406 0.5189873
##
##
        lift
##
   [1]
        2.463415
##
   [2]
        2.403331
   [3]
        1.833239
##
   [4]
##
        1.626783
##
   [5]
        1.603175
   [6]
        1.478049
   [7]
##
        1.463768
##
   [8]
        1.462652
##
   [9]
        1.381005
##
  [10] 1.300136
## [11] 1.278481
##
        lhs
                                                        support
                                                                  confidence
                                            rhs
##
   [1]
        {aquatic=FALSE, toothed=TRUE}
                                        => {milk=TRUE} 0.3465347 0.9210526
##
   [2]
        {aquatic=FALSE,catsize=TRUE}
                                        => {milk=TRUE} 0.2574257 0.8387097
##
   [3]
        {airborne=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3267327 0.7173913
   [4]
##
        {feathers=FALSE,aquatic=FALSE}
                                        => {milk=TRUE} 0.3465347 0.6862745
##
   [5]
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
##
  [6]
        {aquatic=FALSE,tail=TRUE}
                                        => {milk=TRUE} 0.2970297 0.6122449
## [7]
        {aquatic=FALSE,predator=TRUE}
                                        => {milk=TRUE} 0.1584158 0.5925926
```

```
{aquatic=FALSE,legs=TRUE}
                                        => {milk=TRUE} 0.3465347 0.5833333
        {aquatic=FALSE, venomous=FALSE} => {milk=TRUE} 0.3465347 0.5737705
   [9]
   [10] {aquatic=FALSE,breathes=TRUE} => {milk=TRUE} 0.3465347 0.5468750
##
        lift
##
   [1]
        2.268935
##
   [2]
        2.066090
   [3]
        1.767232
  [4]
##
        1.690579
##
   [5]
        1.626783
##
   [6]
        1.508213
   [7]
        1.459801
##
   [8]
        1.436992
##
   [9]
        1.413435
   [10] 1.347180
##
##
       lhs
                                         rhs
                                                      support
                                                                confidence
   [1] {hair=TRUE, toothed=TRUE}
                                      => {milk=TRUE} 0.3762376 1.0000000
##
                                      => {milk=TRUE} 0.3465347 0.9210526
   [2] {aquatic=FALSE, toothed=TRUE}
  [3] {toothed=TRUE,catsize=TRUE}
                                      => {milk=TRUE} 0.3069307 0.8857143
  [4] {toothed=TRUE,legs=TRUE}
                                      => {milk=TRUE} 0.3663366 0.8809524
   [5] {toothed=TRUE,breathes=TRUE}
                                      => {milk=TRUE} 0.3960396 0.8510638
                                      => {milk=TRUE} 0.3564356 0.8181818
  [6] {toothed=TRUE,fins=FALSE}
  [7] {predator=FALSE,toothed=TRUE} => {milk=TRUE} 0.1881188 0.7916667
  [8] {toothed=TRUE, venomous=FALSE} => {milk=TRUE} 0.3960396 0.7017544
##
##
       lift.
## [1] 2.463415
  [2] 2.268935
  [3] 2.181882
   [4] 2.170151
  [5] 2.096523
## [6] 2.015521
##
   [7] 1.950203
##
   [8] 1.728712
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                                   confidence
                                                         support
        {hair=TRUE,eggs=FALSE}
   [1]
                                            {milk=TRUE} 0.3762376 1.0000000
##
                                            {milk=TRUE} 0.3069307 1.0000000
##
   [2]
        {eggs=FALSE,catsize=TRUE}
  [3]
        {eggs=FALSE,predator=FALSE}
                                            {milk=TRUE} 0.1881188 1.0000000
  [4]
                                            {milk=TRUE} 0.3960396 1.0000000
##
        {eggs=FALSE, venomous=FALSE}
   [5]
        {hair=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2970297 1.0000000
##
                                            {milk=TRUE} 0.1980198 1.0000000
  [6]
##
        {hair=TRUE, predator=TRUE}
  [7]
        {hair=TRUE, toothed=TRUE}
                                            {milk=TRUE} 0.3762376 1.0000000
  [8]
        {hair=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 1.0000000
##
##
   [9]
        {hair=TRUE,airborne=FALSE}
                                            {milk=TRUE} 0.3663366 1.0000000
  [10] {hair=TRUE,backbone=TRUE}
                                         => {milk=TRUE} 0.3861386 1.0000000
## [11] {eggs=FALSE,breathes=TRUE}
                                         => {milk=TRUE} 0.3960396 0.9756098
                                            {milk=TRUE} 0.3960396 0.9756098
  [12] {eggs=FALSE,backbone=TRUE}
  [13] {eggs=FALSE,legs=TRUE}
##
                                            {milk=TRUE} 0.3663366 0.9736842
  [14] {hair=TRUE, venomous=FALSE}
                                         => {milk=TRUE} 0.3861386 0.9512195
  [15] {aquatic=FALSE,toothed=TRUE}
                                         => {milk=TRUE} 0.3465347 0.9210526
  [16] {hair=TRUE,domestic=FALSE}
                                            {milk=TRUE} 0.3069307 0.9117647
## [17] {toothed=TRUE,catsize=TRUE}
                                         => {milk=TRUE} 0.3069307 0.8857143
## [18] {toothed=TRUE,legs=TRUE}
                                         => {milk=TRUE} 0.3663366 0.8809524
## [19] {toothed=TRUE,breathes=TRUE}
                                         => {milk=TRUE} 0.3960396 0.8510638
## [20] {feathers=FALSE,catsize=TRUE}
                                         => {milk=TRUE} 0.3168317 0.8421053
```

```
## [21] {aquatic=FALSE,catsize=TRUE}
                                        => {milk=TRUE} 0.2574257 0.8387097
                                           {milk=TRUE} 0.3168317 0.8205128
  [22] {breathes=TRUE,catsize=TRUE}
  [23] {toothed=TRUE,fins=FALSE}
                                           {milk=TRUE} 0.3564356 0.8181818
  [24] {predator=FALSE,toothed=TRUE}
                                           {milk=TRUE} 0.1881188 0.7916667
  [25] {legs=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2871287 0.7837838
  [26] {airborne=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7804878
##
  [27] {fins=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.2772277 0.7777778
  [28] {predator=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.1188119 0.7500000
   [29]
       {backbone=TRUE, catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.7441860
   [30] {venomous=FALSE, catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
   [31] {airborne=FALSE,aquatic=FALSE}
                                        => {milk=TRUE} 0.3267327 0.7173913
   [32] {toothed=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.3960396 0.7017544
   [33] {airborne=FALSE,breathes=TRUE}
                                           {milk=TRUE} 0.3861386 0.6964286
  [34] {feathers=FALSE,aquatic=FALSE}
                                           {milk=TRUE} 0.3465347 0.6862745
  [35] {feathers=FALSE,breathes=TRUE}
                                         => {milk=TRUE} 0.4059406 0.6833333
   [36]
        {airborne=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3564356 0.6666667
##
   [37]
       {aquatic=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.3465347 0.6603774
   [38] {toothed=TRUE}
                                           {milk=TRUE} 0.3960396 0.6557377
   [39] {feathers=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.6551724
   [40] {feathers=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.4059406 0.6507937
##
  [41] {feathers=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.6363636
  [42] {aquatic=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.2970297 0.6122449
  [43] {airborne=FALSE,predator=FALSE} =>
                                            {milk=TRUE} 0.1683168 0.6071429
  [44] {airborne=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 0.6000000
  [45] {backbone=TRUE, breathes=TRUE}
                                           {milk=TRUE} 0.4059406 0.5942029
  [46] {backbone=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5937500
   [47] {aquatic=FALSE,predator=TRUE}
                                           {milk=TRUE} 0.1584158 0.5925926
  [48] {aquatic=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3465347 0.5833333
  [49] {airborne=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3465347 0.5833333
  [50] {airborne=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
   [51] {legs=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
##
   [52]
       {feathers=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.5781250
   [53] {aquatic=FALSE, venomous=FALSE}
                                           {milk=TRUE} 0.3465347 0.5737705
   [54] {breathes=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.5737705
   [55] {predator=TRUE, breathes=TRUE}
                                            {milk=TRUE} 0.2178218 0.5641026
   [56] {feathers=FALSE, venomous=FALSE} =>
##
                                           {milk=TRUE} 0.4059406 0.5616438
   [57] {backbone=TRUE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.5606061
  [58] {feathers=FALSE,predator=FALSE} =>
                                           {milk=TRUE} 0.1881188 0.5588235
       {airborne=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3861386 0.5492958
##
   [59]
   [60] {aquatic=FALSE,breathes=TRUE}
##
                                           {milk=TRUE} 0.3465347 0.5468750
   [61] {breathes=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.4059406 0.5466667
   [62] {fins=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3168317 0.5423729
   [63] {feathers=FALSE,airborne=FALSE}
                                           {milk=TRUE} 0.3861386 0.5342466
   [64] {predator=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.1881188 0.5277778
  [65] {breathes=TRUE,legs=TRUE}
                                         => {milk=TRUE} 0.3762376 0.5205479
       {backbone=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.4059406 0.5189873
   [66]
   [67]
##
        {predator=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.1683168 0.5151515
       {venomous=FALSE,legs=TRUE}
                                        => {milk=TRUE} 0.3762376 0.5135135
  [69] {feathers=FALSE}
                                        => {milk=TRUE} 0.4059406 0.5061728
   [70] {venomous=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.3465347 0.4929577
  [71] {venomous=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.4805195
## [72] {predator=FALSE, venomous=FALSE} => {milk=TRUE} 0.1881188 0.4418605
## [73] {predator=TRUE}
                                         => {milk=TRUE} 0.2178218 0.3928571
##
        lift
```

- ## [1] 2.463415
- ## [2] 2.463415
- ## [3] 2.463415
- ## [4] 2.463415
- ## [5] 2.463415
- ## [6] 2.463415
- ## [7] 2.463415
- ## [8] 2.463415
- ## [9] 2.463415
- ## [10] 2.463415
- ... [14] 2 400014
- ## [11] 2.403331
- ## [12] 2.403331
- ## [13] 2.398588
- ## [14] 2.343248
- ## [15] 2.268935
- ## [16] 2.246055
- ## [17] 2.181882
- ## [18] 2.170151
- ## [19] 2.096523
- ## [20] 2.074454
- ## [21] 2.066090
- ## [22] 2.021263
- ## [22] 2.021203
- ## [23] 2.015521
- ## [24] 1.950203
- ## [25] 1.930784
- ## [26] 1.922665
- ## [27] 1.915989
- ## [28] 1.847561
- ## [29] 1.833239
- ## [30] 1.833239
- ## [31] 1.767232
- ## [32] 1.728712
- ## [33] 1.715592
- ## [34] 1.690579
- ## [35] 1.683333
- ## [36] 1.642276
- ## [37] 1.626783
- ## [38] 1.615354
- ## [39] 1.613961
- ## [40] 1.603175
- ## [41] 1.567627
- ## [42] 1.508213
- ## [43] 1.495645
- ## [44] 1.478049
- ## [45] 1.463768
- ## [46] 1.462652
- ## [47] 1.459801
- ## [48] 1.436992
- ## [49] 1.436992
- ## [50] 1.426187
- ## [51] 1.426187
- ## [52] 1.424162 ## [53] 1.413435
- ## [54] 1.413435

```
## [55] 1.389619
   [56] 1.383562
  [57] 1.381005
  [58] 1.376614
   [59] 1.353143
  [60] 1.347180
##
  [61] 1.346667
  [62] 1.336089
   [63] 1.316071
  [64] 1.300136
  [65] 1.282325
  [66] 1.278481
   [67] 1.269032
  [68] 1.264997
  [69] 1.246914
  [70] 1.214359
  [71] 1.183719
   [72] 1.088486
   [73] 0.967770
##
##
        lhs
                                          support
                                                    confidence lift
##
  [1]
        {type=fish}
                          => {milk=FALSE} 0.1287129 1.0000000
                                                               1.6833333
  [2]
        {backbone=FALSE} => {milk=FALSE} 0.1782178 1.0000000
## [3]
                          => {milk=FALSE} 0.1980198 1.0000000
        {type=bird}
                                                                1.6833333
  [4]
##
        {feathers=TRUE}
                         => {milk=FALSE} 0.1980198 1.0000000
                                                                1.6833333
##
  [5]
        {breathes=FALSE} => {milk=FALSE} 0.2079208 1.0000000
                                                                1.6833333
  [6]
        {eggs=TRUE}
                          => {milk=FALSE} 0.5742574 0.9830508
                                                                1.6548023
  [7]
                          => {milk=FALSE} 0.5544554 0.9655172
##
        {hair=FALSE}
                                                                1.6252874
   [8]
        {airborne=TRUE}
                         => {milk=FALSE} 0.2178218 0.9166667
                                                                1.5430556
##
  [9]
                          => {milk=FALSE} 0.1980198 0.8695652
        {legs=FALSE}
                                                                1.4637681
  [10] {aquatic=TRUE}
                          => {milk=FALSE} 0.2970297 0.8333333
                                                                1.4027778
  [11]
       {tail=FALSE}
                         => {milk=FALSE} 0.1980198 0.7692308
                                                                1.2948718
  [12] {fins=TRUE}
                          => {milk=FALSE} 0.1287129 0.7647059
                                                                1.2872549
  [13] {predator=TRUE}
                         => {milk=FALSE} 0.3366337 0.6071429
                                                                1.0220238
                          => {milk=FALSE} 0.4653465 0.5595238
  [14] {fins=FALSE}
                                                                0.9418651
   [15] {tail=TRUE}
                          => {milk=FALSE} 0.3960396 0.5333333
                                                                0.8977778
                         => {milk=FALSE} 0.4158416 0.5060241
##
  [16] {backbone=TRUE}
                                                                0.8518072
  [17] {aquatic=FALSE}
                         => {milk=FALSE} 0.2970297 0.4615385
  [18] {toothed=TRUE}
                          => {milk=FALSE} 0.2079208 0.3442623
##
                                                                0.5795082
##
       lhs
                                         rhs
                                                     support
                                                                confidence
  [1] {hair=TRUE,predator=TRUE}
                                      => {milk=TRUE} 0.1980198 1.0000000
   [2] {aquatic=FALSE,predator=TRUE} => {milk=TRUE} 0.1584158 0.5925926
   [3] {predator=TRUE,breathes=TRUE} => {milk=TRUE} 0.2178218 0.5641026
##
##
       lift
##
  [1] 2.463415
  [2] 1.459801
## [3] 1.389619
##
       lhs
                                       rhs
                                                   support
                                                              confidence
  [1] {toothed=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3564356 0.8181818
  [2] {fins=FALSE,catsize=TRUE}
                                    => {milk=TRUE} 0.2772277 0.7777778
   [3] {airborne=FALSE,fins=FALSE} => {milk=TRUE} 0.3465347 0.5833333
  [4] {feathers=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5781250
## [5] {backbone=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3663366 0.5606061
## [6] {fins=FALSE,tail=TRUE}
                                    => {milk=TRUE} 0.3168317 0.5423729
## [7] {venomous=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.4805195
```

```
##
       lift
## [1] 2.015521
   [2] 1.915989
   [3] 1.436992
##
   [4] 1.424162
   [5] 1.381005
##
   [6] 1.336089
##
   [7] 1.183719
##
       lhs
                                      rhs
                                                   support
                                                             confidence
##
   [1] {hair=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 1.0000000
   [2] {feathers=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.6363636
   [3] {aquatic=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.2970297 0.6122449
   [4] {airborne=FALSE,tail=TRUE} => {milk=TRUE} 0.3267327 0.5789474
   [5] {legs=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 0.5789474
   [6] {breathes=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3465347 0.5737705
   [7] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
   [8] {predator=FALSE,tail=TRUE} => {milk=TRUE} 0.1683168 0.5151515
   [9] {venomous=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.4929577
##
       lift
##
   [1] 2.463415
##
   [2] 1.567627
   [3] 1.508213
  [4] 1.426187
##
##
   [5] 1.426187
   [6] 1.413435
##
   [7] 1.336089
##
   [8] 1.269032
##
   [9] 1.214359
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
##
   [1]
        {hair=TRUE,backbone=TRUE}
                                        => {milk=TRUE} 0.3861386 1.0000000
##
   [2]
        {eggs=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3960396 0.9756098
##
   [3]
        {backbone=TRUE,catsize=TRUE}
                                        => {milk=TRUE} 0.3168317 0.7441860
##
   [4]
        {aquatic=FALSE, backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
   [5]
##
        {feathers=FALSE,backbone=TRUE} => {milk=TRUE} 0.4059406 0.6507937
   [6]
        {airborne=FALSE,backbone=TRUE} => {milk=TRUE} 0.3861386 0.6000000
##
##
   [7]
        {backbone=TRUE,breathes=TRUE}
                                        => {milk=TRUE} 0.4059406 0.5942029
   [8]
        {backbone=TRUE,legs=TRUE}
                                        => {milk=TRUE} 0.3762376 0.5937500
   [9]
        {backbone=TRUE,fins=FALSE}
                                        => {milk=TRUE} 0.3663366 0.5606061
##
   [10] {predator=FALSE,backbone=TRUE} => {milk=TRUE} 0.1881188 0.5277778
   [11] {backbone=TRUE, venomous=FALSE} => {milk=TRUE} 0.4059406 0.5189873
##
##
        lift
##
   [1]
        2.463415
##
   [2]
        2.403331
##
   [3]
        1.833239
   [4]
##
        1.626783
   [5]
##
        1.603175
##
   [6]
        1.478049
##
   [7]
        1.463768
##
   [8]
        1.462652
##
   [9]
        1.381005
##
   [10] 1.300136
##
   [11] 1.278481
##
        lhs
                                            rhs
                                                                   confidence
                                                        support
## [1] {aquatic=FALSE,toothed=TRUE}
                                        => {milk=TRUE} 0.3465347 0.9210526
```

```
{aquatic=FALSE,catsize=TRUE}
                                        => {milk=TRUE} 0.2574257 0.8387097
##
  [3]
        {airborne=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3267327 0.7173913
  [4]
        {feathers=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3465347 0.6862745
  [5]
        {aquatic=FALSE,backbone=TRUE}
##
                                        => {milk=TRUE} 0.3465347 0.6603774
##
   [6]
        {aquatic=FALSE,tail=TRUE}
                                        => {milk=TRUE} 0.2970297 0.6122449
##
   [7]
        {aquatic=FALSE, predator=TRUE}
                                        => {milk=TRUE} 0.1584158 0.5925926
##
  [8]
        {aquatic=FALSE,legs=TRUE}
                                        => {milk=TRUE} 0.3465347 0.5833333
##
  [9]
        {aquatic=FALSE, venomous=FALSE} => {milk=TRUE} 0.3465347 0.5737705
##
   [10] {aquatic=FALSE,breathes=TRUE} => {milk=TRUE} 0.3465347 0.5468750
##
        lift
##
  [1]
        2.268935
   [2]
        2.066090
##
##
   [3]
        1.767232
##
  [4]
        1.690579
  [5]
##
        1.626783
##
   [6]
        1.508213
   [7]
##
        1.459801
   [8]
        1.436992
  [9]
##
        1.413435
##
   [10] 1.347180
##
       lhs
                                                                confidence
                                         rhs
                                                      support
## [1] {hair=TRUE, toothed=TRUE}
                                      => {milk=TRUE} 0.3762376 1.0000000
## [2] {aquatic=FALSE,toothed=TRUE}
                                      => {milk=TRUE} 0.3465347 0.9210526
  [3] {toothed=TRUE,catsize=TRUE}
                                      => {milk=TRUE} 0.3069307 0.8857143
  [4] {toothed=TRUE,legs=TRUE}
                                      => {milk=TRUE} 0.3663366 0.8809524
  [5] {toothed=TRUE,breathes=TRUE}
                                      => {milk=TRUE} 0.3960396 0.8510638
   [6] {toothed=TRUE,fins=FALSE}
                                      => {milk=TRUE} 0.3564356 0.8181818
   [7] {predator=FALSE,toothed=TRUE} => {milk=TRUE} 0.1881188 0.7916667
   [8] {toothed=TRUE, venomous=FALSE} => {milk=TRUE} 0.3960396 0.7017544
##
##
       lift
## [1] 2.463415
   [2] 2.268935
  [3] 2.181882
  [4] 2.170151
   [5] 2.096523
##
  [6] 2.015521
  [7] 1.950203
  [8] 1.728712
##
##
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
  [1]
        {hair=TRUE,eggs=FALSE}
                                            {milk=TRUE} 0.3762376 1.0000000
  [2]
        {eggs=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3069307 1.0000000
##
##
   [3]
        {eggs=FALSE,predator=FALSE}
                                         => {milk=TRUE} 0.1881188 1.0000000
##
  [4]
        {eggs=FALSE, venomous=FALSE}
                                         => {milk=TRUE} 0.3960396 1.0000000
##
  [5]
        {hair=TRUE,catsize=TRUE}
                                         => {milk=TRUE} 0.2970297 1.0000000
## [6]
                                         => {milk=TRUE} 0.1980198 1.0000000
        {hair=TRUE, predator=TRUE}
##
  [7]
        {hair=TRUE, toothed=TRUE}
                                         => {milk=TRUE} 0.3762376 1.0000000
##
  [8]
        {hair=TRUE,tail=TRUE}
                                         => {milk=TRUE} 0.3267327 1.0000000
  [9]
        {hair=TRUE,airborne=FALSE}
                                         => {milk=TRUE} 0.3663366 1.0000000
  [10]
       {hair=TRUE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 1.0000000
##
       {eggs=FALSE,breathes=TRUE}
                                         => {milk=TRUE} 0.3960396 0.9756098
  [11]
## [12] {eggs=FALSE,backbone=TRUE}
                                         => {milk=TRUE} 0.3960396 0.9756098
## [13] {eggs=FALSE,legs=TRUE}
                                         => {milk=TRUE} 0.3663366 0.9736842
## [14] {hair=TRUE, venomous=FALSE}
                                         => {milk=TRUE} 0.3861386 0.9512195
```

```
## [15] {aquatic=FALSE,toothed=TRUE}
                                         => {milk=TRUE} 0.3465347 0.9210526
       {hair=TRUE,domestic=FALSE}
                                            {milk=TRUE} 0.3069307 0.9117647
   [16]
   [17] {toothed=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3069307 0.8857143
   [18] {toothed=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3663366 0.8809524
##
   [19] {toothed=TRUE, breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.8510638
  [20] {feathers=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.8421053
##
  [21] {aquatic=FALSE, catsize=TRUE}
                                            {milk=TRUE} 0.2574257 0.8387097
  [22] {breathes=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.8205128
   [23]
       {toothed=TRUE,fins=FALSE}
                                            {milk=TRUE} 0.3564356 0.8181818
   [24] {predator=FALSE,toothed=TRUE}
                                            {milk=TRUE} 0.1881188 0.7916667
   [25] {legs=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2871287 0.7837838
   [26] {airborne=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.7804878
   [27]
       {fins=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.2772277 0.7777778
       {predator=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.1188119 0.7500000
       {backbone=TRUE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
  [29]
        {venomous=FALSE, catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.7441860
   [31]
       {airborne=FALSE,aquatic=FALSE}
                                            {milk=TRUE} 0.3267327 0.7173913
   [32] {toothed=TRUE, venomous=FALSE}
                                            {milk=TRUE} 0.3960396 0.7017544
   [33] {airborne=FALSE,breathes=TRUE}
                                           {milk=TRUE} 0.3861386 0.6964286
   [34] {feathers=FALSE,aquatic=FALSE}
                                            {milk=TRUE} 0.3465347 0.6862745
##
   [35] {feathers=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.4059406 0.6833333
  [36] {airborne=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3564356 0.6666667
       {aquatic=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3465347 0.6603774
##
   [37]
##
   [38]
        {toothed=TRUE}
                                            {milk=TRUE} 0.3960396 0.6557377
##
   [39]
       {feathers=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.6551724
   [40] {feathers=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.4059406 0.6507937
   [41] {feathers=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.3465347 0.6363636
##
   [42] {aquatic=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.2970297 0.6122449
  [43]
       {airborne=FALSE, predator=FALSE}
                                           {milk=TRUE} 0.1683168 0.6071429
  [44] {airborne=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 0.6000000
   [45]
        {backbone=TRUE, breathes=TRUE}
                                            {milk=TRUE} 0.4059406 0.5942029
##
   [46]
        {backbone=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.5937500
       {aquatic=FALSE, predator=TRUE}
                                            {milk=TRUE} 0.1584158 0.5925926
   [48] {aquatic=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3465347 0.5833333
   [49] {airborne=FALSE,fins=FALSE}
                                            {milk=TRUE} 0.3465347 0.5833333
##
   [50] {airborne=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 0.5789474
   [51] {legs=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 0.5789474
       {feathers=FALSE,fins=FALSE}
                                            {milk=TRUE} 0.3663366 0.5781250
##
   [52]
        {aquatic=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3465347 0.5737705
##
   [53]
##
   [54]
       {breathes=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3465347 0.5737705
   [55] {predator=TRUE, breathes=TRUE}
                                            {milk=TRUE} 0.2178218 0.5641026
   [56] {feathers=FALSE, venomous=FALSE} =>
                                            {milk=TRUE} 0.4059406 0.5616438
##
   [57] {backbone=TRUE,fins=FALSE}
                                            {milk=TRUE} 0.3663366 0.5606061
   [58] {feathers=FALSE,predator=FALSE}
                                            {milk=TRUE} 0.1881188 0.5588235
   [59] {airborne=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3861386 0.5492958
       {aquatic=FALSE, breathes=TRUE}
   [60]
                                            {milk=TRUE} 0.3465347 0.5468750
   [61]
##
       {breathes=TRUE, venomous=FALSE}
                                            {milk=TRUE} 0.4059406 0.5466667
##
   [62]
       {fins=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.3168317 0.5423729
   [63] {feathers=FALSE,airborne=FALSE}
                                            {milk=TRUE} 0.3861386 0.5342466
   [64] {predator=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.1881188 0.5277778
##
   [65] {breathes=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.5205479
   [66] {backbone=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.4059406 0.5189873
  [67] {predator=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.1683168 0.5151515
## [68] {venomous=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.5135135
```

```
## [69] {feathers=FALSE}
                                         => {milk=TRUE} 0.4059406 0.5061728
## [70] {venomous=FALSE,tail=TRUE}
                                        => {milk=TRUE} 0.3465347 0.4929577
## [71] {venomous=FALSE,fins=FALSE}
                                         => {milk=TRUE} 0.3663366 0.4805195
## [72] {predator=FALSE, venomous=FALSE} => {milk=TRUE} 0.1881188 0.4418605
##
  [73] {predator=TRUE}
                                         => {milk=TRUE} 0.2178218 0.3928571
##
        lift
## [1]
        2.463415
## [2]
        2.463415
## [3]
        2.463415
## [4]
        2.463415
## [5]
        2.463415
## [6]
        2.463415
## [7]
        2.463415
## [8]
        2.463415
## [9]
        2.463415
## [10] 2.463415
## [11] 2.403331
## [12] 2.403331
## [13] 2.398588
## [14] 2.343248
## [15] 2.268935
## [16] 2.246055
## [17] 2.181882
## [18] 2.170151
## [19] 2.096523
## [20] 2.074454
## [21] 2.066090
## [22] 2.021263
## [23] 2.015521
## [24] 1.950203
## [25] 1.930784
## [26] 1.922665
## [27] 1.915989
## [28] 1.847561
## [29] 1.833239
## [30] 1.833239
## [31] 1.767232
## [32] 1.728712
## [33] 1.715592
## [34] 1.690579
## [35] 1.683333
## [36] 1.642276
## [37] 1.626783
## [38] 1.615354
## [39] 1.613961
## [40] 1.603175
## [41] 1.567627
## [42] 1.508213
## [43] 1.495645
## [44] 1.478049
## [45] 1.463768
## [46] 1.462652
## [47] 1.459801
## [48] 1.436992
```

```
## [49] 1.436992
  [50] 1.426187
  [51] 1.426187
  [52] 1.424162
   [53] 1.413435
##
  [54] 1.413435
  [55] 1.389619
  [56] 1.383562
##
   [57] 1.381005
  [58] 1.376614
  [59] 1.353143
  [60] 1.347180
   [61] 1.346667
  [62] 1.336089
  [63] 1.316071
   [64] 1.300136
##
  [65] 1.282325
   [66] 1.278481
  [67] 1.269032
   [68] 1.264997
##
  [69] 1.246914
  [70] 1.214359
  [71] 1.183719
##
   [72] 1.088486
##
  [73] 0.967770
        lhs
                             rhs
                                          support
                                                     confidence lift
##
  [1]
                          => {milk=FALSE} 0.1287129 1.0000000
        {type=fish}
                                                                1.6833333
##
   [2]
        {backbone=FALSE}
                         => {milk=FALSE} 0.1782178 1.0000000
                                                                1.6833333
##
  [3]
                          => {milk=FALSE} 0.1980198 1.0000000
        {type=bird}
                                                                1.6833333
##
  [4]
        {feathers=TRUE}
                          => {milk=FALSE} 0.1980198 1.0000000
                                                                1.6833333
##
  [5]
        {breathes=FALSE} => {milk=FALSE} 0.2079208 1.0000000
                                                                1.6833333
##
   [6]
        {eggs=TRUE}
                          => {milk=FALSE} 0.5742574 0.9830508
                                                                1.6548023
##
  [7]
        {hair=FALSE}
                          => {milk=FALSE} 0.5544554 0.9655172
                                                                1.6252874
  [8]
                          => {milk=FALSE} 0.2178218 0.9166667
##
        {airborne=TRUE}
                                                                1.5430556
   [9]
        {legs=FALSE}
                             {milk=FALSE} 0.1980198 0.8695652
                                                                1.4637681
                          => {milk=FALSE} 0.2970297 0.8333333
##
  [10] {aquatic=TRUE}
                                                                1.4027778
  [11] {tail=FALSE}
                          => {milk=FALSE} 0.1980198 0.7692308
                                                                1.2948718
  [12] {fins=TRUE}
                          => {milk=FALSE} 0.1287129 0.7647059
                                                                1.2872549
  [13] {predator=TRUE}
                             {milk=FALSE} 0.3366337 0.6071429
                          =>
                                                                1.0220238
                          => {milk=FALSE} 0.4653465 0.5595238
  [14] {fins=FALSE}
                                                                0.9418651
                          => {milk=FALSE} 0.3960396 0.5333333
  [15] {tail=TRUE}
                                                                0.8977778
   [16] {backbone=TRUE}
                          => {milk=FALSE} 0.4158416 0.5060241
                                                                0.8518072
   [17] {aquatic=FALSE}
                          => {milk=FALSE} 0.2970297 0.4615385
                                                                0.7769231
##
   [18] {toothed=TRUE}
                          => {milk=FALSE} 0.2079208 0.3442623
                                                                0.5795082
##
       lhs
                                         rhs
                                                      support
                                                                confidence
                                      => {milk=TRUE} 0.1980198 1.0000000
   [1] {hair=TRUE,predator=TRUE}
##
##
   [2] {aquatic=FALSE,predator=TRUE} => {milk=TRUE} 0.1584158 0.5925926
   [3] {predator=TRUE,breathes=TRUE} => {milk=TRUE} 0.2178218 0.5641026
##
       lift
##
  [1] 2.463415
##
   [2] 1.459801
##
   [3] 1.389619
##
       lhs
                                       rhs
                                                    support
                                                              confidence
## [1] {toothed=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3564356 0.8181818
```

```
## [2] {fins=FALSE,catsize=TRUE}
                                   => {milk=TRUE} 0.2772277 0.7777778
## [3] {airborne=FALSE,fins=FALSE} => {milk=TRUE} 0.3465347 0.5833333
## [4] {feathers=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5781250
## [5] {backbone=TRUE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5606061
  [6] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
   [7] {venomous=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.4805195
##
##
       lift
## [1] 2.015521
##
  [2] 1.915989
  [3] 1.436992
## [4] 1.424162
  [5] 1.381005
##
  [6] 1.336089
##
  [7] 1.183719
##
       lhs
                                      rhs
                                                  support
                                                            confidence
## [1] {hair=TRUE,tail=TRUE}
                                  => {milk=TRUE} 0.3267327 1.0000000
  [2] {feathers=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.6363636
  [3] {aquatic=FALSE,tail=TRUE} => {milk=TRUE} 0.2970297 0.6122449
## [4] {airborne=FALSE,tail=TRUE} => {milk=TRUE} 0.3267327 0.5789474
## [5] {legs=TRUE,tail=TRUE}
                                  => {milk=TRUE} 0.3267327 0.5789474
## [6] {breathes=TRUE,tail=TRUE}
                                  => {milk=TRUE} 0.3465347 0.5737705
## [7] {fins=FALSE,tail=TRUE}
                                  => {milk=TRUE} 0.3168317 0.5423729
## [8] {predator=FALSE,tail=TRUE} => {milk=TRUE} 0.1683168 0.5151515
  [9] {venomous=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.4929577
##
##
       lift
## [1] 2.463415
## [2] 1.567627
## [3] 1.508213
## [4] 1.426187
## [5] 1.426187
## [6] 1.413435
##
  [7] 1.336089
## [8] 1.269032
##
  [9] 1.214359
##
        lhs
                                           rhs
                                                       support
                                                                 confidence
## [1]
        {hair=TRUE,backbone=TRUE}
                                        => {milk=TRUE} 0.3861386 1.0000000
## [2]
        {eggs=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3960396 0.9756098
## [3]
        {backbone=TRUE,catsize=TRUE}
                                        => {milk=TRUE} 0.3168317 0.7441860
  [4]
        {aquatic=FALSE,backbone=TRUE}
                                       => {milk=TRUE} 0.3465347 0.6603774
##
        {feathers=FALSE,backbone=TRUE} => {milk=TRUE} 0.4059406 0.6507937
##
  [5]
  [6]
        {airborne=FALSE,backbone=TRUE} => {milk=TRUE} 0.3861386 0.6000000
  [7]
        {backbone=TRUE, breathes=TRUE}
                                       => {milk=TRUE} 0.4059406 0.5942029
##
##
  [8]
        {backbone=TRUE,legs=TRUE}
                                        => {milk=TRUE} 0.3762376 0.5937500
  [9]
        {backbone=TRUE,fins=FALSE}
                                        => {milk=TRUE} 0.3663366 0.5606061
##
## [10] {predator=FALSE,backbone=TRUE} => {milk=TRUE} 0.1881188 0.5277778
## [11] {backbone=TRUE, venomous=FALSE} => {milk=TRUE} 0.4059406 0.5189873
##
        lift
## [1]
        2.463415
##
  [2]
        2.403331
##
  [3]
        1.833239
  [4]
##
        1.626783
## [5]
        1.603175
## [6]
        1.478049
## [7]
        1.463768
```

```
[8]
        1.462652
   [9]
##
        1.381005
   [10] 1.300136
   [11] 1.278481
##
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
   [1]
        {aquatic=FALSE, toothed=TRUE}
                                         => {milk=TRUE} 0.3465347 0.9210526
##
   [2]
        {aquatic=FALSE, catsize=TRUE}
                                         => {milk=TRUE} 0.2574257 0.8387097
##
   [3]
        {airborne=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3267327 0.7173913
##
   [4]
        {feathers=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3465347 0.6862745
##
   [5]
        {aquatic=FALSE,backbone=TRUE}
                                         => {milk=TRUE} 0.3465347 0.6603774
   [6]
        {aquatic=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.2970297 0.6122449
   [7]
##
        {aquatic=FALSE, predator=TRUE}
                                         => {milk=TRUE} 0.1584158 0.5925926
##
   [8]
        {aquatic=FALSE,legs=TRUE}
                                         => {milk=TRUE} 0.3465347 0.5833333
        {aquatic=FALSE, venomous=FALSE} => {milk=TRUE} 0.3465347 0.5737705
##
   [10] {aquatic=FALSE,breathes=TRUE} => {milk=TRUE} 0.3465347 0.5468750
##
##
        lift
##
   [1]
        2.268935
   [2]
        2.066090
   [3]
##
        1.767232
##
   [4]
        1.690579
##
   [5]
        1.626783
##
   [6]
        1.508213
   [7]
        1.459801
##
##
   [8]
        1.436992
##
   [9]
        1.413435
##
   [10] 1.347180
##
       lhs
                                          rhs
                                                      support
                                                                 confidence
##
   [1] {hair=TRUE,toothed=TRUE}
                                         {milk=TRUE} 0.3762376 1.0000000
   [2] {aquatic=FALSE,toothed=TRUE}
                                       => {milk=TRUE} 0.3465347 0.9210526
   [3] {toothed=TRUE,catsize=TRUE}
                                       => {milk=TRUE} 0.3069307 0.8857143
   [4] {toothed=TRUE,legs=TRUE}
                                       => {milk=TRUE} 0.3663366 0.8809524
   [5] {toothed=TRUE, breathes=TRUE}
                                       => {milk=TRUE} 0.3960396 0.8510638
   [6] {toothed=TRUE,fins=FALSE}
                                       => {milk=TRUE} 0.3564356 0.8181818
   [7] {predator=FALSE,toothed=TRUE} => {milk=TRUE} 0.1881188 0.7916667
       {toothed=TRUE, venomous=FALSE} => {milk=TRUE} 0.3960396 0.7017544
##
##
       lift
##
  [1] 2.463415
   [2] 2.268935
##
   [3] 2.181882
##
   [4] 2.170151
   [5] 2.096523
   [6] 2.015521
##
##
   [7] 1.950203
##
   [8] 1.728712
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                             rhs
                                                             support
##
   [1]
        {milk=TRUE,predator=TRUE}
                                          => {catsize=TRUE} 0.1980198
##
   [2]
        {predator=TRUE, type=mammal}
                                            {catsize=TRUE} 0.1980198
##
   [3]
        {hair=TRUE,predator=TRUE}
                                            {catsize=TRUE} 0.1782178
##
   [4]
        {eggs=FALSE,predator=TRUE}
                                             {catsize=TRUE} 0.1881188
   [5]
                                             {catsize=TRUE} 0.2970297
##
        {hair=TRUE,airborne=FALSE}
##
   [6]
        {milk=TRUE,domestic=FALSE}
                                            {catsize=TRUE} 0.2574257
                                            {catsize=TRUE} 0.2574257
##
  [7]
        {domestic=FALSE, type=mammal}
                                          =>
## [8]
        {milk=TRUE}
                                             {catsize=TRUE} 0.3168317
```

```
[9]
        {type=mammal}
                                           {catsize=TRUE} 0.3168317
   [10] {eggs=FALSE, venomous=FALSE}
                                            {catsize=TRUE} 0.3069307
   [11] {hair=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2970297
   [12] {hair=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2475248
##
   [13] {eggs=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3069307
                                            {catsize=TRUE} 0.3069307
##
  [14] {eggs=FALSE}
  [15] {hair=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.2970297
   [16] {hair=TRUE,domestic=FALSE}
                                            {catsize=TRUE} 0.2376238
##
   [17] {hair=TRUE}
                                            {catsize=TRUE} 0.2970297
   [18] {aquatic=FALSE,toothed=TRUE}
                                           {catsize=TRUE} 0.2574257
   [19] {toothed=TRUE,legs=TRUE}
                                           {catsize=TRUE} 0.2772277
   [20] {toothed=TRUE,breathes=TRUE}
                                           {catsize=TRUE} 0.3069307
   [21] {airborne=FALSE,breathes=TRUE}
                                            {catsize=TRUE} 0.3564356
  [22] {airborne=FALSE,aquatic=FALSE}
                                           {catsize=TRUE} 0.2871287
                                           {catsize=TRUE} 0.3366337
  [23] {airborne=FALSE,legs=TRUE}
   [24] {predator=TRUE, toothed=TRUE}
                                            {catsize=TRUE} 0.2277228
   [25] {airborne=FALSE,backbone=TRUE}
                                           {catsize=TRUE} 0.3960396
   [26] {airborne=FALSE,tail=TRUE}
                                           {catsize=TRUE} 0.3465347
   [27] {toothed=TRUE,fins=FALSE}
                                           {catsize=TRUE} 0.2673267
   [28] {toothed=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.3366337
##
  [29] {aquatic=FALSE,predator=TRUE}
                                           {catsize=TRUE} 0.1584158
  [30] {predator=TRUE, breathes=TRUE}
                                            {catsize=TRUE} 0.2277228
   [31] {feathers=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3663366
##
   [32] {aquatic=FALSE,backbone=TRUE}
##
                                            {catsize=TRUE} 0.3069307
##
   [33]
       {feathers=FALSE,tail=TRUE}
                                           {catsize=TRUE} 0.3168317
   [34] {toothed=TRUE,tail=TRUE}
                                           {catsize=TRUE} 0.2970297
   [35] {predator=TRUE,backbone=TRUE}
                                           {catsize=TRUE} 0.2673267
   [36] {backbone=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.3861386
   [37] {airborne=FALSE, venomous=FALSE}
                                           {catsize=TRUE} 0.3960396
   [38] {backbone=TRUE,legs=TRUE}
                                           {catsize=TRUE} 0.3564356
   [39]
       {legs=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.3168317
##
   [40]
       {breathes=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.3366337
   [41] {aquatic=FALSE,tail=TRUE}
                                           {catsize=TRUE} 0.2673267
   [42] {airborne=FALSE,fins=FALSE}
                                         => {catsize=TRUE} 0.3267327
       {feathers=FALSE, breathes=TRUE}
                                            {catsize=TRUE} 0.3267327
##
  [44] {predator=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2277228
  [45] {predator=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.2673267
  [46] {predator=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.2079208
   [47] {feathers=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3069307
##
   [48] {feathers=FALSE,predator=TRUE}
                                            {catsize=TRUE} 0.2475248
##
   [49] {backbone=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.4158416
   [50] {backbone=TRUE,fins=FALSE}
                                           {catsize=TRUE} 0.3465347
   [51] {feathers=FALSE,aquatic=FALSE}
                                            {catsize=TRUE} 0.2673267
   [52] {fins=FALSE,tail=TRUE}
##
                                           {catsize=TRUE} 0.3069307
  [53] {venomous=FALSE,tail=TRUE}
                                         => {catsize=TRUE} 0.3663366
   [54]
       {backbone=TRUE,domestic=FALSE}
                                           {catsize=TRUE} 0.3663366
   [55]
##
        {breathes=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.3861386
       {aquatic=FALSE, venomous=FALSE}
                                            {catsize=TRUE} 0.3069307
   [57] {feathers=FALSE, venomous=FALSE} =>
                                           {catsize=TRUE} 0.3663366
   [58]
       {venomous=FALSE,legs=TRUE}
                                           {catsize=TRUE} 0.3663366
                                           {catsize=TRUE} 0.3069307
##
   [59]
       {aquatic=FALSE}
  [60] {aquatic=TRUE}
                                           {catsize=TRUE} 0.1287129
## [61] {hair=FALSE}
                                         => {catsize=TRUE} 0.1386139
## [62] {milk=FALSE}
                                            {catsize=TRUE} 0.1188119
```

```
##
        confidence lift
## [1]
        0.9090909
                   2.0867769
   [2]
        0.9090909
                   2.0867769
   [3]
        0.900000
                   2.0659091
##
##
   [4]
        0.8260870
                    1.8962451
        0.8108108
##
   [5]
                    1.8611794
                   1.8085399
##
   [6]
        0.7878788
##
   [7]
        0.7878788
                   1.8085399
##
   [8]
        0.7804878
                   1.7915743
##
   [9]
        0.7804878
                    1.7915743
  [10] 0.7750000
                   1.7789773
   [11] 0.7692308
                    1.7657343
##
   [12] 0.7575758
                    1.7389807
  [13] 0.7560976
                    1.7355876
## [14] 0.7380952
                    1.6942641
   [15] 0.7317073
                    1.6796009
   [16] 0.7058824
                    1.6203209
   [17] 0.6976744
                    1.6014799
                    1.5705742
   [18] 0.6842105
   [19] 0.6666667
                    1.5303030
## [20] 0.6595745
                    1.5140232
  [21] 0.6428571
                    1.4756494
  [22] 0.6304348
                    1.4471344
   [23] 0.6296296
##
                    1.4452862
   [24] 0.6216216
                    1.4269042
   [25] 0.6153846
                    1.4125874
   [26] 0.6140351
                    1.4094896
##
   [27] 0.6136364
                    1.4085744
  [28] 0.5964912
                    1.3692185
                   1.3602694
  [29] 0.5925926
   [30] 0.5897436
                    1.3537296
##
   [31] 0.5873016
                    1.3481241
   [32] 0.5849057
                    1.3426244
   [33] 0.5818182
                    1.3355372
   [34] 0.5769231
                    1.3243007
   [35] 0.5744681
##
                    1.3186654
   [36] 0.5652174
                    1.2974308
  [37] 0.5633803
##
                   1.2932138
   [38] 0.5625000
                   1.2911932
##
   [39] 0.5614035
##
                    1.2886762
   [40] 0.5573770
                   1.2794337
   [41] 0.5510204
                   1.2648423
   [42] 0.5500000
                   1.2625000
##
  [43] 0.5500000
                   1.2625000
## [44] 0.5476190
                   1.2570346
  [45] 0.5400000
                   1.2395455
##
   [46] 0.5384615
                    1.2360140
   [47] 0.5344828
                    1.2268809
  [48] 0.5319149
                    1.2209865
   [49] 0.5316456
                    1.2203682
## [50] 0.5303030
                   1.2172865
## [51] 0.5294118
                   1.2152406
## [52] 0.5254237
                   1.2060863
## [53] 0.5211268 1.1962228
```

```
[54] 0.5211268
                   1.1962228
   [55] 0.5200000
                   1.1936364
   [56] 0.5081967
                    1.1665425
   [57] 0.5068493
                    1.1634496
   [58]
        0.5000000
                    1.1477273
   [59] 0.4769231
                    1.0947552
##
   [60] 0.3611111
                    0.8289141
   [61] 0.2413793
                   0.5540752
##
   [62] 0.2000000
                   0.4590909
##
        lhs
                                              support
                                                        confidence lift
##
   [1]
        {backbone=FALSE} => {catsize=FALSE} 0.1683168 0.9444444
                                                                    1.6734893
   [2]
##
        {airborne=TRUE}
                          => {catsize=FALSE} 0.2079208 0.8750000
                                                                    1.5504386
##
   [3]
        {milk=FALSE}
                          => {catsize=FALSE} 0.4752475 0.8000000
                                                                    1.4175439
##
   [4]
        {eggs=TRUE}
                          => {catsize=FALSE} 0.4554455 0.7796610
                                                                    1.3815046
   [5]
                          => {catsize=FALSE} 0.1980198 0.7692308
##
        {tail=FALSE}
                                                                    1.3630229
##
   [6]
        {breathes=FALSE} => {catsize=FALSE} 0.1584158 0.7619048
                                                                    1.3500418
   [7]
##
        {type=bird}
                          => {catsize=FALSE} 0.1386139 0.7000000
                                                                    1.2403509
   [8]
        {feathers=TRUE}
                          => {catsize=FALSE} 0.1386139 0.7000000
                                                                    1.2403509
                          => {catsize=FALSE} 0.1584158 0.6956522
##
   [9]
        {legs=FALSE}
                                                                    1.2326468
   [10]
       {aquatic=TRUE}
                          => {catsize=FALSE} 0.2277228 0.6388889
                                                                    1.1320663
##
   [11] {predator=TRUE}
                          => {catsize=FALSE} 0.2772277 0.5000000
                                                                    0.8859649
                          => {catsize=FALSE} 0.3564356 0.4675325
   [12] {airborne=FALSE}
                                                                    0.8284347
                          => {catsize=FALSE} 0.1287129 0.3023256
   [13] {hair=TRUE}
                                                                    0.5356997
                          => {catsize=FALSE} 0.1089109 0.2619048
##
   [14] {eggs=FALSE}
                                                                    0.4640769
##
        lhs
                                            rhs
                                                            support
                                                                      confidence
   [1]
        {milk=TRUE,predator=TRUE}
                                         => {catsize=TRUE} 0.1980198 0.9090909
   [2]
        {predator=TRUE, type=mammal}
                                         => {catsize=TRUE} 0.1980198 0.9090909
##
##
   [3]
        {hair=TRUE,predator=TRUE}
                                         => {catsize=TRUE} 0.1782178 0.9000000
##
   [4]
        {eggs=FALSE,predator=TRUE}
                                         => {catsize=TRUE} 0.1881188 0.8260870
##
   [5]
        {predator=TRUE, toothed=TRUE}
                                         => {catsize=TRUE} 0.2277228 0.6216216
##
   [6]
        {aquatic=FALSE, predator=TRUE}
                                            {catsize=TRUE} 0.1584158 0.5925926
##
   [7]
        {predator=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.2277228 0.5897436
   [8]
        {predator=TRUE, backbone=TRUE}
                                           {catsize=TRUE} 0.2673267 0.5744681
   [9]
##
        {predator=TRUE,tail=TRUE}
                                         => {catsize=TRUE} 0.2277228 0.5476190
   [10] {predator=TRUE,venomous=FALSE} => {catsize=TRUE} 0.2673267 0.5400000
   [11] {predator=TRUE,legs=TRUE}
                                         => {catsize=TRUE} 0.2079208 0.5384615
##
##
   [12] {feathers=FALSE,predator=TRUE} => {catsize=TRUE} 0.2475248 0.5319149
##
        lift
   [1]
        2.086777
##
   [2]
##
        2.086777
   [3]
        2.065909
   [4]
##
        1.896245
##
   [5]
        1.426904
##
   [6]
        1.360269
##
   [7]
        1.353730
   [8]
##
        1.318665
##
   [9]
        1.257035
   [10] 1.239545
   [11] 1.236014
##
   [12] 1.220986
##
       lhs
                                            rhs
                                                            support
                                                                      confidence
## [1] {hair=TRUE,airborne=FALSE}
                                         => {catsize=TRUE} 0.2970297 0.8108108
  [2] {airborne=FALSE,breathes=TRUE}
                                         => {catsize=TRUE} 0.3564356 0.6428571
## [3] {airborne=FALSE,aquatic=FALSE}
                                         => {catsize=TRUE} 0.2871287 0.6304348
```

```
## [4] {airborne=FALSE,legs=TRUE}
                                        => {catsize=TRUE} 0.3366337 0.6296296
## [5] {airborne=FALSE,backbone=TRUE}
                                        => {catsize=TRUE} 0.3960396 0.6153846
## [6] {airborne=FALSE,tail=TRUE}
                                        => {catsize=TRUE} 0.3465347 0.6140351
## [7] {airborne=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3960396 0.5633803
   [8] {airborne=FALSE,fins=FALSE}
                                        => {catsize=TRUE} 0.3267327 0.5500000
##
       lift.
## [1] 1.861179
## [2] 1.475649
## [3] 1.447134
## [4] 1.445286
## [5] 1.412587
  [6] 1.409490
  [7] 1.293214
##
  [8] 1.262500
##
       lhs
                                      rhs
                                                     support
                                                               confidence
  [1] {hair=TRUE,predator=TRUE} => {catsize=TRUE} 0.1782178 0.9000000
  [2] {hair=TRUE,airborne=FALSE} => {catsize=TRUE} 0.2970297 0.8108108
  [3] {hair=TRUE,backbone=TRUE} => {catsize=TRUE} 0.2970297 0.7692308
  [4] {hair=TRUE,tail=TRUE}
                                  => {catsize=TRUE} 0.2475248 0.7575758
  [5] {hair=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2970297 0.7317073
##
   [6] {hair=TRUE,domestic=FALSE} => {catsize=TRUE} 0.2376238 0.7058824
##
## [1] 2.065909
  [2] 1.861179
## [3] 1.765734
## [4] 1.738981
  [5] 1.679601
##
##
   [6] 1.620321
##
       lhs
                                       rhs
                                                      support
  [1] {eggs=FALSE,predator=TRUE} => {catsize=TRUE} 0.1881188 0.8260870
   [2] {eggs=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3069307 0.7750000
##
   [3] {eggs=FALSE,backbone=TRUE} => {catsize=TRUE} 0.3069307 0.7560976
##
       lift
## [1] 1.896245
   [2] 1.778977
##
  [3] 1.735588
   [1] "Número de reglas con consecuente negado"
##
                                                         support
                                                                   confidence
        {milk=TRUE,toothed=TRUE}
                                         => {eggs=FALSE} 0.3960396 1.0000000
##
  [1]
        {milk=TRUE,aquatic=FALSE}
                                         => {eggs=FALSE} 0.3465347 1.0000000
##
  [2]
        {toothed=TRUE, type=mammal}
                                         => {eggs=FALSE} 0.3960396 1.0000000
  [3]
  [4]
        {aquatic=FALSE, type=mammal}
                                         => {eggs=FALSE} 0.3465347 1.0000000
        {hair=TRUE, toothed=TRUE}
##
  [5]
                                         => {eggs=FALSE} 0.3762376 1.0000000
## [6]
        {milk=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.9756098
## [7]
        {type=mammal}
                                         => {eggs=FALSE} 0.3960396 0.9756098
        {hair=TRUE,backbone=TRUE}
## [8]
                                         => {eggs=FALSE} 0.3762376 0.9743590
## [9]
        {hair=TRUE,airborne=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.9729730
## [10] {hair=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3168317 0.9696970
## [11] {hair=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2871287 0.9666667
## [12] {hair=TRUE,predator=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.9500000
## [13] {aquatic=FALSE,toothed=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.9210526
## [14] {toothed=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.8857143
## [15] {toothed=TRUE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.8809524
## [16] {toothed=TRUE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.8510638
```

```
## [17] {toothed=TRUE,fins=FALSE}
                                           {eggs=FALSE} 0.3663366 0.8409091
  [18] {aquatic=FALSE,catsize=TRUE}
                                            {eggs=FALSE} 0.2574257 0.8387097
  [19] {feathers=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.3069307 0.8157895
  [20] {breathes=TRUE,catsize=TRUE}
                                           {eggs=FALSE} 0.3069307 0.7948718
##
  [21] {predator=FALSE,toothed=TRUE}
                                           {eggs=FALSE} 0.1881188 0.7916667
  [22] {legs=TRUE,catsize=TRUE}
                                           {eggs=FALSE} 0.2772277 0.7567568
##
  [23] {airborne=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.3069307 0.7560976
  [24] {predator=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.1188119 0.7500000
   [25] {fins=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.2673267 0.7500000
   [26] {airborne=FALSE, aquatic=FALSE}
                                           {eggs=FALSE} 0.3366337 0.7391304
   [27] {feathers=FALSE, aquatic=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.7058824
   [28] {toothed=TRUE, venomous=FALSE}
                                           {eggs=FALSE} 0.3960396 0.7017544
   [29] {airborne=FALSE,breathes=TRUE}
                                           {eggs=FALSE} 0.3861386 0.6964286
  [30] {feathers=FALSE,breathes=TRUE}
                                           {eggs=FALSE} 0.4059406 0.6833333
  [31] {toothed=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.6730769
   [32] {airborne=FALSE,legs=TRUE}
                                           {eggs=FALSE} 0.3564356 0.6666667
   [33] {aquatic=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.6603774
   [34] {feathers=FALSE,legs=TRUE}
                                           {eggs=FALSE} 0.3762376 0.6551724
   [35] {feathers=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3564356 0.6545455
   [36] {feathers=FALSE,backbone=TRUE}
                                           {eggs=FALSE} 0.4059406 0.6507937
##
  [37] {aquatic=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.6326531
  [38] {aquatic=FALSE,predator=TRUE}
                                           {eggs=FALSE} 0.1683168 0.6296296
   [39] {airborne=FALSE,predator=FALSE} =>
                                            {eggs=FALSE} 0.1683168 0.6071429
   [40] {airborne=FALSE,backbone=TRUE}
##
                                           {eggs=FALSE} 0.3861386 0.6000000
  [41] {airborne=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.6000000
  [42] {airborne=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3366337 0.5964912
   [43] {feathers=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3762376 0.5937500
##
  [44] {backbone=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.5797101
  [45] {legs=TRUE,tail=TRUE}
                                           {eggs=FALSE} 0.3267327 0.5789474
                                           {eggs=FALSE} 0.3663366 0.5781250
  [46] {backbone=TRUE,legs=TRUE}
       {aquatic=FALSE, venomous=FALSE}
                                           {eggs=FALSE} 0.3465347 0.5737705
   [48]
       {breathes=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.5737705
   [49] {predator=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.2178218 0.5641026
   [50] {backbone=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.5606061
   [51] {fins=FALSE,tail=TRUE}
                                           {eggs=FALSE} 0.3267327 0.5593220
##
   [52] {feathers=FALSE,predator=FALSE}
                                        =>
                                           {eggs=FALSE} 0.1881188 0.5588235
  [53] {feathers=FALSE,airborne=FALSE}
                                            {eggs=FALSE} 0.3960396 0.5479452
  [54] {feathers=FALSE, venomous=FALSE}
##
                                            {eggs=FALSE} 0.3960396 0.5479452
       {airborne=FALSE, venomous=FALSE}
##
   [55]
                                            {eggs=FALSE} 0.3762376 0.5352113
       {breathes=TRUE, venomous=FALSE}
##
   [56]
                                         => {eggs=FALSE} 0.3960396 0.5333333
       {predator=FALSE,backbone=TRUE}
   [57]
                                         => {eggs=FALSE} 0.1881188 0.5277778
   [58] {predator=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.1683168 0.5151515
   [59] {backbone=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5063291
   [60] {venomous=FALSE,legs=TRUE}
##
                                         => {eggs=FALSE} 0.3663366 0.5000000
   [61] {backbone=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.4939759
   [62] {venomous=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.4675325
##
##
        lift
##
  [1]
        2.404762
##
   [2]
        2.404762
##
   [3]
        2.404762
   [4]
##
        2.404762
##
  [5]
        2.404762
## [6]
        2.346109
## [7]
        2.346109
```

- ## [8] 2.343101
- ## [9] 2.339768
- [10] 2.331890
- ## [11] 2.324603
- ## [12] 2.284524
- ## [13] 2.214912
- ## [14] 2.129932
- ## [15] 2.118481 ## [16] 2.046606
- ## [17] 2.022186
- ## [18] 2.016897
- ## [19] 1.961779
- ## [20] 1.911477
- ## [21] 1.903770
- ## [22] 1.819820
- ## [23] 1.818235
- ## [24] 1.803571
- [25] 1.803571 [26] 1.777433
- ## [27] 1.697479
- ## [28] 1.687552
- ## [29] 1.674745
- ## [30] 1.643254
- ## [31] 1.618590
- ## [32] 1.603175
- ## [33] 1.588050
- ## [34] 1.575534
- ## [35] 1.574026
- ## [36] 1.565004
- ## [37] 1.521380
- ## [38] 1.514109 ##
- [39] 1.460034
- [40] 1.442857 ## [41] 1.442857
- ## [42] 1.434419
- ## [43] 1.427827
- ## [44] 1.394065
- ## [45] 1.392231
- ## [46] 1.390253
- ## [47] 1.379781
- ## [48] 1.379781
- ## [49] 1.356532
- ## [50] 1.348124
- ## [51] 1.345036 ## [52] 1.343838
- ## [53] 1.317678
- ## [54] 1.317678
- [55] 1.287056 ## [56] 1.282540
- ## [57] 1.269180
- ## [58] 1.238817
- ## [59] 1.217601
- ## [60] 1.202381
- ## [61] 1.187894

```
[62] 1.124304
##
        lhs
                                         support
                                                    confidence lift
                             rhs
##
  [1]
        {type=fish}
                          => {eggs=TRUE} 0.1287129 1.0000000
  [2]
                          => {eggs=TRUE} 0.1980198 1.0000000
##
        {type=bird}
                                                               1.7118644
##
   [3]
        {feathers=TRUE}
                          => {eggs=TRUE} 0.1980198 1.0000000
                                                               1.7118644
  [4]
##
        {toothed=FALSE}
                          => {eggs=TRUE} 0.3861386 0.9750000
                                                               1.6690678
  [5]
        {breathes=FALSE} => {eggs=TRUE} 0.1980198 0.9523810
                                                               1.6303471
##
  [6]
        {hair=FALSE}
                          => {eggs=TRUE} 0.5346535 0.9310345
                                                               1.5938048
##
  [7]
        {airborne=TRUE}
                          => {eggs=TRUE} 0.2178218 0.9166667
                                                               1.5692090
##
  [8]
        {aquatic=TRUE}
                          => {eggs=TRUE} 0.2970297 0.8333333
                                                               1.4265537
  [9]
        {legs=FALSE}
                          => {eggs=TRUE} 0.1881188 0.8260870
                                                               1.4141489
##
  [10] {tail=FALSE}
                          => {eggs=TRUE} 0.1980198 0.7692308
                                                               1.3168188
##
  [11] {fins=TRUE}
                          => {eggs=TRUE} 0.1287129 0.7647059
                                                               1.3090728
                          => {eggs=TRUE} 0.3267327 0.5892857
  [12] {predator=TRUE}
##
   [13] {catsize=TRUE}
                          => {eggs=TRUE} 0.1287129 0.2954545
                                                               0.5057781
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
##
   [1] {hair=TRUE,predator=TRUE}
                                      => {eggs=FALSE} 0.1881188 0.9500000
   [2] {aquatic=FALSE,predator=TRUE} => {eggs=FALSE} 0.1683168 0.6296296
   [3] {predator=TRUE,breathes=TRUE} => {eggs=FALSE} 0.2178218 0.5641026
##
       lift.
##
  [1] 2.284524
  [2] 1.514109
##
  [3] 1.356532
##
                                                       support
                                                                 confidence
                                         rhs
##
  [1] {hair=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2871287 0.9666667
  [2] {toothed=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.8857143
   [3] {aquatic=FALSE, catsize=TRUE}
                                      => {eggs=FALSE} 0.2574257 0.8387097
  [4] {feathers=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.8157895
  [5] {breathes=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.7948718
  [6] {legs=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2772277 0.7567568
   [7] {airborne=FALSE,catsize=TRUE} => {eggs=FALSE} 0.3069307 0.7560976
   [8] {predator=FALSE,catsize=TRUE} => {eggs=FALSE} 0.1188119 0.7500000
##
   [9] {fins=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2673267 0.7500000
##
       lift
   [1] 2.324603
##
   [2] 2.129932
  [3] 2.016897
  [4] 1.961779
##
   [5] 1.911477
##
  [6] 1.819820
  [7] 1.818235
##
   [8] 1.803571
##
   [9] 1.803571
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                         support
                                                                   confidence
## [1]
        {milk=TRUE, predator=FALSE}
                                            {hair=TRUE} 0.1881188 1.0000000
##
   [2]
        {milk=TRUE,aquatic=FALSE}
                                            {hair=TRUE} 0.3465347 1.0000000
##
  [3]
        {milk=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3762376 1.0000000
                                            {hair=TRUE} 0.3663366 1.0000000
  [4]
        {milk=TRUE,fins=FALSE}
##
   [5]
        {predator=FALSE, type=mammal}
                                            {hair=TRUE} 0.1881188 1.0000000
##
   [6]
        {aquatic=FALSE, type=mammal}
                                            {hair=TRUE} 0.3465347 1.0000000
  [7]
        {legs=TRUE, type=mammal}
                                            {hair=TRUE} 0.3762376 1.0000000
## [8]
        {fins=FALSE, type=mammal}
                                         => {hair=TRUE} 0.3663366 1.0000000
## [9]
        {eggs=FALSE,predator=FALSE}
                                            {hair=TRUE} 0.1881188 1.0000000
```

```
## [10] {eggs=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3663366 0.9736842
  [11] {eggs=FALSE,aquatic=FALSE}
                                           {hair=TRUE} 0.3465347 0.9722222
  [12] {milk=TRUE}
                                            {hair=TRUE} 0.3861386 0.9512195
                                            {hair=TRUE} 0.3861386 0.9512195
  [13] {type=mammal}
##
  [14] {eggs=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.9500000
  [15] {eggs=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3564356 0.9473684
  [16] {eggs=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.9268293
  [17] {aquatic=FALSE,toothed=TRUE}
                                            {hair=TRUE} 0.3465347 0.9210526
##
   [18] {eggs=FALSE}
                                            {hair=TRUE} 0.3762376 0.9047619
   [19] {toothed=TRUE,legs=TRUE}
                                           {hair=TRUE} 0.3663366 0.8809524
   [20] {aquatic=FALSE,catsize=TRUE}
                                           {hair=TRUE} 0.2574257 0.8387097
   [21] {toothed=TRUE,catsize=TRUE}
                                           {hair=TRUE} 0.2871287 0.8285714
   [22] {toothed=TRUE,fins=FALSE}
                                           {hair=TRUE} 0.3564356 0.8181818
  [23] {toothed=TRUE,breathes=TRUE}
                                           {hair=TRUE} 0.3762376 0.8085106
  [24] {predator=FALSE,toothed=TRUE}
                                           {hair=TRUE} 0.1881188 0.7916667
   [25]
        {feathers=FALSE, catsize=TRUE}
                                            {hair=TRUE} 0.2970297 0.7894737
   [26] {legs=TRUE,catsize=TRUE}
                                           {hair=TRUE} 0.2871287 0.7837838
   [27] {fins=FALSE,catsize=TRUE}
                                           {hair=TRUE} 0.2772277 0.7777778
                                           {hair=TRUE} 0.2970297 0.7692308
   [28] {breathes=TRUE,catsize=TRUE}
   [29] {feathers=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3861386 0.7647059
##
  [30] {predator=FALSE,catsize=TRUE}
                                           {hair=TRUE} 0.1188119 0.7500000
  [31] {feathers=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.7241379
  [32] {airborne=FALSE,aquatic=FALSE}
                                           {hair=TRUE} 0.3267327 0.7173913
       {feathers=FALSE, breathes=TRUE}
##
   [33]
                                            {hair=TRUE} 0.4257426 0.7166667
   [34] {feathers=FALSE,predator=FALSE} =>
                                           {hair=TRUE} 0.2277228 0.6764706
   [35] {toothed=TRUE, venomous=FALSE}
                                           {hair=TRUE} 0.3762376 0.6666667
   [36] {airborne=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.3564356 0.6666667
   [37] {airborne=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3663366 0.6607143
  [38] {aquatic=FALSE,backbone=TRUE}
                                           {hair=TRUE} 0.3465347 0.6603774
   [39] {aquatic=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.3861386 0.6500000
   [40]
       {feathers=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.4059406 0.6406250
##
   [41]
       {toothed=TRUE}
                                           {hair=TRUE} 0.3762376 0.6229508
  [42]
       {feathers=FALSE, backbone=TRUE}
                                           {hair=TRUE} 0.3861386 0.6190476
  [43] {aquatic=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.2970297 0.6122449
   [44] {aguatic=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.6093750
##
  [45] {airborne=FALSE,predator=FALSE}
                                           {hair=TRUE} 0.1683168 0.6071429
  [46] {aquatic=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3663366 0.6065574
  [47] {feathers=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.3267327 0.6000000
       {backbone=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3762376 0.5937500
##
  [48]
   [49] {predator=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.2277228 0.5897436
  [50] {airborne=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.3465347 0.5833333
   [51] {legs=TRUE,tail=TRUE}
                                           {hair=TRUE} 0.3267327 0.5789474
##
   [52] {breathes=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.5753425
  [53] {airborne=FALSE,backbone=TRUE}
                                           {hair=TRUE} 0.3663366 0.5692308
  [54] {backbone=TRUE,breathes=TRUE}
                                           {hair=TRUE} 0.3861386 0.5652174
       {feathers=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.4059406 0.5616438
  [55]
                                        =>
   [56]
##
       {predator=FALSE,breathes=TRUE}
                                           {hair=TRUE} 0.2277228 0.5609756
       {predator=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.2277228 0.5609756
  [58] {backbone=TRUE,fins=FALSE}
                                         => {hair=TRUE} 0.3663366 0.5606061
   [59] {breathes=TRUE, venomous=FALSE}
                                           {hair=TRUE} 0.4059406 0.5466667
##
   [60]
       {airborne=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.3069307 0.5438596
  [61] {fins=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.3168317 0.5423729
## [62] {breathes=TRUE,tail=TRUE}
                                           {hair=TRUE} 0.3267327 0.5409836
## [63] {venomous=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.3960396 0.5405405
```

```
## [64] {breathes=TRUE,fins=FALSE}
                                         => {hair=TRUE} 0.4059406 0.5394737
## [65] {predator=FALSE,backbone=TRUE} => {hair=TRUE} 0.1881188 0.5277778
  [66] {airborne=FALSE, venomous=FALSE} => {hair=TRUE} 0.3663366 0.5211268
## [67] {predator=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.1683168 0.5151515
## [68] {predator=FALSE}
                                         => {hair=TRUE} 0.2277228 0.5111111
## [69] {venomous=FALSE,fins=FALSE}
                                         => {hair=TRUE} 0.3861386 0.5064935
## [70] {backbone=TRUE, venomous=FALSE}
                                         => {hair=TRUE} 0.3861386 0.4936709
                                         => {hair=TRUE} 0.3861386 0.4698795
## [71] {backbone=TRUE}
## [72] {venomous=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.3267327 0.4647887
                                         => {hair=TRUE} 0.3366337 0.3863636
##
  [73] {domestic=FALSE}
        lift
## [1]
        2.3488372
##
  [2]
        2.3488372
## [3]
        2.3488372
## [4]
        2.3488372
## [5]
        2.3488372
## [6]
        2.3488372
## [7]
        2.3488372
## [8]
        2.3488372
## [9]
        2.3488372
## [10] 2.2870257
## [11] 2.2835917
## [12] 2.2342598
## [13] 2.2342598
## [14] 2.2313953
## [15] 2.2252142
## [16] 2.1769711
## [17] 2.1634027
## [18] 2.1251384
## [19] 2.0692137
## [20] 1.9699925
## [21] 1.9461794
## [22] 1.9217759
## [23] 1.8990599
## [24] 1.8594961
## [25] 1.8543452
## [26] 1.8409805
## [27] 1.8268734
## [28] 1.8067979
## [29] 1.7961696
## [30] 1.7616279
## [31] 1.7008821
## [32] 1.6850354
## [33] 1.6833333
## [34] 1.5889193
## [35] 1.5658915
## [36] 1.5658915
## [37] 1.5519103
## [38] 1.5511189
## [39] 1.5267442
## [40] 1.5047238
## [41] 1.4632101
## [42] 1.4540421
## [43] 1.4380636
```

```
## [44] 1.4313227
   [45] 1.4260797
   [46] 1.4247045
   [47] 1.4093023
   [48] 1.3946221
##
   [49] 1.3852117
   [50] 1.3701550
   [51] 1.3598531
   [52] 1.3513858
   [53] 1.3370304
   [54] 1.3276036
   [55] 1.3192099
##
   [56] 1.3176404
   [57] 1.3176404
   [58] 1.3167724
   [59] 1.2840310
##
   [60] 1.2774378
   [61] 1.2739456
   [62] 1.2706824
   [63] 1.2696417
##
   [64] 1.2671359
   [65] 1.2396641
##
   [66] 1.2240419
   [67] 1.2100070
   [68] 1.2005168
   [69] 1.1896708
   [70] 1.1595525
   [71] 1.1036705
   [72] 1.0917131
##
##
   [73] 0.9075053
##
        lhs
                                           support
                                                     confidence lift
##
   [1]
        {type=fish}
                          => {hair=FALSE} 0.1287129 1.0000000
                                                                1.7413793
##
   [2]
        {breathes=FALSE}
                         => {hair=FALSE} 0.2079208 1.0000000
                                                                1.7413793
   [3]
##
        {legs=FALSE}
                          => {hair=FALSE} 0.2178218 0.9565217
                                                                 1.6656672
##
   [4]
        {aquatic=TRUE}
                             {hair=FALSE} 0.3168317 0.8888889
                                                                 1.5478927
##
   [5]
        {toothed=FALSE}
                          => {hair=FALSE} 0.3465347 0.8750000
                                                                1.5237069
##
   [6]
        {backbone=FALSE}
                         => {hair=FALSE} 0.1386139 0.7777778
##
   [7]
        {catsize=FALSE}
                          => {hair=FALSE} 0.4356436 0.7719298
                                                                 1.3442226
   [8]
        {airborne=TRUE}
                             {hair=FALSE} 0.1782178 0.7500000
##
                                                                 1.3060345
                          => {hair=FALSE} 0.3564356 0.6428571
##
   [9]
        {predator=TRUE}
                                                                1.1194581
   [10] {tail=FALSE}
                          => {hair=FALSE} 0.1584158 0.6153846
                                                                1.0716180
   [11] {backbone=TRUE}
                          => {hair=FALSE} 0.4356436 0.5301205
                                                                0.9231408
   [12] {breathes=TRUE}
                          => {hair=FALSE} 0.3663366 0.4625000
                                                                0.8053879
   [13] {legs=TRUE}
                          => {hair=FALSE} 0.3564356 0.4615385
##
                                                                 0.8037135
##
   [14] {aquatic=FALSE}
                          => {hair=FALSE} 0.2574257 0.4000000
                                                                0.6965517
##
       lhs
                                           rhs
                                                       support
                                                                  confidence
##
   [1] {aquatic=FALSE,backbone=TRUE} => {hair=TRUE} 0.3465347 0.6603774
   [2] {feathers=FALSE,backbone=TRUE} => {hair=TRUE} 0.3861386 0.6190476
   [3] {backbone=TRUE,legs=TRUE}
                                       => {hair=TRUE} 0.3762376 0.5937500
   [4] {airborne=FALSE,backbone=TRUE} => {hair=TRUE} 0.3663366 0.5692308
   [5] \{backbone=TRUE, breathes=TRUE\} => \{hair=TRUE\} 0.3861386 0.5652174\}
##
   [6] {backbone=TRUE,fins=FALSE}
                                       => {hair=TRUE} 0.3663366 0.5606061
  [7] {predator=FALSE,backbone=TRUE} => {hair=TRUE} 0.1881188 0.5277778
## [8] {backbone=TRUE, venomous=FALSE} => {hair=TRUE} 0.3861386 0.4936709
```

```
##
       lift
## [1] 1.551119
   [2] 1.454042
   [3] 1.394622
   [4] 1.337030
##
   [5] 1.327604
   [6] 1.316772
##
   [7] 1.239664
##
   [8] 1.159553
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
##
   [1]
        {eggs=FALSE,breathes=TRUE}
                                         => {hair=TRUE} 0.3762376 0.9268293
   [2]
##
        {toothed=TRUE,breathes=TRUE}
                                         => {hair=TRUE} 0.3762376 0.8085106
##
   [3]
        {breathes=TRUE, catsize=TRUE}
                                         => {hair=TRUE} 0.2970297 0.7692308
        {feathers=FALSE,breathes=TRUE} => {hair=TRUE} 0.4257426 0.7166667
##
   [4]
   [5]
        {airborne=FALSE,breathes=TRUE} => {hair=TRUE} 0.3663366 0.6607143
##
##
   [6]
        {aquatic=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.6093750
        {breathes=TRUE,legs=TRUE}
##
   [7]
                                         => {hair=TRUE} 0.4158416 0.5753425
##
   [8]
        {backbone=TRUE, breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.5652174
        {predator=FALSE,breathes=TRUE} => {hair=TRUE} 0.2277228 0.5609756
##
   [9]
       {breathes=TRUE, venomous=FALSE} => {hair=TRUE} 0.4059406 0.5466667
##
   [11] {breathes=TRUE,tail=TRUE}
                                         => {hair=TRUE} 0.3267327 0.5409836
   [12] {breathes=TRUE,fins=FALSE}
                                         => {hair=TRUE} 0.4059406 0.5394737
##
##
        lift
   [1]
        2.176971
##
   [2]
##
        1.899060
   [3]
        1.806798
   [4]
##
        1.683333
##
   [5]
        1.551910
   [6]
##
        1.431323
##
   [7]
        1.351386
##
   [8]
        1.327604
##
   [9]
        1.317640
   [10] 1.284031
   [11] 1.270682
##
##
   [12]
        1.267136
##
        lhs
                                        rhs
                                                    support
                                                               confidence
##
   [1]
        {milk=TRUE,legs=TRUE}
                                     => {hair=TRUE} 0.3762376 1.0000000
##
   [2]
        {legs=TRUE, type=mammal}
                                     => {hair=TRUE} 0.3762376 1.0000000
   [3]
        {eggs=FALSE,legs=TRUE}
                                       {hair=TRUE} 0.3663366 0.9736842
##
   [4]
        {toothed=TRUE,legs=TRUE}
##
                                     => {hair=TRUE} 0.3663366 0.8809524
        {legs=TRUE,catsize=TRUE}
   [5]
                                     => {hair=TRUE} 0.2871287 0.7837838
   [6]
        {feathers=FALSE,legs=TRUE} => {hair=TRUE} 0.4158416 0.7241379
##
##
   [7]
        {airborne=FALSE,legs=TRUE} => {hair=TRUE} 0.3564356 0.6666667
   [8]
        {aquatic=FALSE,legs=TRUE}
                                    => {hair=TRUE} 0.3861386 0.6500000
##
##
   [9]
        {backbone=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.3762376 0.5937500
   [10] {predator=FALSE,legs=TRUE} => {hair=TRUE} 0.2277228 0.5897436
##
   [11] {legs=TRUE,tail=TRUE}
                                    => {hair=TRUE} 0.3267327 0.5789474
   [12] {breathes=TRUE,legs=TRUE} => {hair=TRUE} 0.4158416 0.5753425
##
   [13]
        {venomous=FALSE,legs=TRUE} => {hair=TRUE} 0.3960396 0.5405405
##
        lift
##
   [1]
        2.348837
##
   [2]
        2.348837
## [3]
        2.287026
## [4]
        2.069214
```

```
[5]
        1.840981
##
   [6]
        1.700882
   [7]
        1.565891
   [8]
##
        1.526744
##
   [9]
        1.394622
   [10] 1.385212
##
   [11] 1.359853
##
   [12] 1.351386
##
   [13] 1.269642
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
   [1]
        {milk=TRUE,aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 1.0000000
   [2]
##
        {aquatic=FALSE, type=mammal}
                                         => {hair=TRUE} 0.3465347 1.0000000
##
   [3]
        {eggs=FALSE,aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 0.9722222
        {aquatic=FALSE, toothed=TRUE}
##
   [4]
                                         => {hair=TRUE} 0.3465347 0.9210526
   [5]
##
        {aquatic=FALSE,catsize=TRUE}
                                         => {hair=TRUE} 0.2574257 0.8387097
##
   [6]
        {feathers=FALSE, aquatic=FALSE}
                                            {hair=TRUE} 0.3861386 0.7647059
   [7]
##
        {airborne=FALSE,aquatic=FALSE} =>
                                            {hair=TRUE} 0.3267327 0.7173913
   [8]
        {aquatic=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3465347 0.6603774
##
   [9]
        {aquatic=FALSE,legs=TRUE}
                                         => {hair=TRUE} 0.3861386 0.6500000
   [10] {aquatic=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.2970297 0.6122449
##
   [11] {aquatic=FALSE,breathes=TRUE}
                                         => {hair=TRUE} 0.3861386 0.6093750
   [12] {aquatic=FALSE, venomous=FALSE} => {hair=TRUE} 0.3663366 0.6065574
##
##
        lift
        2.348837
##
   [1]
   [2]
##
        2.348837
   [3]
        2.283592
   [4]
##
        2.163403
##
   [5]
        1.969992
   [6]
##
        1.796170
##
   [7]
        1.685035
##
   [8]
        1.551119
##
   [9]
        1.526744
   [10] 1.438064
   [11] 1.431323
##
   [12] 1.424705
##
   [1]
       "Número de reglas con consecuente negado"
##
                                             rhs
                                                              support
##
  [1]
                                          => {toothed=FALSE} 0.1980198
        {type=bird}
   [2]
        {feathers=TRUE}
                                             {toothed=FALSE} 0.1980198
##
   [3]
        {hair=FALSE,airborne=TRUE}
##
                                             {toothed=FALSE} 0.1782178
   [4]
        {eggs=TRUE,airborne=TRUE}
                                             {toothed=FALSE} 0.2178218
   [5]
        {milk=FALSE,airborne=TRUE}
##
                                             {toothed=FALSE} 0.2178218
##
   [6]
        {milk=FALSE, aquatic=FALSE}
                                             {toothed=FALSE} 0.2673267
##
   [7]
        {eggs=TRUE,aquatic=FALSE}
                                             {toothed=FALSE} 0.2574257
##
   [8]
        {hair=FALSE,aquatic=FALSE}
                                             {toothed=FALSE} 0.2277228
   [9]
##
        {eggs=TRUE,legs=TRUE}
                                             {toothed=FALSE} 0.3465347
##
   [10] {milk=FALSE,legs=TRUE}
                                             {toothed=FALSE} 0.3465347
   [11] {hair=FALSE,legs=TRUE}
                                             {toothed=FALSE} 0.3069307
   [12] {eggs=TRUE,tail=FALSE}
                                             {toothed=FALSE} 0.1683168
   [13] {milk=FALSE,tail=FALSE}
                                             {toothed=FALSE} 0.1683168
##
   [14] {eggs=TRUE,fins=FALSE}
                                             {toothed=FALSE} 0.3861386
  [15] {milk=FALSE,fins=FALSE}
                                             {toothed=FALSE} 0.3861386
## [16] {eggs=TRUE,breathes=TRUE}
                                             {toothed=FALSE} 0.3168317
## [17] {milk=FALSE,breathes=TRUE}
                                             {toothed=FALSE} 0.3168317
```

```
## [18] {hair=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3465347
  [19] {hair=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1287129
  [20] {eggs=TRUE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
   [21] {milk=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
##
   [22] {tail=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1584158
##
  [23] {hair=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.1683168
  [24] {hair=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.2772277
  [25] {tail=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.1584158
   [26] {aquatic=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1089109
   [27]
       {aquatic=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.1287129
   [28] {fins=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   [29] {eggs=TRUE, venomous=FALSE}
                                            {toothed=FALSE} 0.3564356
   [30] {milk=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3465347
   [31] {aquatic=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.1188119
   [32] {legs=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
##
   [33]
        {tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   [34]
##
       {milk=FALSE}
                                            {toothed=FALSE} 0.3861386
   [35] {aquatic=FALSE, catsize=FALSE}
                                            {toothed=FALSE} 0.2178218
                                            {toothed=FALSE} 0.3069307
   [36] {fins=FALSE,catsize=FALSE}
   [37] {hair=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3267327
##
  [38]
       {hair=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
  [39] {breathes=TRUE, catsize=FALSE}
                                            {toothed=FALSE} 0.2475248
  [40] {predator=FALSE, catsize=FALSE}
                                            {toothed=FALSE} 0.1683168
##
   [41] {catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
  [42] {predator=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.2079208
   [43] {predator=FALSE,domestic=FALSE} =>
                                            {toothed=FALSE} 0.1683168
   [44] {fins=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.3564356
##
   [45] {predator=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.1881188
   [46] {legs=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.3168317
   [47] {aquatic=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.2277228
##
   [48]
        {breathes=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.2871287
##
   [49]
       {predator=TRUE}
                                            {toothed=FALSE} 0.1881188
##
        confidence lift
##
   [1]
        1.0000000
                   2.5250000
##
   [2]
        1.0000000
                   2.5250000
##
   [3]
        1.0000000
                   2.5250000
##
   [4]
        1.0000000
                   2.5250000
  [5]
        1.0000000
                   2.5250000
##
   [6]
##
        0.9000000
                   2.2725000
##
  [7]
        0.8965517
                   2.2637931
   [8]
        0.8846154
                   2.2336538
   [9]
##
        0.8750000
                   2.2093750
   [10] 0.8750000
                   2.2093750
   [11] 0.8611111
                   2.1743056
  [12] 0.8500000
                   2.1462500
  [13] 0.8500000
                   2.1462500
##
   [14] 0.8478261
                   2.1407609
   [15] 0.8297872
                   2.0952128
   [16] 0.8205128
                   2.0717949
   [17] 0.8205128
                   2.0717949
##
  [18] 0.8139535
                   2.0552326
## [19] 0.8125000
                   2.0515625
## [20] 0.8076923
                   2.0394231
## [21] 0.8076923
                   2.0394231
```

```
## [22] 0.8000000
                   2.0200000
  [23] 0.7727273
                   1.9511364
  [24] 0.7567568
                   1.9108108
  [25] 0.6956522
                   1.7565217
   [26] 0.6875000
                   1.7359375
  [27] 0.6842105
                   1.7276316
  [28] 0.6800000
                   1.7170000
  [29] 0.6792453
                   1.7150943
   [30] 0.6730769
                   1.6995192
   [31] 0.6666667
                   1.6833333
  [32] 0.6585366
                   1.6628049
   [33] 0.6538462
                   1.6509615
   [34] 0.6500000
                   1.6412500
                   1.6338235
  [35] 0.6470588
  [36] 0.6458333
                   1.6307292
   [37] 0.6346154
                   1.6024038
   [38] 0.6136364
                   1.5494318
   [39] 0.6097561
                   1.5396341
  [40] 0.5862069
                   1.4801724
   [41] 0.5438596
                   1.3732456
                   1.2932927
##
  [42] 0.5121951
  [43] 0.5000000
                   1.2625000
  [44] 0.5000000
                   1.2625000
   [45] 0.4871795
                   1.2301282
  [46] 0.4848485
                   1.2242424
  [47] 0.4339623
                   1.0957547
   [48] 0.4264706
##
                   1.0768382
##
   [49]
        0.3392857
                   0.8566964
##
        lhs
                                             support
                                                       confidence lift
##
  [1]
                          => {toothed=TRUE} 0.1287129 1.0000000 1.6557377
        {type=fish}
##
  [2]
        {fins=TRUE}
                          => {toothed=TRUE} 0.1683168 1.0000000
                                                                  1.6557377
##
   [3]
        {eggs=FALSE}
                          => {toothed=TRUE} 0.4059406 0.9761905
                                                                  1.6163154
##
  [4]
        {legs=FALSE}
                          => {toothed=TRUE} 0.1881188 0.8260870
                                                                  1.3677833
  [5]
##
                          => {toothed=TRUE} 0.3465347 0.7954545
        {catsize=TRUE}
                                                                  1.3170641
##
   [6]
                         => {toothed=TRUE} 0.6039604 0.7530864
        {feathers=FALSE}
                                                                  1.2469136
##
   [7]
        {tail=TRUE}
                          => {toothed=TRUE} 0.5148515 0.6933333
                                                                  1.1479781
  [8]
        {breathes=FALSE} => {toothed=TRUE} 0.1386139 0.6666667
                                                                  1.1038251
  [9]
        {predator=TRUE}
                          => {toothed=TRUE} 0.3663366 0.6607143
##
                                                                  1.0939696
  [10] {aquatic=TRUE}
                             {toothed=TRUE} 0.2277228 0.6388889
                                                                  1.0578324
  [11] {domestic=FALSE} => {toothed=TRUE} 0.5148515 0.5909091
                                                                  0.9783905
  [12] {breathes=TRUE}
                         => {toothed=TRUE} 0.4653465 0.5875000
                                                                  0.9727459
   [13] {predator=FALSE} => {toothed=TRUE} 0.2376238 0.5333333
                                                                  0.8830601
   [14] {catsize=FALSE}
                          => {toothed=TRUE} 0.2574257 0.4561404
                                                                  0.7552488
##
                          => {toothed=TRUE} 0.2277228 0.3965517
   [15] {hair=FALSE}
                                                                  0.6565856
##
   [16] {eggs=TRUE}
                          => {toothed=TRUE} 0.1980198 0.3389831
                                                                  0.5612670
##
       lhs
                                     rhs
                                                      support
                                                                confidence
##
   [1] {aquatic=TRUE,fins=FALSE} => {toothed=FALSE} 0.1287129 0.6842105
   [2] {aquatic=TRUE,legs=TRUE} => {toothed=FALSE} 0.1188119 0.6666667
##
       lift
##
   [1] 1.727632
##
   [2] 1.683333
##
       lhs
                                            rhs
                                                            support
## [1] {tail=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.1584158
## [2] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
```

```
## [3] {fins=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3564356
  [4] {legs=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3168317
  [5] {aquatic=FALSE,domestic=FALSE}
                                       => {toothed=FALSE} 0.2277228
   [6] {breathes=TRUE,domestic=FALSE}
                                       => {toothed=FALSE} 0.2871287
       confidence lift
## [1] 0.6956522 1.756522
## [2] 0.5000000
                 1.262500
## [3] 0.5000000
                  1.262500
  [4] 0.4848485
                  1.224242
  [5] 0.4339623
                  1.095755
  [6] 0.4264706
                 1.076838
##
       lhs
                                                          support
                                                                    confidence
## [1] {eggs=TRUE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
## [2] {milk=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
## [3] {hair=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.2772277 0.7567568
  [4] {breathes=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2475248 0.6097561
##
  [5] {breathes=TRUE,domestic=FALSE} => {toothed=FALSE} 0.2871287 0.4264706
##
       lift
## [1] 2.071795
  [2] 2.071795
##
  [3] 1.910811
## [4] 1.539634
## [5] 1.076838
##
       lhs
                                           rhs
                                                           support
##
  [1] {eggs=TRUE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [2] {milk=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [3] {hair=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.1683168
## [4] {predator=FALSE,catsize=FALSE}
                                        => {toothed=FALSE} 0.1683168
## [5] {predator=FALSE,fins=FALSE}
                                        => {toothed=FALSE} 0.2079208
## [6] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
##
  [7] {predator=FALSE,legs=TRUE}
                                        => {toothed=FALSE} 0.1881188
##
       confidence lift
  [1] 0.8076923 2.039423
  [2] 0.8076923
                  2.039423
   [3] 0.7727273
                  1.951136
##
  [4] 0.5862069
                  1.480172
  [5] 0.5121951
                  1.293293
## [6] 0.5000000
                  1.262500
  [7] 0.4871795
##
                  1.230128
##
       lhs
                                                          support
                                          rhs
                                                                    confidence
## [1] {tail=FALSE, catsize=FALSE}
                                       => {toothed=FALSE} 0.1584158 0.8000000
  [2] {legs=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6585366
  [3] {aquatic=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2178218 0.6470588
## [4] {fins=FALSE, catsize=FALSE}
                                       => {toothed=FALSE} 0.3069307 0.6458333
## [5] {hair=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6136364
  [6] {breathes=TRUE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2475248 0.6097561
##
   [7] {predator=FALSE, catsize=FALSE} => {toothed=FALSE} 0.1683168 0.5862069
##
       lift
## [1] 2.020000
## [2] 1.662805
## [3] 1.633824
## [4] 1.630729
## [5] 1.549432
## [6] 1.539634
```

```
## [7] 1.480172
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
  [1] {hair=FALSE,airborne=TRUE}
                                    => {toothed=FALSE} 0.1782178 1.0000000
  [2] {hair=FALSE,aquatic=FALSE}
                                    => {toothed=FALSE} 0.2277228 0.8846154
  [3] {hair=FALSE,legs=TRUE}
                                    => {toothed=FALSE} 0.3069307 0.8611111
  [4] {hair=FALSE,fins=FALSE}
                                    => {toothed=FALSE} 0.3465347 0.8139535
  [5] {hair=FALSE,tail=FALSE}
                                    => {toothed=FALSE} 0.1287129 0.8125000
  [6] {hair=FALSE,predator=FALSE} => {toothed=FALSE} 0.1683168 0.7727273
  [7] {hair=FALSE,breathes=TRUE}
                                    => {toothed=FALSE} 0.2772277 0.7567568
   [8] {hair=FALSE, venomous=FALSE} => {toothed=FALSE} 0.3267327 0.6346154
   [9] {hair=FALSE, catsize=FALSE} => {toothed=FALSE} 0.2673267 0.6136364
##
       lift
## [1] 2.525000
## [2] 2.233654
## [3] 2.174306
  [4] 2.055233
##
  [5] 2.051563
  [6] 1.951136
  [7] 1.910811
   [8] 1.602404
##
   [9] 1.549432
##
       lhs
                                                                 confidence
                                                      support
                                   => {toothed=FALSE} 0.2178218 1.0000000
##
  [1] {eggs=TRUE,airborne=TRUE}
  [2] {eggs=TRUE,aquatic=FALSE}
                                   => {toothed=FALSE} 0.2574257 0.8965517
  [3] {eggs=TRUE,legs=TRUE}
                                   => {toothed=FALSE} 0.3465347 0.8750000
  [4] {eggs=TRUE,tail=FALSE}
                                   => {toothed=FALSE} 0.1683168 0.8500000
                                   => {toothed=FALSE} 0.3861386 0.8478261
  [5] {eggs=TRUE,fins=FALSE}
   [6] {eggs=TRUE,breathes=TRUE}
                                   => {toothed=FALSE} 0.3168317 0.8205128
   [7] {eggs=TRUE,predator=FALSE} => {toothed=FALSE} 0.2079208 0.8076923
   [8] {eggs=TRUE, venomous=FALSE} => {toothed=FALSE} 0.3564356 0.6792453
##
##
       lift
##
  [1] 2.525000
   [2] 2.263793
  [3] 2.209375
   [4] 2.146250
##
  [5] 2.140761
  [6] 2.071795
  [7] 2.039423
##
   [8]
      1.715094
##
  [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                            support
##
  [1]
        {type=bird}
                                           {toothed=FALSE} 0.1980198
##
  [2]
        {feathers=TRUE}
                                           {toothed=FALSE} 0.1980198
## [3]
        {hair=FALSE,airborne=TRUE}
                                         => {toothed=FALSE} 0.1782178
## [4]
        {eggs=TRUE,airborne=TRUE}
                                         => {toothed=FALSE} 0.2178218
## [5]
        {milk=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
        {milk=FALSE,aquatic=FALSE}
##
  [6]
                                            {toothed=FALSE} 0.2673267
##
  [7]
        {eggs=TRUE,aquatic=FALSE}
                                           {toothed=FALSE} 0.2574257
  [8]
        {hair=FALSE,aquatic=FALSE}
                                         => {toothed=FALSE} 0.2277228
  [9]
        {eggs=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
  [10] {milk=FALSE,legs=TRUE}
                                           {toothed=FALSE} 0.3465347
## [11] {hair=FALSE,legs=TRUE}
                                         => {toothed=FALSE} 0.3069307
## [12] {eggs=TRUE,tail=FALSE}
                                         => {toothed=FALSE} 0.1683168
## [13] {milk=FALSE,tail=FALSE}
                                         => {toothed=FALSE} 0.1683168
```

```
## [14] {eggs=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
   [15] {milk=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
                                            {toothed=FALSE} 0.3168317
   [16] {eggs=TRUE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
   [17] {milk=FALSE,breathes=TRUE}
   [18] {hair=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3465347
  [19] {hair=FALSE,tail=FALSE}
##
                                            {toothed=FALSE} 0.1287129
  [20] {eggs=TRUE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
  [21] {milk=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
##
   [22]
       {tail=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1584158
   [23] {hair=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.1683168
   [24] {hair=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.2772277
   [25] {tail=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.1584158
   [26]
       {aquatic=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1089109
       {aquatic=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.1287129
                                            {toothed=FALSE} 0.1683168
  [28] {fins=FALSE,tail=FALSE}
   [29]
        {eggs=TRUE, venomous=FALSE}
                                            {toothed=FALSE} 0.3564356
   [30]
       {milk=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3465347
       {aquatic=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.1188119
   [32] {legs=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
   [33] {tail=FALSE}
                                            {toothed=FALSE} 0.1683168
##
   [34] {milk=FALSE}
                                            {toothed=FALSE} 0.3861386
  [35] {aquatic=FALSE, catsize=FALSE}
                                            {toothed=FALSE} 0.2178218
       {fins=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
   [36]
##
   [37]
        {hair=FALSE.venomous=FALSE}
                                            {toothed=FALSE} 0.3267327
##
   [38]
       {hair=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
   [39]
       {breathes=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2475248
   [40] {predator=FALSE, catsize=FALSE}
                                            {toothed=FALSE} 0.1683168
##
   [41] {catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
  [42]
       {predator=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.2079208
       {predator=FALSE,domestic=FALSE} =>
                                            {toothed=FALSE} 0.1683168
  [43]
   [44]
        {fins=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.3564356
##
   [45]
        {predator=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.1881188
       {legs=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.3168317
   [47]
        {aquatic=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.2277228
        {breathes=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.2871287
   Γ48]
   [49]
##
       {predator=TRUE}
                                            {toothed=FALSE} 0.1881188
##
        confidence lift
##
  [1]
        1.0000000
                   2.5250000
   [2]
                   2.5250000
##
        1.0000000
   [3]
##
        1.0000000
                   2.5250000
   [4]
        1.0000000
                   2.5250000
   [5]
##
        1.0000000
                   2.5250000
##
   [6]
        0.9000000
                   2.2725000
##
   [7]
        0.8965517
                   2.2637931
##
  [8]
        0.8846154
                   2.2336538
   [9]
##
        0.8750000
                   2.2093750
##
   [10] 0.8750000
                   2.2093750
   [11] 0.8611111
                   2.1743056
   [12] 0.8500000
                   2.1462500
   [13]
       0.8500000
                   2.1462500
##
  [14] 0.8478261
                   2.1407609
## [15] 0.8297872
                   2.0952128
## [16] 0.8205128
                   2.0717949
## [17] 0.8205128
                   2.0717949
```

```
## [18] 0.8139535
                   2.0552326
   [19] 0.8125000
                   2.0515625
   [20] 0.8076923
                   2.0394231
   [21] 0.8076923
                   2.0394231
   [22] 0.8000000
                    2.0200000
##
   [23] 0.7727273
                    1.9511364
   [24] 0.7567568
                    1.9108108
   [25] 0.6956522
                    1.7565217
   [26] 0.6875000
                    1.7359375
   [27] 0.6842105
                    1.7276316
   [28] 0.6800000
                    1.7170000
   [29] 0.6792453
                    1.7150943
                    1.6995192
   [30] 0.6730769
   [31] 0.6666667
                    1.6833333
   [32] 0.6585366
                    1.6628049
   [33] 0.6538462
                    1.6509615
##
   [34] 0.6500000
                    1.6412500
   [35] 0.6470588
                    1.6338235
   [36] 0.6458333
                    1.6307292
   [37] 0.6346154
                    1.6024038
##
   [38] 0.6136364
                    1.5494318
   [39] 0.6097561
                    1.5396341
                    1.4801724
   [40] 0.5862069
##
   [41] 0.5438596
                    1.3732456
   [42] 0.5121951
                    1.2932927
   [43] 0.5000000
                    1.2625000
   [44] 0.5000000
                    1.2625000
   [45] 0.4871795
                    1.2301282
   [46] 0.4848485
                    1.2242424
   [47] 0.4339623
                    1.0957547
##
   [48] 0.4264706
                    1.0768382
##
   [49] 0.3392857
                   0.8566964
##
        lhs
                                             support
                                                       confidence lift
                          => {toothed=TRUE} 0.1287129 1.0000000
##
   [1]
                                                                  1.6557377
        {type=fish}
##
   [2]
        {fins=TRUE}
                          => {toothed=TRUE} 0.1683168 1.0000000
                                                                   1.6557377
##
   [3]
                          => {toothed=TRUE} 0.4059406 0.9761905
        {eggs=FALSE}
                                                                  1.6163154
##
   [4]
        {legs=FALSE}
                          => {toothed=TRUE} 0.1881188 0.8260870
                                                                   1.3677833
##
   [5]
        {catsize=TRUE}
                          => {toothed=TRUE} 0.3465347 0.7954545
                                                                   1.3170641
##
   [6]
        {feathers=FALSE} =>
                             {toothed=TRUE} 0.6039604 0.7530864
                                                                   1.2469136
   [7]
                          => {toothed=TRUE} 0.5148515 0.6933333
##
        {tail=TRUE}
                                                                   1.1479781
        {breathes=FALSE} => {toothed=TRUE} 0.1386139 0.6666667
   [8]
                                                                   1.1038251
   [9]
        {predator=TRUE}
                          => {toothed=TRUE} 0.3663366 0.6607143
##
                                                                   1.0939696
   Γ10]
       {aquatic=TRUE}
                          => {toothed=TRUE} 0.2277228 0.6388889
                                                                   1.0578324
##
       {domestic=FALSE}
                          => {toothed=TRUE} 0.5148515 0.5909091
   [11]
                                                                   0.9783905
  [12] {breathes=TRUE}
                          => {toothed=TRUE} 0.4653465 0.5875000
                                                                   0.9727459
                             {toothed=TRUE} 0.2376238 0.5333333
   [13] {predator=FALSE}
                         =>
                                                                   0.8830601
   [14] {catsize=FALSE}
                             {toothed=TRUE} 0.2574257 0.4561404
                                                                   0.7552488
   [15] {hair=FALSE}
                          => {toothed=TRUE} 0.2277228 0.3965517
                                                                   0.6565856
##
   [16] {eggs=TRUE}
                          => {toothed=TRUE} 0.1980198 0.3389831
                                                                   0.5612670
##
                                     rhs
                                                      support
                                                                 confidence
   [1] {aquatic=TRUE,fins=FALSE} => {toothed=FALSE} 0.1287129 0.6842105
##
##
   [2] {aquatic=TRUE,legs=TRUE} => {toothed=FALSE} 0.1188119 0.6666667
##
       lift
## [1] 1.727632
```

```
[2] 1.683333
##
       lhs
                                           rhs
                                                           support
  [1] {tail=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.1584158
  [2] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
  [3] {fins=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3564356
  [4] {legs=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3168317
  [5] {aquatic=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2277228
   [6] {breathes=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2871287
##
       confidence lift
##
  [1] 0.6956522 1.756522
  [2] 0.5000000
                  1.262500
  [3] 0.5000000
                  1.262500
   [4] 0.4848485
                  1.224242
  [5] 0.4339623
                  1.095755
   [6] 0.4264706
##
                  1.076838
##
       lhs
                                                           support
                                                                     confidence
##
  [1] {eggs=TRUE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
   [2] {milk=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
  [3] {hair=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.2772277 0.7567568
   [4] {breathes=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2475248 0.6097561
##
   [5] {breathes=TRUE,domestic=FALSE} => {toothed=FALSE} 0.2871287 0.4264706
##
       lift.
  [1] 2.071795
##
   [2] 2.071795
##
  [3] 1.910811
  [4] 1.539634
   [5] 1.076838
##
##
       lhs
                                           rhs
                                                           support
##
  [1] {eggs=TRUE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [2] {milk=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [3] {hair=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.1683168
  [4] {predator=FALSE, catsize=FALSE}
                                        => {toothed=FALSE} 0.1683168
  [5] {predator=FALSE,fins=FALSE}
                                        => {toothed=FALSE} 0.2079208
   [6] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
       {predator=FALSE,legs=TRUE}
                                        => {toothed=FALSE} 0.1881188
##
##
       confidence lift
  [1] 0.8076923 2.039423
  [2] 0.8076923 2.039423
##
   [3] 0.7727273
                  1.951136
  [4] 0.5862069
                  1.480172
  [5] 0.5121951
                  1.293293
   [6] 0.5000000
                  1.262500
##
   [7] 0.4871795
                  1.230128
##
       lhs
                                          rhs
                                                          support
                                                                     confidence
## [1] {tail=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.1584158 0.8000000
  [2] {legs=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6585366
   [3] {aquatic=FALSE, catsize=FALSE}
                                       => {toothed=FALSE} 0.2178218 0.6470588
  [4] {fins=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.3069307 0.6458333
  [5] {hair=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6136364
   [6] {breathes=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2475248 0.6097561
##
   [7] {predator=FALSE, catsize=FALSE} => {toothed=FALSE} 0.1683168 0.5862069
##
       lift
## [1] 2.020000
## [2] 1.662805
```

```
[3] 1.633824
   [4] 1.630729
   [5] 1.549432
  [6] 1.539634
##
   [7] 1.480172
##
       lhs
                                       rhs
                                                        support
                                                                  confidence
  [1] {hair=FALSE,airborne=TRUE}
                                       {toothed=FALSE} 0.1782178 1.0000000
  [2] {hair=FALSE,aquatic=FALSE}
                                    =>
                                       {toothed=FALSE} 0.2277228 0.8846154
   [3] {hair=FALSE,legs=TRUE}
                                       {toothed=FALSE} 0.3069307 0.8611111
  [4] {hair=FALSE,fins=FALSE}
                                      {toothed=FALSE} 0.3465347 0.8139535
  [5] {hair=FALSE,tail=FALSE}
                                    => {toothed=FALSE} 0.1287129 0.8125000
   [6] {hair=FALSE, predator=FALSE} => {toothed=FALSE} 0.1683168 0.7727273
   [7] {hair=FALSE,breathes=TRUE}
                                    => {toothed=FALSE} 0.2772277 0.7567568
   [8] {hair=FALSE, venomous=FALSE} => {toothed=FALSE} 0.3267327 0.6346154
   [9] {hair=FALSE, catsize=FALSE} => {toothed=FALSE} 0.2673267 0.6136364
##
##
       lift
  [1] 2.525000
##
   [2] 2.233654
   [3] 2.174306
   [4] 2.055233
##
   [5] 2.051563
  [6] 1.951136
##
  [7] 1.910811
##
   [8] 1.602404
##
  [9] 1.549432
       lhs
                                                       support
                                                                 confidence
  [1] {eggs=TRUE,airborne=TRUE}
                                      {toothed=FALSE} 0.2178218 1.0000000
##
##
   [2] {eggs=TRUE,aquatic=FALSE}
                                   => {toothed=FALSE} 0.2574257 0.8965517
   [3] {eggs=TRUE,legs=TRUE}
                                   => {toothed=FALSE} 0.3465347 0.8750000
  [4] {eggs=TRUE,tail=FALSE}
                                   => {toothed=FALSE} 0.1683168 0.8500000
   [5] {eggs=TRUE,fins=FALSE}
                                   => {toothed=FALSE} 0.3861386 0.8478261
   [6] {eggs=TRUE,breathes=TRUE}
                                   => {toothed=FALSE} 0.3168317 0.8205128
   [7] {eggs=TRUE,predator=FALSE} => {toothed=FALSE} 0.2079208 0.8076923
   [8] {eggs=TRUE, venomous=FALSE} => {toothed=FALSE} 0.3564356 0.6792453
##
##
       lift
## [1] 2.525000
  [2] 2.263793
  [3] 2.209375
##
   [4] 2.146250
##
  [5] 2.140761
  [6] 2.071795
   [7] 2.039423
##
##
   [8] 1.715094
       "Número de reglas con consecuente negado"
##
##
                                                                   confidence
                                                         support
  [1]
##
        {hair=TRUE,eggs=FALSE}
                                            {milk=TRUE} 0.3762376 1.0000000
##
   [2]
        {eggs=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3069307 1.0000000
##
   [3]
        {eggs=FALSE,predator=FALSE}
                                            {milk=TRUE} 0.1881188 1.0000000
##
   [4]
        {eggs=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3960396 1.0000000
##
   [5]
        {hair=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2970297 1.0000000
##
   [6]
        {hair=TRUE, predator=TRUE}
                                            {milk=TRUE} 0.1980198 1.0000000
##
  [7]
        {hair=TRUE, toothed=TRUE}
                                            {milk=TRUE} 0.3762376 1.0000000
## [8]
        {hair=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 1.0000000
## [9]
        {hair=TRUE,airborne=FALSE}
                                            {milk=TRUE} 0.3663366 1.0000000
```

```
## [10] {hair=TRUE,backbone=TRUE}
                                         => {milk=TRUE} 0.3861386 1.0000000
  [11] {eggs=FALSE,breathes=TRUE}
                                           {milk=TRUE} 0.3960396 0.9756098
                                           {milk=TRUE} 0.3960396 0.9756098
  [12] {eggs=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.3663366 0.9736842
  [13] {eggs=FALSE,legs=TRUE}
  [14] {hair=TRUE, venomous=FALSE}
                                            {milk=TRUE} 0.3861386 0.9512195
  [15] {aquatic=FALSE, toothed=TRUE}
##
                                           {milk=TRUE} 0.3465347 0.9210526
  [16] {hair=TRUE.domestic=FALSE}
                                           {milk=TRUE} 0.3069307 0.9117647
  [17] {toothed=TRUE,catsize=TRUE}
                                           {milk=TRUE} 0.3069307 0.8857143
   [18] {toothed=TRUE,legs=TRUE}
                                            fmilk=TRUE} 0.3663366 0.8809524
   [19] {toothed=TRUE,breathes=TRUE}
                                           {milk=TRUE} 0.3960396 0.8510638
   [20] {feathers=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.8421053
   [21] {aquatic=FALSE, catsize=TRUE}
                                           {milk=TRUE} 0.2574257 0.8387097
  [22] {breathes=TRUE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.8205128
  [23] {toothed=TRUE,fins=FALSE}
                                           {milk=TRUE} 0.3564356 0.8181818
  [24] {predator=FALSE,toothed=TRUE}
                                         => {milk=TRUE} 0.1881188 0.7916667
   [25] {legs=TRUE,catsize=TRUE}
                                           {milk=TRUE} 0.2871287 0.7837838
   [26] {airborne=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7804878
   [27] {fins=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.2772277 0.7777778
                                           {milk=TRUE} 0.1188119 0.7500000
   [28] {predator=FALSE,catsize=TRUE}
   [29] {backbone=TRUE, catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
##
  [30] {venomous=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
  [31] {airborne=FALSE,aquatic=FALSE}
                                           {milk=TRUE} 0.3267327 0.7173913
  [32] {toothed=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.3960396 0.7017544
   [33] {airborne=FALSE.breathes=TRUE}
##
                                            {milk=TRUE} 0.3861386 0.6964286
  [34] {feathers=FALSE,aquatic=FALSE}
                                           {milk=TRUE} 0.3465347 0.6862745
   [35] {feathers=FALSE, breathes=TRUE}
                                           {milk=TRUE} 0.4059406 0.6833333
                                           {milk=TRUE} 0.3564356 0.6666667
   [36] {airborne=FALSE,legs=TRUE}
##
   [37] {aquatic=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.3465347 0.6603774
  [38] {toothed=TRUE}
                                           {milk=TRUE} 0.3960396 0.6557377
  [39] {feathers=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.6551724
   [40] {feathers=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.4059406 0.6507937
   [41]
       {feathers=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.6363636
   [42] {aquatic=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.2970297 0.6122449
  [43] {airborne=FALSE,predator=FALSE} =>
                                           {milk=TRUE} 0.1683168 0.6071429
   [44] {airborne=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 0.6000000
  [45] {backbone=TRUE,breathes=TRUE}
##
                                           {milk=TRUE} 0.4059406 0.5942029
  [46] {backbone=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5937500
  [47] {aquatic=FALSE,predator=TRUE}
                                           {milk=TRUE} 0.1584158 0.5925926
  [48] {aquatic=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3465347 0.5833333
##
##
  [49] {airborne=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3465347 0.5833333
  [50] {airborne=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
   [51] {legs=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
##
   [52] {feathers=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.5781250
   [53] {aquatic=FALSE, venomous=FALSE}
                                        => {milk=TRUE} 0.3465347 0.5737705
  [54] {breathes=TRUE,tail=TRUE}
                                         => {milk=TRUE} 0.3465347 0.5737705
       {predator=TRUE,breathes=TRUE}
   [55]
                                           {milk=TRUE} 0.2178218 0.5641026
##
   [56]
        {feathers=FALSE, venomous=FALSE} =>
                                           {milk=TRUE} 0.4059406 0.5616438
   [57]
       {backbone=TRUE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.5606061
   [58] {feathers=FALSE,predator=FALSE} =>
                                           {milk=TRUE} 0.1881188 0.5588235
   [59] {airborne=FALSE, venomous=FALSE}
                                           {milk=TRUE} 0.3861386 0.5492958
##
   [60] {aquatic=FALSE,breathes=TRUE}
                                           {milk=TRUE} 0.3465347 0.5468750
  [61] {breathes=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.4059406 0.5466667
## [62] {fins=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.3168317 0.5423729
## [63] {feathers=FALSE,airborne=FALSE} => {milk=TRUE} 0.3861386 0.5342466
```

```
## [64] {predator=FALSE,backbone=TRUE}
                                         => {milk=TRUE} 0.1881188 0.5277778
  [65] {breathes=TRUE,legs=TRUE}
                                         => {milk=TRUE} 0.3762376 0.5205479
  [66] {backbone=TRUE, venomous=FALSE}
                                         => {milk=TRUE} 0.4059406 0.5189873
## [67] {predator=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.1683168 0.5151515
## [68] {venomous=FALSE,legs=TRUE}
                                         => {milk=TRUE} 0.3762376 0.5135135
## [69] {feathers=FALSE}
                                         => {milk=TRUE} 0.4059406 0.5061728
                                         => {milk=TRUE} 0.3465347 0.4929577
## [70] {venomous=FALSE,tail=TRUE}
## [71] {venomous=FALSE,fins=FALSE}
                                         => {milk=TRUE} 0.3663366 0.4805195
## [72] {predator=FALSE, venomous=FALSE} => {milk=TRUE} 0.1881188 0.4418605
##
  [73] {predator=TRUE}
                                         => {milk=TRUE} 0.2178218 0.3928571
##
        lift
##
  [1]
        2.463415
##
   [2]
        2.463415
## [3]
        2.463415
## [4]
        2.463415
## [5]
        2.463415
##
  [6]
        2.463415
  [7]
        2.463415
## [8]
        2.463415
## [9]
        2.463415
## [10] 2.463415
## [11] 2.403331
## [12] 2.403331
## [13] 2.398588
## [14] 2.343248
## [15] 2.268935
## [16] 2.246055
## [17] 2.181882
## [18] 2.170151
## [19] 2.096523
## [20] 2.074454
## [21] 2.066090
## [22] 2.021263
## [23] 2.015521
## [24] 1.950203
## [25] 1.930784
## [26] 1.922665
## [27] 1.915989
## [28] 1.847561
## [29] 1.833239
## [30] 1.833239
## [31] 1.767232
## [32] 1.728712
## [33] 1.715592
## [34] 1.690579
## [35] 1.683333
## [36] 1.642276
## [37] 1.626783
## [38] 1.615354
## [39] 1.613961
## [40] 1.603175
## [41] 1.567627
## [42] 1.508213
## [43] 1.495645
```

```
## [44] 1.478049
   [45] 1.463768
   [46] 1.462652
   [47] 1.459801
   [48] 1.436992
   [49] 1.436992
##
   [50] 1.426187
   [51] 1.426187
   [52] 1.424162
   [53] 1.413435
   [54] 1.413435
   [55] 1.389619
##
   [56] 1.383562
   [57] 1.381005
   [58] 1.376614
   [59] 1.353143
##
   [60] 1.347180
   [61] 1.346667
   [62] 1.336089
   [63] 1.316071
##
   [64] 1.300136
   [65] 1.282325
   [66] 1.278481
##
##
   [67] 1.269032
   [68] 1.264997
   [69] 1.246914
   [70] 1.214359
   [71] 1.183719
   [72] 1.088486
##
##
   [73] 0.967770
##
        lhs
                                          support
                                                     confidence lift
##
   [1]
        {type=fish}
                          => {milk=FALSE} 0.1287129 1.0000000
                                                                1.6833333
##
   [2]
        {backbone=FALSE} => {milk=FALSE} 0.1782178 1.0000000
                                                                 1.6833333
   [3]
##
        {type=bird}
                          => {milk=FALSE} 0.1980198 1.0000000
                                                                1.6833333
##
   [4]
        {feathers=TRUE}
                             {milk=FALSE} 0.1980198 1.0000000
                                                                 1.6833333
##
   [5]
        {breathes=FALSE} => {milk=FALSE} 0.2079208 1.0000000
                                                                1.6833333
##
   [6]
        {eggs=TRUE}
                          => {milk=FALSE} 0.5742574 0.9830508
                                                                 1.6548023
##
  [7]
        {hair=FALSE}
                          => {milk=FALSE} 0.5544554 0.9655172
                                                                 1.6252874
##
   [8]
        {airborne=TRUE}
                             {milk=FALSE} 0.2178218 0.9166667
                                                                 1.5430556
                          => {milk=FALSE} 0.1980198 0.8695652
##
   [9]
        {legs=FALSE}
                                                                 1.4637681
                          => {milk=FALSE} 0.2970297 0.8333333
   [10] {aquatic=TRUE}
                                                                1.4027778
   [11] {tail=FALSE}
                          => {milk=FALSE} 0.1980198 0.7692308
                                                                1.2948718
   [12] {fins=TRUE}
                          => {milk=FALSE} 0.1287129 0.7647059
                                                                1.2872549
                          => {milk=FALSE} 0.3366337 0.6071429
   [13] {predator=TRUE}
                                                                1.0220238
  [14] {fins=FALSE}
                          => {milk=FALSE} 0.4653465 0.5595238
                                                                 0.9418651
                          => {milk=FALSE} 0.3960396 0.5333333
## [15] {tail=TRUE}
                                                                 0.8977778
                                                                0.8518072
   [16] {backbone=TRUE}
                             {milk=FALSE} 0.4158416 0.5060241
   [17] {aquatic=FALSE}
                             {milk=FALSE} 0.2970297 0.4615385
                                                                 0.7769231
##
   [18] {toothed=TRUE}
                          => {milk=FALSE} 0.2079208 0.3442623
                                                                0.5795082
##
       lhs
                                          rhs
                                                      support
                                                                 confidence
##
   [1] {hair=TRUE,predator=TRUE}
                                      => {milk=TRUE} 0.1980198 1.0000000
   [2] {aquatic=FALSE,predator=TRUE} => {milk=TRUE} 0.1584158 0.5925926
##
   [3] {predator=TRUE, breathes=TRUE} => {milk=TRUE} 0.2178218 0.5641026
##
       lift
```

```
## [1] 2.463415
  [2] 1.459801
  [3] 1.389619
##
       lhs
                                       rhs
                                                   support
                                                             confidence
##
  [1] {toothed=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3564356 0.8181818
  [2] {fins=FALSE,catsize=TRUE}
                                   => {milk=TRUE} 0.2772277 0.7777778
  [3] {airborne=FALSE,fins=FALSE} => {milk=TRUE} 0.3465347 0.5833333
  [4] {feathers=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5781250
   [5] {backbone=TRUE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5606061
   [6] {fins=FALSE,tail=TRUE}
                                    => {milk=TRUE} 0.3168317 0.5423729
   [7] {venomous=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.4805195
##
       lift
## [1] 2.015521
## [2] 1.915989
## [3] 1.436992
## [4] 1.424162
##
  [5] 1.381005
  [6] 1.336089
##
  [7] 1.183719
##
       lhs
                                      rhs
                                                  support
                                                            confidence
## [1] {hair=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 1.0000000
## [2] {feathers=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.6363636
## [3] {aquatic=FALSE,tail=TRUE} => {milk=TRUE} 0.2970297 0.6122449
## [4] {airborne=FALSE,tail=TRUE} => {milk=TRUE} 0.3267327 0.5789474
  [5] {legs=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 0.5789474
  [6] {breathes=TRUE,tail=TRUE}
                                  => {milk=TRUE} 0.3465347 0.5737705
  [7] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
   [8] {predator=FALSE,tail=TRUE} => {milk=TRUE} 0.1683168 0.5151515
   [9] {venomous=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.4929577
##
##
       lift
## [1] 2.463415
##
  [2] 1.567627
  [3] 1.508213
  [4] 1.426187
   [5] 1.426187
##
  [6] 1.413435
  [7] 1.336089
## [8] 1.269032
  [9] 1.214359
##
##
        lhs
                                                                 confidence
                                           rhs
                                                       support
        {hair=TRUE,backbone=TRUE}
##
  [1]
                                        => {milk=TRUE} 0.3861386 1.0000000
  [2]
        {eggs=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3960396 0.9756098
##
##
   [3]
        {backbone=TRUE, catsize=TRUE}
                                        => {milk=TRUE} 0.3168317 0.7441860
##
  [4]
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
##
  [5]
        {feathers=FALSE,backbone=TRUE} => {milk=TRUE} 0.4059406 0.6507937
  [6]
        {airborne=FALSE,backbone=TRUE} => {milk=TRUE} 0.3861386 0.6000000
##
##
  [7]
        {backbone=TRUE,breathes=TRUE}
                                       => {milk=TRUE} 0.4059406 0.5942029
##
  [8]
        {backbone=TRUE,legs=TRUE}
                                        => {milk=TRUE} 0.3762376 0.5937500
  [9]
        {backbone=TRUE,fins=FALSE}
                                        => {milk=TRUE} 0.3663366 0.5606061
   [10]
       {predator=FALSE,backbone=TRUE} => {milk=TRUE} 0.1881188 0.5277778
##
       {backbone=TRUE, venomous=FALSE} => {milk=TRUE} 0.4059406 0.5189873
##
##
        lift
## [1]
       2.463415
## [2]
       2.403331
```

```
[3]
        1.833239
##
   [4]
        1.626783
   [5]
        1.603175
   [6]
##
        1.478049
##
   [7]
        1.463768
##
   [8]
        1.462652
   [9]
        1.381005
##
  [10] 1.300136
##
   [11] 1.278481
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
##
   [1]
        {aquatic=FALSE,toothed=TRUE}
                                         => {milk=TRUE} 0.3465347 0.9210526
   [2]
##
        {aquatic=FALSE, catsize=TRUE}
                                         => {milk=TRUE} 0.2574257 0.8387097
##
   [3]
        {airborne=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3267327 0.7173913
##
  [4]
        {feathers=FALSE, aquatic=FALSE}
                                        => {milk=TRUE} 0.3465347 0.6862745
  [5]
                                         => {milk=TRUE} 0.3465347 0.6603774
##
        {aquatic=FALSE, backbone=TRUE}
##
   [6]
        {aquatic=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.2970297 0.6122449
##
   [7]
        {aquatic=FALSE,predator=TRUE}
                                        => {milk=TRUE} 0.1584158 0.5925926
   [8]
        {aquatic=FALSE,legs=TRUE}
                                         => {milk=TRUE} 0.3465347 0.5833333
##
   [9]
        {aquatic=FALSE, venomous=FALSE} => {milk=TRUE} 0.3465347 0.5737705
       {aquatic=FALSE,breathes=TRUE} => {milk=TRUE} 0.3465347 0.5468750
##
        lift
##
  [1]
        2.268935
   [2]
        2.066090
##
   [3]
##
        1.767232
##
   [4]
        1.690579
   [5]
        1.626783
   [6]
##
        1.508213
##
   [7]
        1.459801
   [8]
##
        1.436992
##
   [9]
        1.413435
##
   [10] 1.347180
##
       lhs
                                          rhs
                                                      support
                                                                 confidence
  [1] {hair=TRUE,toothed=TRUE}
                                      => {milk=TRUE} 0.3762376 1.0000000
   [2] {aquatic=FALSE,toothed=TRUE}
                                      => {milk=TRUE} 0.3465347 0.9210526
   [3] {toothed=TRUE,catsize=TRUE}
                                      => {milk=TRUE} 0.3069307 0.8857143
                                      => {milk=TRUE} 0.3663366 0.8809524
##
  [4] {toothed=TRUE,legs=TRUE}
   [5] {toothed=TRUE, breathes=TRUE}
                                      => {milk=TRUE} 0.3960396 0.8510638
   [6] {toothed=TRUE,fins=FALSE}
                                      => {milk=TRUE} 0.3564356 0.8181818
   [7] {predator=FALSE,toothed=TRUE} => {milk=TRUE} 0.1881188 0.7916667
   [8] {toothed=TRUE, venomous=FALSE} => {milk=TRUE} 0.3960396 0.7017544
##
##
       lift
  [1] 2.463415
##
##
   [2] 2.268935
   [3] 2.181882
  [4] 2.170151
   [5] 2.096523
##
##
   [6] 2.015521
   [7] 1.950203
   [8] 1.728712
##
   [1]
       "Número de reglas con consecuente negado"
##
                                             rhs
        lhs
                                                             support
## [1]
        {type=fish}
                                            {toothed=TRUE} 0.1287129
## [2]
        {fins=TRUE}
                                          => {toothed=TRUE} 0.1683168
## [3]
        {breathes=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.1386139
```

```
[4]
        {backbone=TRUE, breathes=FALSE}
                                            {toothed=TRUE} 0.1386139
##
   [5]
        {legs=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.1782178
##
   [6]
        {backbone=TRUE,legs=FALSE}
                                            {toothed=TRUE} 0.1881188
   [7]
        {eggs=FALSE,backbone=TRUE}
                                             {toothed=TRUE} 0.4059406
##
##
   [8]
        {eggs=FALSE}
                                             {toothed=TRUE} 0.4059406
##
   [9]
        {hair=TRUE,backbone=TRUE}
                                             {toothed=TRUE} 0.3762376
   Γ10]
       {hair=TRUE,airborne=FALSE}
                                             {toothed=TRUE} 0.3564356
   [11]
       {hair=TRUE,tail=TRUE}
                                             {toothed=TRUE} 0.3168317
##
   Γ12]
       {feathers=FALSE, backbone=TRUE}
                                             {toothed=TRUE} 0.6039604
   [13] {hair=TRUE,predator=TRUE}
                                            {toothed=TRUE} 0.1881188
   [14] {feathers=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.5148515
   [15] {feathers=FALSE, catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
   [16] {airborne=FALSE,backbone=TRUE}
                                            {toothed=TRUE} 0.5841584
   [17] {airborne=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.4950495
                                            {toothed=TRUE} 0.3465347
  [18] {airborne=FALSE,catsize=TRUE}
   [19]
        {venomous=FALSE,legs=FALSE}
                                             {toothed=TRUE} 0.1584158
##
   [20]
       {legs=FALSE}
                                            {toothed=TRUE} 0.1881188
   [21] {backbone=TRUE, catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
   [22] {feathers=FALSE,airborne=FALSE} =>
                                            {toothed=TRUE} 0.5841584
   [23] {airborne=FALSE,breathes=TRUE}
                                             {toothed=TRUE} 0.4455446
       {catsize=TRUE}
##
  [24]
                                            {toothed=TRUE} 0.3465347
  [25] {feathers=FALSE,predator=TRUE}
                                            {toothed=TRUE} 0.3663366
   [26] {predator=TRUE,backbone=TRUE}
                                            {toothed=TRUE} 0.3663366
   [27] {airborne=FALSE, predator=FALSE}
##
                                             {toothed=TRUE} 0.2178218
   [28] {feathers=FALSE,breathes=TRUE}
                                            {toothed=TRUE} 0.4653465
   [29] {airborne=FALSE,aquatic=FALSE}
                                            {toothed=TRUE} 0.3564356
   [30] {feathers=FALSE, venomous=FALSE} =>
                                            {toothed=TRUE} 0.5643564
##
   [31] {airborne=FALSE, venomous=FALSE}
                                            {toothed=TRUE} 0.5445545
   [32] {feathers=FALSE, aquatic=TRUE}
                                            {toothed=TRUE} 0.2277228
   [33] {aquatic=TRUE, backbone=TRUE}
                                            {toothed=TRUE} 0.2277228
##
   [34]
        {feathers=FALSE}
                                            {toothed=TRUE} 0.6039604
##
   [35]
        {predator=TRUE,tail=TRUE}
                                            {toothed=TRUE} 0.3069307
       {aquatic=TRUE,tail=TRUE}
                                            {toothed=TRUE} 0.1881188
       {aquatic=FALSE,predator=TRUE}
                                            {toothed=TRUE} 0.1881188
   [37]
        {tail=TRUE}
                                             {toothed=TRUE} 0.5148515
   [38]
##
   [39]
       {predator=TRUE,breathes=TRUE}
                                            {toothed=TRUE} 0.2673267
   [40] {breathes=FALSE}
                                             {toothed=TRUE} 0.1386139
  [41] {predator=TRUE}
                                            {toothed=TRUE} 0.3663366
##
                                             {toothed=TRUE} 0.2277228
##
   [42]
        {aquatic=TRUE}
##
   [43]
       {domestic=FALSE}
                                            {toothed=TRUE} 0.5148515
   [44]
       {breathes=TRUE}
                                            {toothed=TRUE} 0.4653465
                                            {toothed=TRUE} 0.2376238
   [45]
       {predator=FALSE}
##
   Γ461
       {catsize=FALSE}
                                         => {toothed=TRUE} 0.2574257
##
   [47]
                                         => {toothed=TRUE} 0.2277228
       {hair=FALSE}
##
   [48] {eggs=TRUE}
                                         => {toothed=TRUE} 0.1980198
##
        confidence lift
##
   [1]
        1.0000000
                   1.6557377
   [2]
##
        1.0000000
                   1.6557377
##
   [3]
        1.0000000
                   1.6557377
##
   [4]
        1.0000000
                   1.6557377
   [5]
##
        1.0000000
                   1.6557377
##
   [6]
        1.0000000
                   1.6557377
##
  [7]
        1.0000000
                   1.6557377
## [8]
        0.9761905
                   1.6163154
```

```
## [9]
        0.9743590
                    1.6132829
   [10] 0.9729730
                    1.6109880
   [11] 0.9696970
                    1.6055638
   [12] 0.9682540
                    1.6031746
   [13] 0.9500000
                    1.5729508
##
   [14] 0.9454545
                    1.5654247
   [15] 0.9210526
                    1.5250216
   [16] 0.9076923
                    1.5029004
   [17] 0.8771930
                    1.4524015
   [18] 0.8536585
                    1.4134346
   [19] 0.8421053
                    1.3943054
   [20] 0.8260870
                    1.3677833
   [21] 0.8139535
                    1.3476935
                    1.3381990
   [22] 0.8082192
   [23] 0.8035714
                    1.3305035
   [24] 0.7954545
                    1.3170641
   [25] 0.7872340
                    1.3034531
   [26] 0.7872340
                    1.3034531
                    1.3009368
   [27] 0.7857143
   [28] 0.7833333
                    1.2969945
##
   [29] 0.7826087
                    1.2957947
   [30] 0.7808219
                    1.2928363
   [31] 0.7746479
                    1.2826137
##
   [32] 0.7666667
                    1.2693989
   [33] 0.7666667
                    1.2693989
   [34] 0.7530864
                    1.2469136
   [35] 0.7380952
                    1.2220921
##
   [36] 0.7307692
                    1.2099622
   [37] 0.7037037
                    1.1651488
   [38] 0.6933333
                    1.1479781
   [39] 0.6923077
                    1.1462799
##
   [40] 0.6666667
                    1.1038251
   [41] 0.6607143
                    1.0939696
   [42] 0.6388889
                    1.0578324
       0.5909091
   [43]
                    0.9783905
                   0.9727459
##
   [44] 0.5875000
   [45] 0.5333333
                    0.8830601
                    0.7552488
   [46] 0.4561404
   [47] 0.3965517
                    0.6565856
   [48] 0.3389831
##
                   0.5612670
##
       lhs
                           rhs
                                            support
                                                      confidence lift
                        => {toothed=FALSE} 0.1980198 1.0000000
##
   [1] {type=bird}
                                                                 2.5250000
   [2] {feathers=TRUE} => {toothed=FALSE} 0.1980198 1.0000000
                                                                 2.5250000
##
   [3] {tail=FALSE}
                        => {toothed=FALSE} 0.1683168 0.6538462
                                                                 1.6509615
   [4] {milk=FALSE}
                        => {toothed=FALSE} 0.3861386 0.6500000
                                                                  1.6412500
       {catsize=FALSE} => {toothed=FALSE} 0.3069307 0.5438596
                                                                  1.3732456
##
   [6] {predator=TRUE} => {toothed=FALSE} 0.1881188 0.3392857
                                                                  0.8566964
##
       lhs
                                           rhs
                                                          support
                                                                     confidence
   [1] {hair=TRUE,predator=TRUE}
                                          {toothed=TRUE} 0.1881188 0.9500000
   [2] {feathers=FALSE,predator=TRUE} =>
                                          {toothed=TRUE} 0.3663366 0.7872340
                                       =>
##
   [3] {predator=TRUE,backbone=TRUE}
                                          {toothed=TRUE} 0.3663366 0.7872340
  [4] {predator=TRUE,tail=TRUE}
                                        => {toothed=TRUE} 0.3069307 0.7380952
## [5] {aquatic=FALSE,predator=TRUE}
                                       => {toothed=TRUE} 0.1881188 0.7037037
## [6] {predator=TRUE, breathes=TRUE}
                                       => {toothed=TRUE} 0.2673267 0.6923077
```

```
lift
##
  [1] 1.572951
##
   [2] 1.303453
   [3] 1.303453
   Γ47
       1.222092
##
   [5] 1.165149
   [6] 1.146280
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                            support
##
   [1]
        {type=fish}
                                            {toothed=TRUE} 0.1287129
   [2]
        {fins=TRUE}
                                            {toothed=TRUE} 0.1683168
   [3]
##
        {breathes=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.1386139
##
   [4]
        {backbone=TRUE, breathes=FALSE}
                                            {toothed=TRUE} 0.1386139
                                            {toothed=TRUE} 0.1782178
##
   [5]
        {legs=FALSE,tail=TRUE}
   [6]
##
        {backbone=TRUE,legs=FALSE}
                                            {toothed=TRUE} 0.1881188
##
   [7]
        {eggs=FALSE,backbone=TRUE}
                                            {toothed=TRUE} 0.4059406
   [8]
##
                                            {toothed=TRUE} 0.4059406
        {eggs=FALSE}
   [9]
        {hair=TRUE,backbone=TRUE}
                                            {toothed=TRUE} 0.3762376
   [10] {hair=TRUE,airborne=FALSE}
                                            {toothed=TRUE} 0.3564356
       {hair=TRUE,tail=TRUE}
                                            {toothed=TRUE} 0.3168317
##
  [12] {feathers=FALSE,backbone=TRUE}
                                            {toothed=TRUE} 0.6039604
  [13] {hair=TRUE, predator=TRUE}
                                            {toothed=TRUE} 0.1881188
  [14] {feathers=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.5148515
   [15] {feathers=FALSE,catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
   [16] {airborne=FALSE,backbone=TRUE}
                                            {toothed=TRUE} 0.5841584
   [17] {airborne=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.4950495
   [18] {airborne=FALSE,catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
   [19] {venomous=FALSE,legs=FALSE}
                                            {toothed=TRUE} 0.1584158
  [20] {legs=FALSE}
                                            {toothed=TRUE} 0.1881188
  [21] {backbone=TRUE, catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
        {feathers=FALSE,airborne=FALSE} =>
                                            {toothed=TRUE} 0.5841584
   [23]
       {airborne=FALSE,breathes=TRUE}
                                            {toothed=TRUE} 0.4455446
   [24] {catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
   [25] {feathers=FALSE,predator=TRUE}
                                            {toothed=TRUE} 0.3663366
   [26] {predator=TRUE,backbone=TRUE}
                                            {toothed=TRUE} 0.3663366
##
   [27] {airborne=FALSE,predator=FALSE}
                                            {toothed=TRUE} 0.2178218
  [28] {feathers=FALSE, breathes=TRUE}
                                            {toothed=TRUE} 0.4653465
  [29] {airborne=FALSE,aquatic=FALSE}
                                            {toothed=TRUE} 0.3564356
                                         =>
   [30] {feathers=FALSE, venomous=FALSE}
                                            {toothed=TRUE} 0.5643564
   [31] {airborne=FALSE, venomous=FALSE} =>
                                            {toothed=TRUE} 0.5445545
   [32] {feathers=FALSE,aquatic=TRUE}
                                            {toothed=TRUE} 0.2277228
   [33] {aquatic=TRUE,backbone=TRUE}
                                            {toothed=TRUE} 0.2277228
   [34] {feathers=FALSE}
                                            {toothed=TRUE} 0.6039604
   [35] {predator=TRUE,tail=TRUE}
                                            {toothed=TRUE} 0.3069307
  [36] {aquatic=TRUE,tail=TRUE}
                                            {toothed=TRUE} 0.1881188
   [37]
        {aquatic=FALSE, predator=TRUE}
                                            {toothed=TRUE} 0.1881188
        {tail=TRUE}
##
   [38]
                                            {toothed=TRUE} 0.5148515
   [39]
       {predator=TRUE,breathes=TRUE}
                                            {toothed=TRUE} 0.2673267
   [40] {breathes=FALSE}
                                            {toothed=TRUE} 0.1386139
   [41] {predator=TRUE}
                                            {toothed=TRUE} 0.3663366
  [42]
##
        {aquatic=TRUE}
                                            {toothed=TRUE} 0.2277228
## [43] {domestic=FALSE}
                                            {toothed=TRUE} 0.5148515
## [44] {breathes=TRUE}
                                            {toothed=TRUE} 0.4653465
## [45] {predator=FALSE}
                                            {toothed=TRUE} 0.2376238
```

```
## [46] {catsize=FALSE}
                                         => {toothed=TRUE} 0.2574257
  [47] {hair=FALSE}
                                         => {toothed=TRUE} 0.2277228
   [48] {eggs=TRUE}
                                         => {toothed=TRUE} 0.1980198
##
        confidence lift
##
  [1]
        1.0000000 1.6557377
##
  [2]
        1.0000000
                   1.6557377
## [3]
        1.0000000
                   1.6557377
## [4]
        1.0000000
                   1.6557377
## [5]
        1.0000000
                   1.6557377
## [6]
        1.0000000
                   1.6557377
## [7]
        1.0000000
                   1.6557377
  [8]
##
        0.9761905
                   1.6163154
##
  [9]
        0.9743590
                   1.6132829
## [10] 0.9729730
                   1.6109880
## [11] 0.9696970
                   1.6055638
## [12] 0.9682540
                   1.6031746
## [13] 0.9500000
                   1.5729508
## [14] 0.9454545
                   1.5654247
## [15] 0.9210526
                   1.5250216
## [16] 0.9076923
                   1.5029004
## [17] 0.8771930
                   1.4524015
## [18] 0.8536585
                   1.4134346
## [19] 0.8421053
                   1.3943054
## [20] 0.8260870
                   1.3677833
## [21] 0.8139535
                   1.3476935
## [22] 0.8082192
                   1.3381990
## [23] 0.8035714
                   1.3305035
## [24] 0.7954545
                   1.3170641
## [25] 0.7872340
                   1.3034531
## [26] 0.7872340
                   1.3034531
## [27] 0.7857143
                   1.3009368
## [28] 0.7833333
                   1.2969945
## [29] 0.7826087
                   1.2957947
## [30] 0.7808219
                   1.2928363
## [31] 0.7746479
                   1.2826137
## [32] 0.7666667
                   1.2693989
## [33] 0.7666667
                   1.2693989
## [34] 0.7530864
                   1.2469136
## [35] 0.7380952
                   1.2220921
## [36] 0.7307692
                   1.2099622
  [37] 0.7037037
                   1.1651488
## [38] 0.6933333
                   1.1479781
## [39] 0.6923077
                   1.1462799
## [40] 0.6666667
                   1.1038251
## [41] 0.6607143
                   1.0939696
## [42] 0.6388889
                   1.0578324
## [43] 0.5909091
                   0.9783905
## [44] 0.5875000
                   0.9727459
## [45] 0.5333333
                   0.8830601
## [46] 0.4561404
                   0.7552488
## [47] 0.3965517
                   0.6565856
##
  [48] 0.3389831
                   0.5612670
##
       lhs
                                                      confidence lift
                                            support
                           rhs
## [1] {type=bird}
                        => {toothed=FALSE} 0.1980198 1.0000000 2.5250000
```

```
## [2] {feathers=TRUE} => {toothed=FALSE} 0.1980198 1.0000000
                                                                2.5250000
                       => {toothed=FALSE} 0.1683168 0.6538462
  [3] {tail=FALSE}
                                                                1.6509615
   [4] {milk=FALSE}
                       => {toothed=FALSE} 0.3861386 0.6500000
   [5] {catsize=FALSE} => {toothed=FALSE} 0.3069307 0.5438596
                                                                1.3732456
##
      {predator=TRUE} => {toothed=FALSE} 0.1881188 0.3392857
                                                                0.8566964
##
       lhs
                                          rhs
                                                         support
                                                                   confidence
  [1] {hair=TRUE,predator=TRUE}
                                       => {toothed=TRUE} 0.1881188 0.9500000
  [2] {feathers=FALSE,predator=TRUE} =>
                                          {toothed=TRUE} 0.3663366 0.7872340
   [3] {predator=TRUE,backbone=TRUE}
                                       => {toothed=TRUE} 0.3663366 0.7872340
   [4] {predator=TRUE,tail=TRUE}
                                       => {toothed=TRUE} 0.3069307 0.7380952
   [5] {aquatic=FALSE,predator=TRUE}
                                       => {toothed=TRUE} 0.1881188 0.7037037
   [6] {predator=TRUE,breathes=TRUE}
                                      => {toothed=TRUE} 0.2673267 0.6923077
##
##
       lift
##
  [1] 1.572951
  [2] 1.303453
##
   [3] 1.303453
##
  [4] 1.222092
   [5] 1.165149
   [6] 1.146280
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                                   confidence
                                                         support
  [1]
##
        {milk=TRUE, toothed=TRUE}
                                         => {eggs=FALSE} 0.3960396 1.0000000
  [2]
##
        {milk=TRUE, aquatic=FALSE}
                                         => {eggs=FALSE} 0.3465347 1.0000000
        {toothed=TRUE, type=mammal}
##
  [3]
                                         => {eggs=FALSE} 0.3960396 1.0000000
##
  [4]
        {aquatic=FALSE, type=mammal}
                                         => {eggs=FALSE} 0.3465347 1.0000000
  [5]
        {hair=TRUE, toothed=TRUE}
                                         => {eggs=FALSE} 0.3762376 1.0000000
   [6]
        {milk=TRUE}
##
                                         => {eggs=FALSE} 0.3960396 0.9756098
        {type=mammal}
##
   [7]
                                         => {eggs=FALSE} 0.3960396 0.9756098
  [8]
##
        {hair=TRUE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3762376 0.9743590
  [9]
        {hair=TRUE,airborne=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.9729730
  [10] {hair=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3168317 0.9696970
  [11] {hair=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2871287 0.9666667
  [12] {hair=TRUE,predator=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.9500000
  [13] {aquatic=FALSE,toothed=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.9210526
   [14] {toothed=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.8857143
## [15] {toothed=TRUE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.8809524
  [16] {toothed=TRUE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.8510638
## [17] {toothed=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.8409091
## [18] {aquatic=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2574257 0.8387097
  [19] {feathers=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.8157895
  [20] {breathes=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.7948718
  [21] {predator=FALSE,toothed=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.7916667
## [22] {legs=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2772277 0.7567568
## [23] {airborne=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.7560976
## [24] {predator=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.1188119 0.7500000
## [25] {fins=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2673267 0.7500000
  [26] {airborne=FALSE,aquatic=FALSE}
                                         => {eggs=FALSE} 0.3366337 0.7391304
  [27] {feathers=FALSE,aquatic=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.7058824
  [28] {toothed=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.7017544
## [29] {airborne=FALSE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3861386 0.6964286
## [30] {feathers=FALSE,breathes=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.6833333
## [31] {toothed=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.6730769
## [32] {airborne=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3564356 0.6666667
## [33] {aquatic=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.6603774
```

```
## [34] {feathers=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3762376 0.6551724
   [35] {feathers=FALSE,tail=TRUE}
                                            {eggs=FALSE} 0.3564356 0.6545455
   [36] {feathers=FALSE,backbone=TRUE}
                                           {eggs=FALSE} 0.4059406 0.6507937
  [37] {aquatic=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.6326531
                                           {eggs=FALSE} 0.1683168 0.6296296
##
   [38] {aquatic=FALSE,predator=TRUE}
   [39] {airborne=FALSE,predator=FALSE}
                                        => {eggs=FALSE} 0.1683168 0.6071429
  [40] {airborne=FALSE,backbone=TRUE}
                                           {eggs=FALSE} 0.3861386 0.6000000
                                           {eggs=FALSE} 0.3564356 0.6000000
  [41] {airborne=FALSE,fins=FALSE}
   [42] {airborne=FALSE,tail=TRUE}
                                           {eggs=FALSE} 0.3366337 0.5964912
   [43] {feathers=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3762376 0.5937500
  [44] {backbone=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.5797101
   [45] {legs=TRUE,tail=TRUE}
                                           {eggs=FALSE} 0.3267327 0.5789474
   [46] {backbone=TRUE,legs=TRUE}
                                           {eggs=FALSE} 0.3663366 0.5781250
       {aquatic=FALSE, venomous=FALSE}
                                           {eggs=FALSE} 0.3465347 0.5737705
  [48] {breathes=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.5737705
        {predator=TRUE, breathes=TRUE}
                                            {eggs=FALSE} 0.2178218 0.5641026
   [50]
       {backbone=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.5606061
   [51] {fins=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3267327 0.5593220
   [52] {feathers=FALSE,predator=FALSE}
                                        => {eggs=FALSE} 0.1881188 0.5588235
   [53] {feathers=FALSE, airborne=FALSE}
                                           {eggs=FALSE} 0.3960396 0.5479452
##
   [54] {feathers=FALSE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5479452
  [55] {airborne=FALSE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3762376 0.5352113
   [56] {breathes=TRUE, venomous=FALSE}
                                           {eggs=FALSE} 0.3960396 0.5333333
       {predator=FALSE,backbone=TRUE}
##
   [57]
                                         => {eggs=FALSE} 0.1881188 0.5277778
   [58] {predator=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.1683168 0.5151515
   [59] {backbone=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5063291
   [60] {venomous=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.5000000
   [61] {backbone=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.4939759
   [62] {venomous=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.4675325
##
##
        lift
##
  [1]
        2.404762
##
   [2]
        2.404762
##
   [3]
        2.404762
   [4]
##
        2.404762
   [5]
##
        2.404762
##
   [6]
        2.346109
  [7]
        2.346109
  [8]
##
        2.343101
   [9]
        2.339768
##
  [10] 2.331890
  [11] 2.324603
  [12] 2.284524
   [13] 2.214912
##
  [14] 2.129932
  [15] 2.118481
  [16] 2.046606
##
   [17] 2.022186
  [18] 2.016897
  [19] 1.961779
  [20] 1.911477
##
  [21] 1.903770
## [22] 1.819820
## [23] 1.818235
## [24] 1.803571
```

```
## [25] 1.803571
   [26] 1.777433
   [27] 1.697479
   [28] 1.687552
   [29] 1.674745
   [30] 1.643254
   [31] 1.618590
   [32] 1.603175
   [33] 1.588050
   [34] 1.575534
   [35] 1.574026
   [36] 1.565004
   [37] 1.521380
   [38] 1.514109
   [39] 1.460034
   [40] 1.442857
   [41] 1.442857
   [42] 1.434419
   [43] 1.427827
   [44] 1.394065
##
  [45] 1.392231
  [46] 1.390253
  [47] 1.379781
   [48] 1.379781
   [49] 1.356532
   [50] 1.348124
   [51] 1.345036
##
   [52] 1.343838
   [53] 1.317678
   [54] 1.317678
   [55] 1.287056
##
   [56] 1.282540
   [57] 1.269180
   [58] 1.238817
   [59] 1.217601
   [60] 1.202381
##
   [61] 1.187894
##
   [62] 1.124304
##
        lhs
                                                    confidence lift
                             rhs
                                          support
                          => {eggs=TRUE} 0.1287129 1.0000000
##
   [1]
        {type=fish}
                                                               1.7118644
                          => {eggs=TRUE} 0.1980198 1.0000000
   [2]
        {type=bird}
                                                                1.7118644
   [3]
        {feathers=TRUE}
                          => {eggs=TRUE} 0.1980198 1.0000000
##
                                                                1.7118644
                                                                1.6690678
   [4]
        {toothed=FALSE}
                          => {eggs=TRUE} 0.3861386 0.9750000
##
   [5]
                          => {eggs=TRUE} 0.1980198 0.9523810
        {breathes=FALSE}
                                                                1.6303471
  [6]
        {hair=FALSE}
                          => {eggs=TRUE} 0.5346535 0.9310345
                                                                1.5938048
  [7]
                          => {eggs=TRUE} 0.2178218 0.9166667
##
        {airborne=TRUE}
                                                                1.5692090
##
   [8]
        {aquatic=TRUE}
                          => {eggs=TRUE} 0.2970297 0.8333333
                                                                1.4265537
   [9]
        {legs=FALSE}
                          => {eggs=TRUE} 0.1881188 0.8260870
                                                                1.4141489
   [10] {tail=FALSE}
                          => {eggs=TRUE} 0.1980198 0.7692308
                                                                1.3168188
   [11] {fins=TRUE}
                          => {eggs=TRUE} 0.1287129 0.7647059
                                                                1.3090728
   [12] {predator=TRUE}
                          => {eggs=TRUE} 0.3267327 0.5892857
                                                                1.0087772
##
   [13] {catsize=TRUE}
                          => {eggs=TRUE} 0.1287129 0.2954545
                                                               0.5057781
##
       lhs
                                                                  confidence
                                          rhs
                                                       support
## [1] {hair=TRUE,predator=TRUE}
                                      => {eggs=FALSE} 0.1881188 0.9500000
```

```
## [2] {aquatic=FALSE,predator=TRUE} => {eggs=FALSE} 0.1683168 0.6296296
   [3] {predator=TRUE,breathes=TRUE} => {eggs=FALSE} 0.2178218 0.5641026
##
##
       lift
  [1] 2.284524
##
##
   [2] 1.514109
##
   [3] 1.356532
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
## [1] {hair=TRUE,catsize=TRUE}
                                        {eggs=FALSE} 0.2871287 0.9666667
   [2] {toothed=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.8857143
   [3] {aquatic=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2574257 0.8387097
  [4] {feathers=FALSE,catsize=TRUE}
                                     => {eggs=FALSE} 0.3069307 0.8157895
   [5] {breathes=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.7948718
   [6] {legs=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2772277 0.7567568
   [7] {airborne=FALSE,catsize=TRUE} => {eggs=FALSE} 0.3069307 0.7560976
  [8] {predator=FALSE,catsize=TRUE} => {eggs=FALSE} 0.1188119 0.7500000
##
   [9] {fins=FALSE, catsize=TRUE}
                                      => {eggs=FALSE} 0.2673267 0.7500000
##
       lift
  [1] 2.324603
##
   [2] 2.129932
##
   [3] 2.016897
##
   [4] 1.961779
  [5] 1.911477
##
  [6] 1.819820
##
   [7] 1.818235
  [8] 1.803571
##
   [9] 1.803571
       "Número de reglas con consecuente negado"
##
##
                                            rhs
        lhs
                                                        support
                                                                   confidence
##
  [1]
        {hair=TRUE,eggs=FALSE}
                                           {milk=TRUE} 0.3762376 1.0000000
##
  [2]
                                           {milk=TRUE} 0.3069307 1.0000000
        {eggs=FALSE,catsize=TRUE}
##
   [3]
        {eggs=FALSE,predator=FALSE}
                                            {milk=TRUE} 0.1881188 1.0000000
##
   [4]
        {eggs=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3960396 1.0000000
##
   [5]
        {hair=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2970297 1.0000000
##
   [6]
                                            {milk=TRUE} 0.1980198 1.0000000
        {hair=TRUE,predator=TRUE}
   [7]
                                            {milk=TRUE} 0.3762376 1.0000000
##
        {hair=TRUE, toothed=TRUE}
##
   [8]
        {hair=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 1.0000000
        {hair=TRUE,airborne=FALSE}
                                            {milk=TRUE} 0.3663366 1.0000000
  [10] {hair=TRUE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 1.0000000
  [11] {eggs=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.9756098
##
  [12] {eggs=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3960396 0.9756098
  [13] {eggs=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3663366 0.9736842
  [14] {hair=TRUE, venomous=FALSE}
                                            {milk=TRUE} 0.3861386 0.9512195
  [15] {aquatic=FALSE,toothed=TRUE}
                                            {milk=TRUE} 0.3465347 0.9210526
  [16] {hair=TRUE,domestic=FALSE}
                                           {milk=TRUE} 0.3069307 0.9117647
  [17] {toothed=TRUE,catsize=TRUE}
                                         => {milk=TRUE} 0.3069307 0.8857143
  [18] {toothed=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3663366 0.8809524
  [19] {toothed=TRUE,breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.8510638
  [20] {feathers=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.8421053
  [21] {aquatic=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.2574257 0.8387097
  [22] {breathes=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.8205128
## [23] {toothed=TRUE,fins=FALSE}
                                           {milk=TRUE} 0.3564356 0.8181818
## [24] {predator=FALSE, toothed=TRUE}
                                           {milk=TRUE} 0.1881188 0.7916667
## [25] {legs=TRUE,catsize=TRUE}
                                         => {milk=TRUE} 0.2871287 0.7837838
## [26] {airborne=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7804878
```

```
## [27] {fins=FALSE,catsize=TRUE}
                                         => {milk=TRUE} 0.2772277 0.7777778
  [28] {predator=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.1188119 0.7500000
  [29] {backbone=TRUE, catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
  [30] {venomous=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
   [31] {airborne=FALSE,aquatic=FALSE}
                                           {milk=TRUE} 0.3267327 0.7173913
  [32] {toothed=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.3960396 0.7017544
  [33] {airborne=FALSE,breathes=TRUE}
                                           {milk=TRUE} 0.3861386 0.6964286
  [34] {feathers=FALSE,aquatic=FALSE}
                                           {milk=TRUE} 0.3465347 0.6862745
   [35] {feathers=FALSE, breathes=TRUE}
                                            {milk=TRUE} 0.4059406 0.6833333
   [36] {airborne=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3564356 0.6666667
   [37] {aquatic=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.3465347 0.6603774
   [38] {toothed=TRUE}
                                           {milk=TRUE} 0.3960396 0.6557377
   [39] {feathers=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.6551724
  [40] {feathers=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.4059406 0.6507937
  [41] {feathers=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.6363636
   [42] {aquatic=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.2970297 0.6122449
  [43] {airborne=FALSE,predator=FALSE} =>
                                           {milk=TRUE} 0.1683168 0.6071429
   [44] {airborne=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 0.6000000
  [45] {backbone=TRUE,breathes=TRUE}
                                           {milk=TRUE} 0.4059406 0.5942029
  [46] {backbone=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.5937500
##
  [47] {aquatic=FALSE,predator=TRUE}
                                           {milk=TRUE} 0.1584158 0.5925926
  [48] {aquatic=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3465347 0.5833333
  [49] {airborne=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3465347 0.5833333
   [50] {airborne=FALSE.tail=TRUE}
##
                                            {milk=TRUE} 0.3267327 0.5789474
   [51] {legs=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
   [52] {feathers=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.5781250
   [53] {aquatic=FALSE, venomous=FALSE}
                                           {milk=TRUE} 0.3465347 0.5737705
   [54] {breathes=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.5737705
   [55] {predator=TRUE,breathes=TRUE}
                                         => {milk=TRUE} 0.2178218 0.5641026
   [56] {feathers=FALSE, venomous=FALSE} =>
                                           {milk=TRUE} 0.4059406 0.5616438
   [57] {backbone=TRUE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.5606061
##
   [58]
       {feathers=FALSE,predator=FALSE} =>
                                           {milk=TRUE} 0.1881188 0.5588235
   [59] {airborne=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3861386 0.5492958
   [60] {aquatic=FALSE,breathes=TRUE}
                                           {milk=TRUE} 0.3465347 0.5468750
   [61] {breathes=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.4059406 0.5466667
   [62] {fins=FALSE,tail=TRUE}
##
                                           {milk=TRUE} 0.3168317 0.5423729
   [63] {feathers=FALSE,airborne=FALSE} =>
                                            {milk=TRUE} 0.3861386 0.5342466
  [64] {predator=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.1881188 0.5277778
##
        {breathes=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.5205479
##
   [65]
       {backbone=TRUE, venomous=FALSE}
##
   [66]
                                           {milk=TRUE} 0.4059406 0.5189873
       {predator=FALSE,tail=TRUE}
   [67]
                                           {milk=TRUE} 0.1683168 0.5151515
   [68] {venomous=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5135135
   [69] {feathers=FALSE}
                                         => {milk=TRUE} 0.4059406 0.5061728
  [70] {venomous=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.3465347 0.4929577
  [71] {venomous=FALSE,fins=FALSE}
                                         => {milk=TRUE} 0.3663366 0.4805195
   [72] {predator=FALSE, venomous=FALSE} =>
                                           {milk=TRUE} 0.1881188 0.4418605
##
   [73] {predator=TRUE}
                                           {milk=TRUE} 0.2178218 0.3928571
##
        lift
##
  [1]
        2.463415
##
   [2]
        2.463415
   [3]
##
        2.463415
##
  [4]
        2.463415
## [5]
        2.463415
## [6]
        2.463415
```

- ## [7] 2.463415
- ## [8] 2.463415
- ## [9] 2.463415
- ## [10] 2.463415
- ## [11] 2.403331
- ## [12] 2.403331
- ## [13] 2.398588
- ## [14] 2.343248
- ## [15] 2.268935
- ## [10] 2.200333
- ## [16] 2.246055
- ## [17] 2.181882
- ## [18] 2.170151
- ## [19] 2.096523
- ## [20] 2.074454
- ## [21] 2.066090
- ## [22] 2.021263
- ## [23] 2.015521
- ## [24] 1.950203
- ## [25] 1.930784
- ## [23] 1.930704
- ## [26] 1.922665
- ## [27] 1.915989
- ## [28] 1.847561
- ## [29] 1.833239
- ## [30] 1.833239
- ## [31] 1.767232
- ## [32] 1.728712
- ## [33] 1.715592
- ## [34] 1.690579
- ## [35] 1.683333
- ## [36] 1.642276
- ## [37] 1.626783
- ## [38] 1.615354
- ## [39] 1.613961
- ## [40] 1.603175
- ## [41] 1.567627
- ## [42] 1.508213
- ## [43] 1.495645 ## [44] 1.478049
- ## [45] 1.463768
- ## [46] 1.462652
- ## [47] 1.459801
- ## [48] 1.436992
- ## [49] 1.436992
- ## [50] 1.426187
- ## [51] 1.426187
- ## [52] 1.424162
- ## [53] 1.413435
- ## [54] 1.413435
- ## [55] 1.389619 ## [56] 1.383562
- ## [57] 1.381005
- ## [58] 1.376614
- ## [59] 1.353143
- ## [60] 1.347180

```
## [61] 1.346667
   [62] 1.336089
   [63] 1.316071
  [64] 1.300136
##
##
   [65] 1.282325
##
   [66] 1.278481
   [67] 1.269032
##
  [68] 1.264997
##
   [69] 1.246914
  [70] 1.214359
  [71] 1.183719
##
  [72] 1.088486
##
   [73] 0.967770
                                                     confidence lift
##
        lhs
                             rhs
                                          support
## [1]
        {type=fish}
                          => {milk=FALSE} 0.1287129 1.0000000
                                                                1.6833333
##
   [2]
        {backbone=FALSE} => {milk=FALSE} 0.1782178 1.0000000
                                                                1.6833333
   [3]
##
                          => {milk=FALSE} 0.1980198 1.0000000
        {type=bird}
                                                                1.6833333
##
  [4]
        {feathers=TRUE}
                          => {milk=FALSE} 0.1980198 1.0000000
                                                                1.6833333
        {breathes=FALSE} => {milk=FALSE} 0.2079208 1.0000000
##
  [5]
                                                                1.6833333
##
   [6]
        {eggs=TRUE}
                             {milk=FALSE} 0.5742574 0.9830508
                                                                1.6548023
##
  [7]
        {hair=FALSE}
                          => {milk=FALSE} 0.5544554 0.9655172
                                                                1.6252874
  [8]
                             {milk=FALSE} 0.2178218 0.9166667
##
        {airborne=TRUE}
                                                                1.5430556
                          => {milk=FALSE} 0.1980198 0.8695652
##
  [9]
        {legs=FALSE}
                                                                1.4637681
                             {milk=FALSE} 0.2970297 0.8333333
##
  [10] {aquatic=TRUE}
                                                                1.4027778
  [11] {tail=FALSE}
                          => {milk=FALSE} 0.1980198 0.7692308
                                                                1.2948718
  [12] {fins=TRUE}
                          => {milk=FALSE} 0.1287129 0.7647059
                                                                1.2872549
                          => {milk=FALSE} 0.3366337 0.6071429
  [13] {predator=TRUE}
                                                                1.0220238
   [14] {fins=FALSE}
                          => {milk=FALSE} 0.4653465 0.5595238
                                                                0.9418651
  [15] {tail=TRUE}
                          => {milk=FALSE} 0.3960396 0.5333333
                                                                0.8977778
  [16] {backbone=TRUE}
                          => {milk=FALSE} 0.4158416 0.5060241
                                                                0.8518072
   [17] {aquatic=FALSE}
                          => {milk=FALSE} 0.2970297 0.4615385
                                                                0.7769231
##
   [18] {toothed=TRUE}
                          => {milk=FALSE} 0.2079208 0.3442623
                                                                0.5795082
##
       lhs
                                         rhs
                                                      support
                                                                confidence
##
  [1] {hair=TRUE,predator=TRUE}
                                      => {milk=TRUE} 0.1980198 1.0000000
   [2] {aquatic=FALSE,predator=TRUE} => {milk=TRUE} 0.1584158 0.5925926
   [3] {predator=TRUE,breathes=TRUE} => {milk=TRUE} 0.2178218 0.5641026
##
##
       lift
##
  [1] 2.463415
   [2] 1.459801
##
   [3] 1.389619
##
       lhs
                                       rhs
                                                    support
                                                              confidence
  [1] {toothed=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3564356 0.8181818
   [2] {fins=FALSE,catsize=TRUE}
                                    => {milk=TRUE} 0.2772277 0.7777778
   [3] {airborne=FALSE,fins=FALSE} => {milk=TRUE} 0.3465347 0.5833333
  [4] {feathers=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5781250
   [5] {backbone=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3663366 0.5606061
   [6] {fins=FALSE,tail=TRUE}
                                    => {milk=TRUE} 0.3168317 0.5423729
##
   [7] {venomous=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.4805195
##
       lift.
##
  [1] 2.015521
##
  [2] 1.915989
## [3] 1.436992
## [4] 1.424162
## [5] 1.381005
```

```
## [6] 1.336089
##
   [7] 1.183719
##
       lhs
                                                   support
                                                             confidence
  [1] {hair=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 1.0000000
##
##
   [2] {feathers=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.6363636
   [3] {aquatic=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.2970297 0.6122449
   [4] {airborne=FALSE,tail=TRUE} => {milk=TRUE} 0.3267327 0.5789474
   [5] {legs=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 0.5789474
##
   [6] {breathes=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3465347 0.5737705
   [7] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
   [8] {predator=FALSE,tail=TRUE} => {milk=TRUE} 0.1683168 0.5151515
   [9] {venomous=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.4929577
##
##
       lift
##
   [1] 2.463415
   [2] 1.567627
##
   [3] 1.508213
##
##
   [4] 1.426187
   [5] 1.426187
##
   [6] 1.413435
   [7] 1.336089
##
   [8] 1.269032
##
   [9] 1.214359
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
##
   Г17
        {hair=TRUE,backbone=TRUE}
                                         => {milk=TRUE} 0.3861386 1.0000000
##
   [2]
        {eggs=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3960396 0.9756098
   [3]
        {backbone=TRUE, catsize=TRUE}
                                         => {milk=TRUE} 0.3168317 0.7441860
   [4]
        {aquatic=FALSE, backbone=TRUE}
##
                                        => {milk=TRUE} 0.3465347 0.6603774
##
   [5]
        {feathers=FALSE,backbone=TRUE} => {milk=TRUE} 0.4059406 0.6507937
   [6]
        {airborne=FALSE,backbone=TRUE} => {milk=TRUE} 0.3861386 0.6000000
##
##
   [7]
        {backbone=TRUE,breathes=TRUE}
                                        => {milk=TRUE} 0.4059406 0.5942029
##
   [8]
        {backbone=TRUE,legs=TRUE}
                                        => {milk=TRUE} 0.3762376 0.5937500
##
   [9]
        {backbone=TRUE,fins=FALSE}
                                        => {milk=TRUE} 0.3663366 0.5606061
   [10] {predator=FALSE,backbone=TRUE} => {milk=TRUE} 0.1881188 0.5277778
   [11] \{backbone=TRUE, venomous=FALSE\} => \{milk=TRUE\} 0.4059406 0.5189873\}
##
##
        lift
##
   [1]
        2.463415
##
   [2]
        2.403331
##
   [3]
        1.833239
   [4]
##
        1.626783
##
   [5]
        1.603175
   [6]
        1.478049
   [7]
##
        1.463768
##
   [8]
        1.462652
##
   [9]
        1.381005
## [10] 1.300136
## [11] 1.278481
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
##
   [1]
        {aquatic=FALSE, toothed=TRUE}
                                        => {milk=TRUE} 0.3465347 0.9210526
##
   [2]
        {aquatic=FALSE,catsize=TRUE}
                                         => {milk=TRUE} 0.2574257 0.8387097
##
   [3]
        {airborne=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3267327 0.7173913
   [4]
##
        {feathers=FALSE,aquatic=FALSE}
                                        => {milk=TRUE} 0.3465347 0.6862745
##
   [5]
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
##
  [6]
        {aquatic=FALSE,tail=TRUE}
                                        => {milk=TRUE} 0.2970297 0.6122449
## [7]
        {aquatic=FALSE,predator=TRUE}
                                        => {milk=TRUE} 0.1584158 0.5925926
```

```
{aquatic=FALSE,legs=TRUE}
                                        => {milk=TRUE} 0.3465347 0.5833333
        {aquatic=FALSE, venomous=FALSE} => {milk=TRUE} 0.3465347 0.5737705
   [9]
   [10] {aquatic=FALSE,breathes=TRUE} => {milk=TRUE} 0.3465347 0.5468750
##
        lift
##
   [1]
        2.268935
   [2]
        2.066090
##
  [3]
        1.767232
  ۲4٦
##
        1.690579
##
   [5]
        1.626783
##
   [6]
        1.508213
   [7]
        1.459801
   [8]
##
        1.436992
##
   [9]
        1.413435
   [10] 1.347180
##
##
       lhs
                                         rhs
                                                      support
                                                                confidence
##
   [1] {hair=TRUE, toothed=TRUE}
                                      => {milk=TRUE} 0.3762376 1.0000000
                                      => {milk=TRUE} 0.3465347 0.9210526
   [2] {aquatic=FALSE,toothed=TRUE}
  [3] {toothed=TRUE,catsize=TRUE}
                                      => {milk=TRUE} 0.3069307 0.8857143
  [4] {toothed=TRUE,legs=TRUE}
                                      => {milk=TRUE} 0.3663366 0.8809524
  [5] {toothed=TRUE, breathes=TRUE}
                                      => {milk=TRUE} 0.3960396 0.8510638
  [6] {toothed=TRUE,fins=FALSE}
                                      => {milk=TRUE} 0.3564356 0.8181818
  [7] {predator=FALSE,toothed=TRUE} => {milk=TRUE} 0.1881188 0.7916667
  [8] {toothed=TRUE, venomous=FALSE} => {milk=TRUE} 0.3960396 0.7017544
##
       lift.
## [1] 2.463415
  [2] 2.268935
  [3] 2.181882
  [4] 2.170151
## [5] 2.096523
## [6] 2.015521
##
  [7] 1.950203
##
   [8] 1.728712
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                             support
##
   [1]
        {type=fish}
                                            {backbone=TRUE} 0.1287129
##
  [2]
        {fins=TRUE}
                                            {backbone=TRUE} 0.1683168
  [3]
        {type=bird}
                                            {backbone=TRUE} 0.1980198
## [4]
        {feathers=TRUE}
                                            {backbone=TRUE} 0.1980198
  [5]
        {milk=TRUE}
                                            {backbone=TRUE} 0.4059406
##
  [6]
##
        {type=mammal}
                                            {backbone=TRUE} 0.4059406
                                            {backbone=TRUE} 0.6039604
  [7]
        {toothed=TRUE}
  [8]
        {venomous=FALSE,domestic=TRUE}
                                            {backbone=TRUE} 0.1188119
##
##
   [9]
        {aquatic=TRUE,tail=TRUE}
                                            {backbone=TRUE} 0.2574257
  [10] {aquatic=TRUE, breathes=TRUE}
                                         => {backbone=TRUE} 0.1584158
## [11] {hair=TRUE,predator=TRUE}
                                         => {backbone=TRUE} 0.1980198
## [12] {hair=TRUE,tail=TRUE}
                                            {backbone=TRUE} 0.3267327
  [13] {predator=FALSE, catsize=TRUE}
                                            {backbone=TRUE} 0.1584158
  [14] {tail=TRUE,catsize=TRUE}
                                            {backbone=TRUE} 0.3762376
                                            {backbone=TRUE} 0.7029703
## [15] {venomous=FALSE,tail=TRUE}
## [16] {tail=TRUE}
                                            {backbone=TRUE} 0.7326733
                                            {backbone=TRUE} 0.4257426
## [17] {catsize=TRUE}
## [18] {predator=TRUE,breathes=TRUE}
                                            {backbone=TRUE} 0.3663366
## [19] {domestic=TRUE}
                                         => {backbone=TRUE} 0.1188119
## [20] {hair=TRUE,domestic=FALSE}
                                         => {backbone=TRUE} 0.3069307
```

```
## [21] {airborne=FALSE,breathes=TRUE}
                                          => {backbone=TRUE} 0.5049505
       {breathes=TRUE, venomous=FALSE}
   [22]
                                             {backbone=TRUE} 0.6633663
   [23] {aquatic=FALSE, predator=TRUE}
                                             {backbone=TRUE} 0.2376238
   [24] {airborne=FALSE,aquatic=FALSE}
                                             {backbone=TRUE} 0.3960396
##
   [25]
       {breathes=TRUE}
                                             {backbone=TRUE} 0.6831683
##
   [26] {predator=TRUE, venomous=FALSE}
                                             {backbone=TRUE} 0.4257426
       {airborne=FALSE, venomous=FALSE} =>
                                             {backbone=TRUE} 0.6039604
       {airborne=FALSE,predator=FALSE} =>
                                             {backbone=TRUE} 0.2376238
##
   [29]
        {airborne=FALSE,legs=TRUE}
                                             {backbone=TRUE} 0.4554455
   [30]
       {legs=FALSE}
                                             {backbone=TRUE} 0.1881188
   [31] {legs=TRUE}
                                             {backbone=TRUE} 0.6336634
        {aquatic=FALSE}
   [32]
                                             {backbone=TRUE} 0.5247525
##
   [33]
        {predator=FALSE}
                                             {backbone=TRUE} 0.3564356
   [34]
        {feathers=FALSE}
                                             {backbone=TRUE} 0.6237624
   [35]
                                            {backbone=TRUE} 0.1782178
       {airborne=TRUE}
   [36]
        {eggs=TRUE}
                                             {backbone=TRUE} 0.4158416
##
   [37]
        {catsize=FALSE}
                                             {backbone=TRUE} 0.3960396
   [38]
        {breathes=FALSE}
                                             {backbone=TRUE} 0.1386139
   [39]
                                          => {backbone=TRUE} 0.2178218
##
        {toothed=FALSE}
##
        confidence lift
##
   [1]
        1.0000000
                   1.2168675
   [2]
        1.0000000
                   1.2168675
   [3]
##
        1.0000000
                    1.2168675
   [4]
##
        1.0000000
                    1.2168675
##
   [5]
        1.0000000
                    1.2168675
   [6]
        1.0000000
                    1.2168675
   [7]
##
        1.0000000
                    1.2168675
##
   [8]
        1.0000000
                    1.2168675
##
   [9]
        1.0000000
                    1.2168675
   [10]
       1.0000000
                    1.2168675
   [11]
       1.0000000
                    1.2168675
##
   [12]
       1.0000000
                    1.2168675
   [13] 1.0000000
                    1.2168675
   [14] 1.0000000
                    1.2168675
        1.0000000
   [15]
                    1.2168675
                    1.2006426
##
   [16] 0.9866667
   [17] 0.9772727
                    1.1892114
   [18] 0.9487179
                    1.1544640
   [19] 0.9230769
                    1.1232623
   [20] 0.9117647
                    1.1094968
   [21] 0.9107143
                    1.1082186
   [22] 0.8933333
                    1.0870683
   [23] 0.8888889
                    1.0816600
   [24] 0.8695652
                    1.0581456
   [25] 0.8625000
                    1.0495482
   [26] 0.8600000
                    1.0465060
                    1.0454777
##
   [27] 0.8591549
   [28] 0.8571429
                    1.0430293
   [29]
        0.8518519
                    1.0365908
   [30]
        0.8260870
                    1.0052383
   [31]
                    0.9984554
##
        0.8205128
   [32] 0.8153846
                    0.9922150
## [33] 0.8000000
                    0.9734940
## [34] 0.7777778
                   0.9464525
```

```
[35] 0.7500000
                   0.9126506
   [36] 0.7118644
                   0.8662446
   [37] 0.7017544
                   0.8539421
   [38] 0.6666667
                   0.8112450
##
   [39] 0.5500000
                   0.6692771
##
                          rhs
                                                      confidence lift
       lhs
                                            support
  [1] {toothed=FALSE} => {backbone=FALSE} 0.1782178 0.4500000 2.525000
##
   [2]
       {eggs=TRUE}
                       => {backbone=FALSE} 0.1683168 0.2881356 1.616761
##
   [3] {aquatic=FALSE} => {backbone=FALSE} 0.1188119 0.1846154 1.035897
##
                                          rhs
                                                           support
                                                                     confidence
   [1] {aquatic=FALSE,predator=TRUE} => {backbone=TRUE} 0.2376238 0.8888889
   [2] {airborne=FALSE,aquatic=FALSE} => {backbone=TRUE} 0.3960396 0.8695652
##
##
       lift
##
   [1] 1.081660
   [2] 1.058146
##
##
       "Número de reglas con consecuente negado"
##
        lhs
                                                             support
##
   [1]
        {type=bird}
                                            {toothed=FALSE} 0.1980198
        {feathers=TRUE}
   [2]
##
                                            {toothed=FALSE} 0.1980198
##
   [3]
        {hair=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.1782178
##
   [4]
        {eggs=TRUE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
  [5]
##
        {milk=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
  [6]
##
        {milk=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2673267
##
   [7]
        {eggs=TRUE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2574257
##
  [8]
        {hair=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2277228
  [9]
        {eggs=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
   [10] {milk=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
  [11] {hair=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3069307
  [12] {eggs=TRUE,tail=FALSE}
                                           {toothed=FALSE} 0.1683168
## [13] {milk=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
  [14] {eggs=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
                                            {toothed=FALSE} 0.3861386
   [15] {milk=FALSE,fins=FALSE}
   [16] {eggs=TRUE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
   [17] {milk=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
       {hair=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3465347
   Г187
##
  [19] {hair=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1287129
  [20] {eggs=TRUE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
  [21] {milk=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
  [22] {tail=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1584158
  [23] {hair=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.1683168
  [24] {hair=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.2772277
  [25] {tail=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.1584158
  [26] {aquatic=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1089109
  [27] {aquatic=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.1287129
  [28] {fins=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
  [29] {eggs=TRUE, venomous=FALSE}
                                            {toothed=FALSE} 0.3564356
   [30] {milk=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3465347
   [31] {aquatic=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.1188119
  [32] {legs=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
   [33] {tail=FALSE}
                                            {toothed=FALSE} 0.1683168
  [34] {milk=FALSE}
##
                                            {toothed=FALSE} 0.3861386
  [35] {aquatic=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.2178218
  [36] {fins=FALSE,catsize=FALSE}
                                         =>
                                            {toothed=FALSE} 0.3069307
## [37] {hair=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3267327
```

```
## [38] {hair=FALSE,catsize=FALSE}
                                         => {toothed=FALSE} 0.2673267
  [39] {breathes=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2475248
  [40] {predator=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1683168
## [41] {catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
  [42] {predator=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.2079208
  [43] {predator=FALSE,domestic=FALSE} =>
                                            {toothed=FALSE} 0.1683168
  [44] {fins=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.3564356
  [45] {predator=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.1881188
##
   [46] {legs=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.3168317
   [47] {aquatic=FALSE,domestic=FALSE}
                                         => {toothed=FALSE} 0.2277228
  [48] {breathes=TRUE,domestic=FALSE}
                                         => {toothed=FALSE} 0.2871287
##
   [49]
       {predator=TRUE}
                                         => {toothed=FALSE} 0.1881188
##
        confidence lift
##
  [1]
        1.0000000
                  2.5250000
##
  [2]
                   2.5250000
        1.0000000
##
   [3]
        1.0000000
                   2.5250000
   [4]
##
        1.0000000
                   2.5250000
   [5]
        1.0000000
                   2.5250000
##
   [6]
        0.9000000
                   2.2725000
   [7]
        0.8965517
                   2.2637931
##
  [8]
        0.8846154
                   2.2336538
        0.8750000
  [9]
                   2.2093750
  [10] 0.8750000
                   2.2093750
   [11] 0.8611111
                   2.1743056
  [12] 0.8500000
                   2.1462500
  [13] 0.8500000
                   2.1462500
  [14] 0.8478261
                   2.1407609
  [15] 0.8297872
                   2.0952128
  [16] 0.8205128
                   2.0717949
  [17] 0.8205128
                   2.0717949
  [18] 0.8139535
                   2.0552326
   [19] 0.8125000
                   2.0515625
  [20] 0.8076923
                   2.0394231
  [21] 0.8076923
                   2.0394231
   [22] 0.8000000
                   2.0200000
##
  [23] 0.7727273
                   1.9511364
  [24] 0.7567568
                   1.9108108
  [25] 0.6956522
                   1.7565217
   [26] 0.6875000
                   1.7359375
  [27] 0.6842105
                   1.7276316
  [28] 0.6800000
                   1.7170000
  [29] 0.6792453
                   1.7150943
   [30] 0.6730769
                   1.6995192
   [31] 0.6666667
                   1.6833333
  [32] 0.6585366
                   1.6628049
  [33] 0.6538462
                   1.6509615
##
   [34] 0.6500000
                   1.6412500
   [35] 0.6470588
                   1.6338235
  [36] 0.6458333
                   1.6307292
   [37]
       0.6346154
                   1.6024038
##
  [38] 0.6136364
                   1.5494318
## [39] 0.6097561
                   1.5396341
## [40] 0.5862069
                   1.4801724
## [41] 0.5438596
                   1.3732456
```

```
## [42] 0.5121951
                   1.2932927
   [43] 0.5000000
                   1.2625000
  [44] 0.5000000
                   1.2625000
  [45] 0.4871795
                   1.2301282
   [46] 0.4848485
                   1.2242424
  [47] 0.4339623
                   1.0957547
##
  [48] 0.4264706
                   1.0768382
##
  [49] 0.3392857
                   0.8566964
##
        lhs
                                            support
                                                       confidence lift
                             rhs
##
  [1]
        {type=fish}
                         => {toothed=TRUE} 0.1287129 1.0000000
                                                                  1.6557377
   [2]
        {fins=TRUE}
                          => {toothed=TRUE} 0.1683168 1.0000000
                                                                  1.6557377
   [3]
##
        {eggs=FALSE}
                          => {toothed=TRUE} 0.4059406 0.9761905
                                                                  1.6163154
##
   [4]
        {legs=FALSE}
                          => {toothed=TRUE} 0.1881188 0.8260870
                                                                  1.3677833
##
   [5]
        {catsize=TRUE}
                         => {toothed=TRUE} 0.3465347 0.7954545
                                                                  1.3170641
  [6]
        {feathers=FALSE} => {toothed=TRUE} 0.6039604 0.7530864
##
                                                                  1.2469136
##
  [7]
        {tail=TRUE}
                          => {toothed=TRUE} 0.5148515 0.6933333
                                                                  1.1479781
   [8]
##
        {breathes=FALSE} => {toothed=TRUE} 0.1386139 0.6666667
                                                                  1.1038251
        {predator=TRUE}
                         => {toothed=TRUE} 0.3663366 0.6607143
                                                                  1.0939696
  [10] {aquatic=TRUE}
                          => {toothed=TRUE} 0.2277228 0.6388889
                                                                  1.0578324
   [11] {domestic=FALSE} => {toothed=TRUE} 0.5148515 0.5909091
                                                                  0.9783905
##
  [12] {breathes=TRUE}
                         => {toothed=TRUE} 0.4653465 0.5875000
                                                                  0.9727459
  [13] {predator=FALSE} => {toothed=TRUE} 0.2376238 0.5333333
                                                                  0.8830601
                         => {toothed=TRUE} 0.2574257 0.4561404
   [14] {catsize=FALSE}
                                                                  0.7552488
                          => {toothed=TRUE} 0.2277228 0.3965517
##
   [15] {hair=FALSE}
                                                                  0.6565856
##
   [16] {eggs=TRUE}
                          => {toothed=TRUE} 0.1980198 0.3389831
                                                                  0.5612670
##
       lhs
                                     rhs
                                                     support
                                                                confidence
   [1] {aquatic=TRUE,fins=FALSE} => {toothed=FALSE} 0.1287129 0.6842105
##
##
   [2] {aquatic=TRUE,legs=TRUE} => {toothed=FALSE} 0.1188119 0.6666667
##
       lift
##
  [1] 1.727632
##
   [2] 1.683333
##
       lhs
                                           rhs
                                                            support
  [1] {tail=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.1584158
   [2] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
   [3] {fins=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3564356
##
   [4] {legs=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3168317
  [5] {aquatic=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2277228
  [6] {breathes=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2871287
##
       confidence lift
##
  [1] 0.6956522 1.756522
##
   [2] 0.5000000
                  1.262500
   [3] 0.5000000
                  1.262500
   [4] 0.4848485
                  1.224242
##
   [5] 0.4339623
                  1.095755
##
   [6] 0.4264706
                  1.076838
##
       lhs
                                          rhs
                                                           support
                                                                     confidence
##
  [1] {eggs=TRUE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
   [2] {milk=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
   [3] {hair=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.2772277 0.7567568
   [4] {breathes=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2475248 0.6097561
##
##
   [5] {breathes=TRUE,domestic=FALSE} => {toothed=FALSE} 0.2871287 0.4264706
##
       lift
## [1] 2.071795
## [2] 2.071795
```

```
## [3] 1.910811
  [4] 1.539634
  [5] 1.076838
##
       lhs
                                           rhs
                                                           support
## [1] {eggs=TRUE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [2] {milk=FALSE,predator=FALSE}
                                       => {toothed=FALSE} 0.2079208
## [3] {hair=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.1683168
## [4] {predator=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.1683168
## [5] {predator=FALSE,fins=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [6] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
  [7] {predator=FALSE,legs=TRUE}
                                       => {toothed=FALSE} 0.1881188
##
       confidence lift
## [1] 0.8076923 2.039423
## [2] 0.8076923 2.039423
## [3] 0.7727273
                  1.951136
## [4] 0.5862069
                  1.480172
## [5] 0.5121951
                  1.293293
  [6] 0.5000000
                  1.262500
##
  [7] 0.4871795 1.230128
##
       lhs
                                                          support
                                                                    confidence
## [1] {tail=FALSE,catsize=FALSE}
                                      => {toothed=FALSE} 0.1584158 0.8000000
## [2] {legs=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6585366
                                      => {toothed=FALSE} 0.2178218 0.6470588
## [3] {aquatic=FALSE,catsize=FALSE}
## [4] {fins=FALSE,catsize=FALSE}
                                      => {toothed=FALSE} 0.3069307 0.6458333
## [5] {hair=FALSE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2673267 0.6136364
  [6] {breathes=TRUE,catsize=FALSE} => {toothed=FALSE} 0.2475248 0.6097561
  [7] {predator=FALSE,catsize=FALSE} => {toothed=FALSE} 0.1683168 0.5862069
##
       lift
## [1] 2.020000
## [2] 1.662805
## [3] 1.633824
## [4] 1.630729
## [5] 1.549432
## [6] 1.539634
  [7]
      1.480172
##
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,airborne=TRUE}
                                   => {toothed=FALSE} 0.1782178 1.0000000
## [2] {hair=FALSE,aquatic=FALSE}
                                   => {toothed=FALSE} 0.2277228 0.8846154
## [3] {hair=FALSE,legs=TRUE}
                                    => {toothed=FALSE} 0.3069307 0.8611111
                                    => {toothed=FALSE} 0.3465347 0.8139535
## [4] {hair=FALSE,fins=FALSE}
## [5] {hair=FALSE,tail=FALSE}
                                    => {toothed=FALSE} 0.1287129 0.8125000
## [6] {hair=FALSE, predator=FALSE} => {toothed=FALSE} 0.1683168 0.7727273
## [7] {hair=FALSE,breathes=TRUE}
                                   => {toothed=FALSE} 0.2772277 0.7567568
## [8] {hair=FALSE, venomous=FALSE} => {toothed=FALSE} 0.3267327 0.6346154
## [9] {hair=FALSE,catsize=FALSE} => {toothed=FALSE} 0.2673267 0.6136364
##
       lift
## [1] 2.525000
## [2] 2.233654
## [3] 2.174306
## [4] 2.055233
## [5] 2.051563
## [6] 1.951136
## [7] 1.910811
## [8] 1.602404
```

```
## [9] 1.549432
##
       lhs
                                                      support
                                      rhs
                                                                confidence
                                  => {toothed=FALSE} 0.2178218 1.0000000
  [1] {eggs=TRUE,airborne=TRUE}
  [2] {eggs=TRUE,aquatic=FALSE}
                                  => {toothed=FALSE} 0.2574257 0.8965517
  [3] {eggs=TRUE,legs=TRUE}
                                  => {toothed=FALSE} 0.3465347 0.8750000
  [4] {eggs=TRUE,tail=FALSE}
                                  => {toothed=FALSE} 0.1683168 0.8500000
## [5] {eggs=TRUE,fins=FALSE}
                                  => {toothed=FALSE} 0.3861386 0.8478261
  [6] {eggs=TRUE,breathes=TRUE}
                                  => {toothed=FALSE} 0.3168317 0.8205128
   [7] {eggs=TRUE,predator=FALSE} => {toothed=FALSE} 0.2079208 0.8076923
   [8] {eggs=TRUE, venomous=FALSE} => {toothed=FALSE} 0.3564356 0.6792453
##
       lift
##
  [1] 2.525000
   [2] 2.263793
  [3] 2.209375
## [4] 2.146250
  [5] 2.140761
##
  [6] 2.071795
  [7] 2.039423
  [8] 1.715094
       "Número de reglas con consecuente negado"
##
        lhs
                                           rhs
                                                                  confidence
                                                        support
## [1]
        {type=fish}
                                        => {milk=FALSE} 0.1287129 1.0000000
  [2]
                                        => {milk=FALSE} 0.1782178 1.0000000
##
        {backbone=FALSE}
##
  [3]
        {type=bird}
                                        => {milk=FALSE} 0.1980198 1.0000000
##
  [4]
        {feathers=TRUE}
                                        => {milk=FALSE} 0.1980198 1.0000000
  [5]
        {breathes=FALSE}
                                        => {milk=FALSE} 0.2079208 1.0000000
  [6]
                                        => {milk=FALSE} 0.1584158 1.0000000
##
        {legs=FALSE,catsize=FALSE}
##
  [7]
        {eggs=TRUE,legs=FALSE}
                                        => {milk=FALSE} 0.1881188 1.0000000
## [8]
        {hair=FALSE,airborne=TRUE}
                                        => {milk=FALSE} 0.1782178 1.0000000
## [9]
        {hair=FALSE,tail=FALSE}
                                        => {milk=FALSE} 0.1584158 1.0000000
## [10] {aquatic=TRUE,catsize=FALSE}
                                        => {milk=FALSE} 0.2277228 1.0000000
  [11] {toothed=FALSE,catsize=FALSE}
                                        => {milk=FALSE} 0.3069307 1.0000000
## [12] {hair=FALSE,toothed=FALSE}
                                        => {milk=FALSE} 0.3465347 1.0000000
                                        => {milk=FALSE} 0.2178218 1.0000000
## [13] {hair=FALSE,predator=FALSE}
  [14] {hair=FALSE,catsize=FALSE}
                                        => {milk=FALSE} 0.4356436 1.0000000
                                        => {milk=FALSE} 0.4554455 1.0000000
## [15] {eggs=TRUE,catsize=FALSE}
## [16] {hair=FALSE,eggs=TRUE}
                                        => {milk=FALSE} 0.5346535 1.0000000
## [17] {hair=FALSE,aquatic=FALSE}
                                        => {milk=FALSE} 0.2574257 1.0000000
## [18] {hair=FALSE,legs=TRUE}
                                        => {milk=FALSE} 0.3564356 1.0000000
                                        => {milk=FALSE} 0.4257426 1.0000000
## [19] {hair=FALSE,fins=FALSE}
## [20] {eggs=TRUE,toothed=TRUE}
                                        => {milk=FALSE} 0.1980198 1.0000000
## [21] {eggs=TRUE,aquatic=FALSE}
                                        => {milk=FALSE} 0.2871287 1.0000000
## [22] {eggs=TRUE}
                                        => {milk=FALSE} 0.5742574 0.9830508
                                        => {milk=FALSE} 0.5544554 0.9655172
## [23] {hair=FALSE}
## [24] {predator=TRUE,catsize=FALSE}
                                        => {milk=FALSE} 0.2574257 0.9285714
                                        => {milk=FALSE} 0.2178218 0.9166667
## [25]
       {airborne=TRUE}
## [26] {aquatic=TRUE,fins=FALSE}
                                        => {milk=FALSE} 0.1683168 0.8947368
## [27] {legs=FALSE}
                                        => {milk=FALSE} 0.1980198 0.8695652
## [28] {domestic=FALSE, catsize=FALSE} => {milk=FALSE} 0.4257426 0.8600000
## [29] {aquatic=TRUE}
                                        => {milk=FALSE} 0.2970297 0.8333333
                                        => {milk=FALSE} 0.1881188 0.8260870
## [30] {tail=FALSE,domestic=FALSE}
## [31] {tail=FALSE}
                                        => {milk=FALSE} 0.1980198 0.7692308
## [32] {fins=TRUE}
                                        => {milk=FALSE} 0.1287129 0.7647059
## [33] {predator=TRUE}
                                        => {milk=FALSE} 0.3366337 0.6071429
```

```
## [34] {fins=FALSE}
                                       => {milk=FALSE} 0.4653465 0.5595238
## [35] {tail=TRUE}
                                       => {milk=FALSE} 0.3960396 0.5333333
## [36] {backbone=TRUE}
                                       => {milk=FALSE} 0.4158416 0.5060241
                                     => {milk=FALSE} 0.2970297 0.4615385
## [37] {aquatic=FALSE}
##
  [38] {toothed=TRUE}
                                       => {milk=FALSE} 0.2079208 0.3442623
##
        lift
## [1]
       1.6833333
## [2]
       1.6833333
## [3]
       1.6833333
## [4]
       1.6833333
## [5]
       1.6833333
## [6]
        1.6833333
## [7]
       1.6833333
## [8]
       1.6833333
## [9]
       1.6833333
## [10] 1.6833333
## [11] 1.6833333
## [12] 1.6833333
## [13] 1.6833333
## [14] 1.6833333
## [15] 1.6833333
## [16] 1.6833333
## [17] 1.6833333
## [18] 1.6833333
## [19] 1.6833333
## [20] 1.6833333
## [21] 1.6833333
## [22] 1.6548023
## [23] 1.6252874
## [24] 1.5630952
## [25] 1.5430556
## [26] 1.5061404
## [27] 1.4637681
## [28] 1.4476667
## [29] 1.4027778
## [30] 1.3905797
## [31] 1.2948718
## [32] 1.2872549
## [33] 1.0220238
## [34] 0.9418651
## [35] 0.8977778
## [36] 0.8518072
## [37] 0.7769231
## [38] 0.5795082
       lhs
                                       support confidence lift
                           rhs
                        => {milk=TRUE} 0.3960396 0.6557377 1.615354
## [1] {toothed=TRUE}
  [2] {feathers=FALSE} => {milk=TRUE} 0.4059406 0.5061728 1.246914
  [3] {predator=TRUE} => {milk=TRUE} 0.2178218 0.3928571 0.967770
       lhs
                                   rhs
                                                support
                                                         confidence lift
##
  [1] {eggs=TRUE,toothed=TRUE} => {milk=FALSE} 0.1980198 1
##
                                        rhs
                                                      support
                                                                confidence
  [1] {predator=TRUE,catsize=FALSE} => {milk=FALSE} 0.2574257 0.9285714
##
       lift
```

## [1] 1.563095

```
[1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
##
  [1]
        {backbone=FALSE, breathes=TRUE}
                                            {catsize=FALSE} 0.1089109
                                            {catsize=FALSE} 0.1881188
##
   [2]
        {eggs=TRUE,tail=FALSE}
##
   [3]
        {milk=FALSE,tail=FALSE}
                                            {catsize=FALSE} 0.1881188
   [4]
##
        {backbone=FALSE}
                                            {catsize=FALSE} 0.1683168
##
   [5]
        {hair=FALSE,tail=FALSE}
                                            {catsize=FALSE} 0.1485149
##
  [6]
        {predator=FALSE,tail=FALSE}
                                            {catsize=FALSE} 0.1089109
##
   [7]
        {airborne=TRUE}
                                            {catsize=FALSE} 0.2079208
##
   [8]
        {feathers=FALSE, toothed=FALSE}
                                            {catsize=FALSE} 0.1683168
  [9]
        {feathers=FALSE,milk=FALSE}
                                            {catsize=FALSE} 0.3366337
   [10] {eggs=TRUE,predator=FALSE}
                                            {catsize=FALSE} 0.2178218
   [11] {milk=FALSE,predator=FALSE}
                                            {catsize=FALSE} 0.2178218
                                         => {catsize=FALSE} 0.2475248
  [12] {milk=FALSE,aquatic=FALSE}
  [13] {milk=FALSE,fins=FALSE}
                                         => {catsize=FALSE} 0.3861386
   [14] {eggs=TRUE,aquatic=FALSE}
                                            {catsize=FALSE} 0.2376238
   [15] {feathers=FALSE,eggs=TRUE}
                                            {catsize=FALSE} 0.3168317
   [16] {milk=FALSE,breathes=TRUE}
                                            {catsize=FALSE} 0.3168317
  [17] {hair=FALSE,predator=FALSE}
                                            {catsize=FALSE} 0.1782178
  [18] {hair=FALSE,fins=FALSE}
                                            {catsize=FALSE} 0.3465347
##
  [19] {milk=FALSE,toothed=TRUE}
                                            {catsize=FALSE} 0.1683168
  [20] {hair=FALSE,aquatic=FALSE}
                                            {catsize=FALSE} 0.2079208
  [21] {eggs=TRUE,fins=FALSE}
                                            {catsize=FALSE} 0.3663366
##
##
  [22] {milk=FALSE}
                                            {catsize=FALSE} 0.4752475
  [23] {eggs=TRUE,toothed=TRUE}
                                            {catsize=FALSE} 0.1584158
  [24] {eggs=TRUE,breathes=TRUE}
                                            {catsize=FALSE} 0.3069307
   [25] {hair=FALSE, feathers=FALSE}
                                            {catsize=FALSE} 0.2970297
##
   [26] {eggs=TRUE}
                                            {catsize=FALSE} 0.4554455
  [27]
       {breathes=FALSE, venomous=FALSE}
                                            {catsize=FALSE} 0.1386139
  [28] {hair=FALSE,legs=TRUE}
                                            {catsize=FALSE} 0.2772277
  [29]
        {tail=FALSE}
                                            {catsize=FALSE} 0.1980198
##
   [30]
       {breathes=FALSE}
                                            {catsize=FALSE} 0.1584158
   [31]
       {aquatic=TRUE,fins=FALSE}
                                            {catsize=FALSE} 0.1386139
   [32] {type=bird}
                                            {catsize=FALSE} 0.1386139
   [33] {feathers=TRUE}
                                            {catsize=FALSE} 0.1386139
##
  [34] {legs=FALSE}
                                            {catsize=FALSE} 0.1584158
   [35] {aquatic=TRUE,legs=TRUE}
                                            {catsize=FALSE} 0.1188119
   [36] {predator=FALSE,domestic=FALSE} =>
                                            {catsize=FALSE} 0.2178218
##
                                            {catsize=FALSE} 0.2277228
##
   [37] {aquatic=TRUE}
##
   [38] {fins=FALSE,domestic=FALSE}
                                            {catsize=FALSE} 0.4158416
   [39] {predator=TRUE}
                                            {catsize=FALSE} 0.2772277
                                            {catsize=FALSE} 0.3564356
   [40] {airborne=FALSE}
##
   [41] {hair=TRUE}
                                            {catsize=FALSE} 0.1287129
##
   [42]
                                         => {catsize=FALSE} 0.1089109
       {eggs=FALSE}
##
        confidence lift
  [1]
                   1.7719298
##
        1.0000000
##
   [2]
        0.9500000
                   1.6833333
##
   [3]
        0.9500000
                   1.6833333
##
   [4]
        0.944444
                   1.6734893
##
   [5]
        0.9375000
                   1.6611842
##
   [6]
        0.9166667
                   1.6242690
##
  [7]
        0.8750000
                   1.5504386
##
  [8]
        0.8500000
                   1.5061404
## [9]
        0.8500000
                   1.5061404
```

```
## [10] 0.8461538
                   1.4993252
## [11] 0.8461538
                   1.4993252
                   1.4766082
## [12] 0.8333333
## [13] 0.8297872
                   1.4703247
## [14] 0.8275862
                   1.4664247
## [15] 0.8205128
                   1.4538911
## [16] 0.8205128
                   1.4538911
                   1.4497608
## [17] 0.8181818
## [18] 0.8139535
                   1.4422685
## [19] 0.8095238
                   1.4344194
## [20] 0.8076923
                   1.4311741
## [21] 0.8043478
                   1.4252479
## [22] 0.8000000
                   1.4175439
## [23] 0.8000000
                   1.4175439
## [24] 0.7948718
                   1.4084570
## [25] 0.7894737
                   1.3988920
                   1.3815046
## [26] 0.7796610
## [27] 0.7777778
                   1.3781676
## [28] 0.7777778
                   1.3781676
## [29] 0.7692308
                   1.3630229
## [30] 0.7619048
                   1.3500418
## [31] 0.7368421
                   1.3056325
## [32] 0.7000000
                   1.2403509
## [33] 0.7000000
                   1.2403509
## [34] 0.6956522
                   1.2326468
## [35] 0.6666667
                   1.1812865
## [36] 0.6470588
                   1.1465428
## [37] 0.6388889
                   1.1320663
## [38] 0.5833333
                   1.0336257
## [39] 0.5000000
                   0.8859649
## [40] 0.4675325
                   0.8284347
  [41] 0.3023256
                   0.5356997
##
  [42] 0.2619048
                   0.4640769
##
       lhs
                          rhs
                                                    confidence lift
                                          support
  [1] {milk=TRUE}
                       => {catsize=TRUE} 0.3168317 0.7804878 1.7915743
                       => {catsize=TRUE} 0.3168317 0.7804878 1.7915743
  [2] {type=mammal}
  [3] {eggs=FALSE}
                       => {catsize=TRUE} 0.3069307 0.7380952
## [4] {hair=TRUE}
                       => {catsize=TRUE} 0.2970297 0.6976744
                                                               1.6014799
## [5] {aquatic=FALSE} => {catsize=TRUE} 0.3069307 0.4769231
                                                               1.0947552
  [6] {aquatic=TRUE} => {catsize=TRUE} 0.1287129 0.3611111
                                                               0.8289141
                       => {catsize=TRUE} 0.1386139 0.2413793
  [7] {hair=FALSE}
                                                               0.5540752
##
  [8] {milk=FALSE}
                       => {catsize=TRUE} 0.1188119 0.2000000
                                                               0.4590909
                                     rhs
       lhs
                                                      support
                                                                 confidence
  [1] {milk=FALSE,aquatic=FALSE} => {catsize=FALSE} 0.2475248 0.8333333
## [2] {eggs=TRUE,aquatic=FALSE} => {catsize=FALSE} 0.2376238 0.8275862
  [3] {hair=FALSE,aquatic=FALSE} => {catsize=FALSE} 0.2079208 0.8076923
##
##
       lift
## [1] 1.476608
  [2] 1.466425
##
  [3] 1.431174
##
                                    rhs
                                                     support
                                                               confidence
## [1] {aquatic=TRUE,fins=FALSE} => {catsize=FALSE} 0.1386139 0.7368421
## [2] {aquatic=TRUE,legs=TRUE} => {catsize=FALSE} 0.1188119 0.6666667
##
       lift
```

```
## [1] 1.305633
##
  [2] 1.181287
##
       lhs
                                                       support
                                                                  confidence
## [1] {hair=FALSE,tail=FALSE}
                                    => {catsize=FALSE} 0.1485149 0.9375000
##
  [2] {hair=FALSE,predator=FALSE} => {catsize=FALSE} 0.1782178 0.8181818
  [3] {hair=FALSE,fins=FALSE}
                                    => {catsize=FALSE} 0.3465347 0.8139535
  [4] {hair=FALSE,aquatic=FALSE}
                                    => {catsize=FALSE} 0.2079208 0.8076923
  [5] {hair=FALSE, feathers=FALSE} => {catsize=FALSE} 0.2970297 0.7894737
##
   [6] {hair=FALSE,legs=TRUE}
                                    => {catsize=FALSE} 0.2772277 0.7777778
##
       lift
## [1] 1.661184
  [2] 1.449761
##
  [3] 1.442268
## [4] 1.431174
## [5] 1.398892
##
   [6] 1.378168
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
  [1] {milk=FALSE,tail=FALSE}
                                    => {catsize=FALSE} 0.1881188 0.9500000
##
  [2] {feathers=FALSE,milk=FALSE} => {catsize=FALSE} 0.3366337 0.8500000
  [3] {milk=FALSE,predator=FALSE} => {catsize=FALSE} 0.2178218 0.8461538
## [4] {milk=FALSE,aquatic=FALSE}
                                    => {catsize=FALSE} 0.2475248 0.8333333
## [5] {milk=FALSE,fins=FALSE}
                                    => {catsize=FALSE} 0.3861386 0.8297872
## [6] {milk=FALSE,breathes=TRUE}
                                   => {catsize=FALSE} 0.3168317 0.8205128
  [7] {milk=FALSE.toothed=TRUE}
                                    => {catsize=FALSE} 0.1683168 0.8095238
##
##
       lift
## [1] 1.683333
  [2] 1.506140
  [3] 1.499325
## [4] 1.476608
## [5] 1.470325
## [6] 1.453891
  [7] 1.434419
##
  [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                         support
                                                                    confidence
   [1]
        {milk=TRUE,toothed=TRUE}
                                            {eggs=FALSE} 0.3960396 1.0000000
##
##
  [2]
        {milk=TRUE, aquatic=FALSE}
                                         => {eggs=FALSE} 0.3465347 1.0000000
  [3]
        {toothed=TRUE, type=mammal}
                                         => {eggs=FALSE} 0.3960396 1.0000000
## [4]
        {aquatic=FALSE, type=mammal}
                                         => {eggs=FALSE} 0.3465347 1.0000000
  [5]
        {hair=TRUE, toothed=TRUE}
                                         => {eggs=FALSE} 0.3762376 1.0000000
##
  [6]
                                         => {eggs=FALSE} 0.3960396 0.9756098
##
        {milk=TRUE}
  [7]
        {type=mammal}
                                         => {eggs=FALSE} 0.3960396 0.9756098
        {hair=TRUE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3762376 0.9743590
  [8]
  [9]
        {hair=TRUE,airborne=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.9729730
## [10] {hair=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3168317 0.9696970
## [11] {hair=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2871287 0.9666667
## [12] {hair=TRUE, predator=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.9500000
## [13] {aquatic=FALSE,toothed=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.9210526
## [14] {toothed=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.8857143
## [15] {toothed=TRUE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.8809524
## [16] {toothed=TRUE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.8510638
## [17] {toothed=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.8409091
## [18] {aquatic=FALSE, catsize=TRUE}
                                         => {eggs=FALSE} 0.2574257 0.8387097
## [19] {feathers=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.8157895
## [20] {breathes=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.7948718
```

```
## [21] {predator=FALSE,toothed=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.7916667
  [22] {legs=TRUE,catsize=TRUE}
                                           {eggs=FALSE} 0.2772277 0.7567568
  [23] {airborne=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.3069307 0.7560976
  [24] {predator=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.1188119 0.7500000
  [25] {fins=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.2673267 0.7500000
  [26] {airborne=FALSE,aquatic=FALSE}
                                         => {eggs=FALSE} 0.3366337 0.7391304
  [27] {feathers=FALSE,aquatic=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.7058824
  [28] {toothed=TRUE, venomous=FALSE}
                                           {eggs=FALSE} 0.3960396 0.7017544
  [29]
       {airborne=FALSE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3861386 0.6964286
   [30] {feathers=FALSE,breathes=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.6833333
  [31] {toothed=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.6730769
   [32] {airborne=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3564356 0.6666667
   [33] {aquatic=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.6603774
  [34] {feathers=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3762376 0.6551724
  [35] {feathers=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3564356 0.6545455
        {feathers=FALSE,backbone=TRUE}
                                            {eggs=FALSE} 0.4059406 0.6507937
   [37]
       {aquatic=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.6326531
   [38] {aquatic=FALSE,predator=TRUE}
                                         => {eggs=FALSE} 0.1683168 0.6296296
   [39] {airborne=FALSE, predator=FALSE}
                                        => {eggs=FALSE} 0.1683168 0.6071429
   [40] {airborne=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3861386 0.6000000
##
  [41] {airborne=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.6000000
  [42] {airborne=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3366337 0.5964912
  [43] {feathers=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3762376 0.5937500
   [44] {backbone=TRUE.breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.5797101
  [45] {legs=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3267327 0.5789474
  [46] {backbone=TRUE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.5781250
   [47] {aquatic=FALSE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3465347 0.5737705
  [48] {breathes=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.5737705
  [49] {predator=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.2178218 0.5641026
  [50] {backbone=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.5606061
   [51] {fins=FALSE,tail=TRUE}
                                           {eggs=FALSE} 0.3267327 0.5593220
##
   [52]
       {feathers=FALSE,predator=FALSE} => {eggs=FALSE} 0.1881188 0.5588235
       {feathers=FALSE,airborne=FALSE}
                                           {eggs=FALSE} 0.3960396 0.5479452
   [54] {feathers=FALSE, venomous=FALSE}
                                           {eggs=FALSE} 0.3960396 0.5479452
       {airborne=FALSE, venomous=FALSE}
                                           {eggs=FALSE} 0.3762376 0.5352113
   [56] {breathes=TRUE, venomous=FALSE}
##
                                         => {eggs=FALSE} 0.3960396 0.5333333
  [57] {predator=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.5277778
  [58] {predator=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.1683168 0.5151515
       {backbone=TRUE, venomous=FALSE}
##
   [59]
                                         => {eggs=FALSE} 0.3960396 0.5063291
##
   [60]
       {venomous=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.5000000
   [61] {backbone=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.4939759
   [62] {venomous=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.4675325
##
##
        lift
##
   [1]
        2.404762
##
  [2]
        2.404762
  [3]
        2.404762
##
##
   [4]
        2.404762
##
   [5]
        2.404762
##
   [6]
        2.346109
        2.346109
##
   [7]
##
   [8]
        2.343101
  [9]
       2.339768
## [10] 2.331890
## [11] 2.324603
```

```
## [12] 2.284524
## [13] 2.214912
## [14] 2.129932
## [15] 2.118481
## [16] 2.046606
## [17] 2.022186
## [18] 2.016897
## [19] 1.961779
## [20] 1.911477
## [21] 1.903770
## [22] 1.819820
## [23] 1.818235
## [24] 1.803571
## [25] 1.803571
## [26] 1.777433
## [27] 1.697479
  [28] 1.687552
## [29] 1.674745
## [30] 1.643254
## [31] 1.618590
## [32] 1.603175
## [33] 1.588050
## [34] 1.575534
## [35] 1.574026
## [36] 1.565004
## [37] 1.521380
## [38] 1.514109
## [39] 1.460034
## [40] 1.442857
## [41] 1.442857
## [42] 1.434419
## [43] 1.427827
## [44] 1.394065
## [45] 1.392231
## [46] 1.390253
## [47] 1.379781
## [48] 1.379781
## [49] 1.356532
## [50] 1.348124
## [51] 1.345036
  [52] 1.343838
## [53] 1.317678
## [54] 1.317678
  [55] 1.287056
## [56] 1.282540
## [57] 1.269180
  [58] 1.238817
  [59] 1.217601
## [60] 1.202381
##
  [61] 1.187894
##
  [62] 1.124304
##
        lhs
                                         support
                                                   confidence lift
                         => {eggs=TRUE} 0.1287129 1.0000000 1.7118644
## [1]
        {type=fish}
                         => {eggs=TRUE} 0.1980198 1.0000000 1.7118644
## [2]
       {type=bird}
```

```
{feathers=TRUE}
                         => {eggs=TRUE} 0.1980198 1.0000000
                                                               1.7118644
##
  [4]
        {toothed=FALSE}
                         => {eggs=TRUE} 0.3861386 0.9750000
                                                               1.6690678
##
  [5]
        {breathes=FALSE} => {eggs=TRUE} 0.1980198 0.9523810
                                                               1.6303471
  [6]
##
        {hair=FALSE}
                         => {eggs=TRUE} 0.5346535 0.9310345
                                                               1.5938048
##
   [7]
        {airborne=TRUE}
                         => {eggs=TRUE} 0.2178218 0.9166667
                                                               1.5692090
   [8]
        {aquatic=TRUE}
                         => {eggs=TRUE} 0.2970297 0.8333333
##
                                                               1.4265537
  [9]
        {legs=FALSE}
                         => {eggs=TRUE} 0.1881188 0.8260870
                                                               1.4141489
  [10] {tail=FALSE}
                         => {eggs=TRUE} 0.1980198 0.7692308
                                                               1.3168188
  [11] {fins=TRUE}
                         => {eggs=TRUE} 0.1287129 0.7647059
                                                               1.3090728
  [12] {predator=TRUE}
                         => {eggs=TRUE} 0.3267327 0.5892857
                                                               1.0087772
   [13] {catsize=TRUE}
                         => {eggs=TRUE} 0.1287129 0.2954545
                                                               0.5057781
##
       lhs
                                         rhs
                                                                 confidence
                                                      support
##
  [1] {hair=TRUE,predator=TRUE}
                                      => {eggs=FALSE} 0.1881188 0.9500000
   [2] {aquatic=FALSE,predator=TRUE} => {eggs=FALSE} 0.1683168 0.6296296
   [3] {predator=TRUE,breathes=TRUE} => {eggs=FALSE} 0.2178218 0.5641026
##
       lift
  [1] 2.284524
##
   [2] 1.514109
   [3] 1.356532
##
##
                                                      support
                                                                 confidence
## [1] {hair=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2871287 0.9666667
  [2] {toothed=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.8857143
  [3] {aquatic=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2574257 0.8387097
  [4] {feathers=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.8157895
  [5] {breathes=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.7948718
  [6] {legs=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2772277 0.7567568
   [7] {airborne=FALSE, catsize=TRUE} => {eggs=FALSE} 0.3069307 0.7560976
   [8] {predator=FALSE,catsize=TRUE} => {eggs=FALSE} 0.1188119 0.7500000
   [9] {fins=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2673267 0.7500000
##
##
       lift
## [1] 2.324603
   [2] 2.129932
  [3] 2.016897
  [4] 1.961779
   [5]
      1.911477
##
  [6] 1.819820
  [7] 1.818235
## [8] 1.803571
  [9]
       1.803571
##
  [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                             support
        {aquatic=TRUE, catsize=TRUE}
##
  [1]
                                           {predator=TRUE} 0.1188119
##
   [2]
        {breathes=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.1683168
##
  [3]
        {aquatic=TRUE,fins=FALSE}
                                         => {predator=TRUE} 0.1584158
## [4]
        {airborne=FALSE,aquatic=TRUE}
                                         => {predator=TRUE} 0.2574257
## [5]
        {aquatic=TRUE,legs=TRUE}
                                            {predator=TRUE} 0.1485149
##
  [6]
        {feathers=FALSE, aquatic=TRUE}
                                            {predator=TRUE} 0.2475248
##
  [7]
        {fins=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.1287129
  [8]
        {aquatic=TRUE, breathes=TRUE}
                                         => {predator=TRUE} 0.1287129
  [9]
        {breathes=FALSE}
                                            {predator=TRUE} 0.1683168
##
  [10]
       {aquatic=TRUE}
                                           {predator=TRUE} 0.2871287
## [11] {backbone=TRUE,legs=FALSE}
                                         => {predator=TRUE} 0.1485149
## [12] {hair=FALSE,toothed=TRUE}
                                         => {predator=TRUE} 0.1782178
## [13] {legs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.1683168
```

```
## [14] {fins=TRUE}
                                         => {predator=TRUE} 0.1287129
  [15] {milk=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1584158
  [16] {eggs=TRUE,toothed=TRUE}
                                            {predator=TRUE} 0.1485149
  [17] {hair=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2871287
  [18] {hair=FALSE, feathers=FALSE}
                                            {predator=TRUE} 0.2673267
  [19] {milk=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2673267
  [20] {eggs=TRUE,airborne=FALSE}
                                            {predator=TRUE} 0.2574257
  [21] {airborne=FALSE,domestic=FALSE} =>
                                            {predator=TRUE} 0.4653465
   [22]
       {domestic=FALSE,catsize=TRUE}
                                            {predator=TRUE} 0.2574257
   [23] {toothed=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.3465347
   [24] {airborne=FALSE, toothed=FALSE}
                                            {predator=TRUE} 0.1188119
   [25] {hair=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.3564356
   [26] {catsize=TRUE}
                                            {predator=TRUE} 0.2772277
       {feathers=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.4455446
  [28] {backbone=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4455446
        {tail=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4059406
   [30]
       {feathers=FALSE,milk=FALSE}
                                            {predator=TRUE} 0.2475248
   [31] {eggs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.2079208
   [32] {feathers=FALSE,eggs=TRUE}
                                            {predator=TRUE} 0.2376238
   [33] {feathers=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.3762376
##
  [34] {milk=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.2376238
  [35] {feathers=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.3267327
  [36] {eggs=TRUE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
       {milk=FALSE,backbone=TRUE}
   [37]
                                            {predator=TRUE} 0.2475248
       {eggs=TRUE,tail=TRUE}
   [38]
                                            {predator=TRUE} 0.2277228
  [39] {backbone=TRUE}
                                            {predator=TRUE} 0.4653465
                                            {predator=TRUE} 0.2277228
   [40] {eggs=FALSE}
   [41] {venomous=FALSE,tail=FALSE}
                                            {predator=TRUE} 0.1188119
  [42] {legs=TRUE}
                                            {predator=TRUE} 0.3861386
  [43] {hair=TRUE}
                                         => {predator=TRUE} 0.1980198
##
   [44] {aquatic=FALSE}
                                         => {predator=TRUE} 0.2673267
##
        confidence lift
##
   [1]
        0.9230769
                   1.6648352
   [2]
##
        0.8500000
                   1.5330357
   [3]
        0.8421053
                   1.5187970
   [4]
                   1.5126728
##
        0.8387097
  [5]
        0.8333333
                   1.5029762
  [6]
        0.8333333
##
                   1.5029762
   [7]
        0.8125000
                   1.4654018
##
  [8]
        0.8125000
                   1.4654018
  [9]
        0.8095238
                   1.4600340
   [10] 0.8055556
                   1.4528770
   [11] 0.7894737
                   1.4238722
  [12] 0.7826087
                   1.4114907
  [13] 0.7727273
                   1.3936688
  [14] 0.7647059
                   1.3792017
   [15] 0.7619048
                   1.3741497
   [16] 0.7500000
                   1.3526786
  [17] 0.7250000
                   1.3075893
   [18] 0.7105263
                   1.2814850
  [19] 0.7105263
                   1.2814850
## [20] 0.7027027
                   1.2673745
## [21] 0.6911765
                   1.2465861
## [22] 0.6842105
                   1.2340226
```

```
## [23] 0.6730769
                   1.2139423
  [24] 0.6666667
                   1.2023810
                   1.2023810
  [25] 0.6666667
  [26] 0.6363636
                   1.1477273
  [27] 0.6338028
                   1.1431087
  [28] 0.6338028
                   1.1431087
  [29] 0.6307692
                   1.1376374
## [30] 0.6250000
                   1.1272321
  [31] 0.6176471
                   1.1139706
  [32] 0.6153846
                   1.1098901
  [33] 0.6031746
                   1.0878685
  [34] 0.6000000
                   1.0821429
  [35] 0.6000000
                   1.0821429
## [36] 0.5952381
                   1.0735544
## [37] 0.5952381
                   1.0735544
  [38] 0.5897436
                   1.0636447
                   1.0212995
  [39] 0.5662651
  [40] 0.5476190
                   0.9876701
                   0.9837662
  [41] 0.5454545
  [42] 0.5000000
                   0.9017857
  [43] 0.4651163
                   0.8388704
  [44] 0.4153846
                   0.7491758
##
        lhs
                                                         confidence lift
                                              support
                         => {predator=FALSE} 0.1089109 0.8461538
## [1]
        {domestic=TRUE}
                                                                    1.8991453
  [2]
        {airborne=TRUE}
                          => {predator=FALSE} 0.1683168 0.7083333
                                                                    1.5898148
  [3]
        {type=bird}
                          => {predator=FALSE} 0.1089109 0.5500000
  [4]
                          => {predator=FALSE} 0.1089109 0.5500000
##
        {feathers=TRUE}
                                                                    1.2344444
  [5]
        {toothed=FALSE}
                         => {predator=FALSE} 0.2079208 0.5250000
                                                                    1.1783333
## [6]
        {catsize=FALSE}
                         => {predator=FALSE} 0.2871287 0.5087719
                                                                    1.1419103
## [7]
        {milk=TRUE}
                          => {predator=FALSE} 0.1881188 0.4634146
                                                                    1.0401084
## [8]
        {type=mammal}
                          => {predator=FALSE} 0.1881188 0.4634146
                                                                    1.0401084
##
  [9]
        {tail=FALSE}
                          => {predator=FALSE} 0.1188119 0.4615385
                                                                    1.0358974
  [10] {eggs=FALSE}
                          => {predator=FALSE} 0.1881188 0.4523810
                                                                    1.0153439
## [11] {eggs=TRUE}
                          => {predator=FALSE} 0.2574257 0.4406780
                                                                    0.9890772
  [12] {milk=FALSE}
                          => {predator=FALSE} 0.2574257 0.4333333
                                                                    0.9725926
  [13] {domestic=FALSE}
                         => {predator=FALSE} 0.3366337 0.3863636
                                                                    0.8671717
  [14] {hair=FALSE}
                          => {predator=FALSE} 0.2178218 0.3793103
##
  [15] {catsize=TRUE}
                          => {predator=FALSE} 0.1584158 0.3636364
                                                                    0.8161616
##
                                                           support
                                                                     confidence
   [1] {airborne=FALSE,toothed=FALSE} => {predator=TRUE} 0.1188119 0.6666667
##
       lift
##
   [1] 1.202381
                                                        support
##
       lhs
                                       rhs
                                                                  confidence
   [1] {venomous=FALSE,tail=FALSE} => {predator=TRUE} 0.1188119 0.5454545
##
##
       lift
  [1] 0.9837662
##
##
                                       rhs
                                                        support
                                                                  confidence
##
   [1] {eggs=FALSE,domestic=FALSE} => {predator=TRUE} 0.2079208 0.6176471
##
       lift
##
   [1] 1.113971
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {predator=TRUE} 0.1485149 0.7500000
## [2] {eggs=TRUE,airborne=FALSE} => {predator=TRUE} 0.2574257 0.7027027
## [3] {feathers=FALSE,eggs=TRUE} => {predator=TRUE} 0.2376238 0.6153846
```

```
## [4] {eggs=TRUE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
##
   [5] {eggs=TRUE,tail=TRUE}
                                   => {predator=TRUE} 0.2277228 0.5897436
       lift
##
  [1] 1.352679
##
##
   [2] 1.267375
  [3] 1.109890
##
  [4] 1.073554
## [5] 1.063645
##
       lhs
                                                                  confidence
                                       rhs
                                                        support
##
  [1] {milk=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1584158 0.7619048
  [2] {milk=FALSE,airborne=FALSE} => {predator=TRUE} 0.2673267 0.7105263
   [3] {feathers=FALSE,milk=FALSE} => {predator=TRUE} 0.2475248 0.6250000
   [4] {milk=FALSE,tail=TRUE}
                                    => {predator=TRUE} 0.2376238 0.6000000
##
   [5] {milk=FALSE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
##
       lift
##
  [1] 1.374150
##
   [2] 1.281485
  [3] 1.127232
  [4] 1.082143
##
   [5] 1.073554
##
        lhs
                                            rhs
                                                             support
        {breathes=FALSE,domestic=FALSE} =>
##
  [1]
                                            {predator=TRUE} 0.1683168
  [2]
        {fins=TRUE,domestic=FALSE}
##
                                         => {predator=TRUE} 0.1287129
        {legs=FALSE,domestic=FALSE}
##
  [3]
                                         => {predator=TRUE} 0.1683168
        {airborne=FALSE,domestic=FALSE} => {predator=TRUE} 0.4653465
##
  [4]
  [5]
        {domestic=FALSE, catsize=TRUE}
                                         => {predator=TRUE} 0.2574257
   [6]
        {toothed=TRUE,domestic=FALSE}
##
                                         => {predator=TRUE} 0.3465347
##
   [7]
        {hair=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.3564356
  [8]
        {feathers=FALSE,domestic=FALSE} => {predator=TRUE} 0.4455446
##
  [9]
        {backbone=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4455446
   [10] {tail=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4059406
##
   [11] {eggs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.2079208
##
        confidence lift
##
  [1]
        0.8500000
                   1.533036
   [2]
        0.8125000
                   1.465402
##
##
   [3]
        0.7727273
                   1.393669
  [4]
        0.6911765
                   1.246586
  [5]
        0.6842105
                   1.234023
##
        0.6730769
##
   [6]
                   1.213942
##
  [7]
        0.6666667
                   1.202381
  [8]
        0.6338028
                   1.143109
   [9]
        0.6338028
                   1.143109
##
   [10] 0.6307692
                   1.137637
   [11] 0.6176471
##
                  1.113971
##
                                       rhs
                                                        support
                                                                  confidence
  [1] {hair=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1782178 0.7826087
##
   [2] {hair=FALSE,airborne=FALSE} => {predator=TRUE} 0.2871287 0.7250000
   [3] {hair=FALSE,feathers=FALSE} => {predator=TRUE} 0.2673267 0.7105263
##
   [4] {hair=FALSE,domestic=FALSE} => {predator=TRUE} 0.3564356 0.6666667
##
       lift
## [1] 1.411491
## [2] 1.307589
## [3] 1.281485
## [4] 1.202381
```

```
##
                                         rhs
                                                         support
                                                                   confidence
   [1] {aquatic=TRUE, catsize=TRUE}
##
                                      => {predator=TRUE} 0.1188119 0.9230769
   [2] {domestic=FALSE, catsize=TRUE} => {predator=TRUE} 0.2574257 0.6842105
##
       lift.
##
   [1] 1.664835
##
   [2] 1.234023
##
   [1] "Número de reglas con consecuente negado"
##
                                                         support
                                                                   confidence
                                         => {eggs=FALSE} 0.3960396 1.0000000
##
   [1]
        {milk=TRUE,toothed=TRUE}
   [2]
##
        {milk=TRUE,aquatic=FALSE}
                                           {eggs=FALSE} 0.3465347 1.0000000
   [3]
        {toothed=TRUE, type=mammal}
                                         => {eggs=FALSE} 0.3960396 1.0000000
   [4]
        {aquatic=FALSE, type=mammal}
##
                                         => {eggs=FALSE} 0.3465347 1.0000000
##
   [5]
        {hair=TRUE, toothed=TRUE}
                                         => {eggs=FALSE} 0.3762376 1.0000000
##
   [6]
        {milk=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.9756098
  [7]
                                         => {eggs=FALSE} 0.3960396 0.9756098
##
        {type=mammal}
##
   [8]
        {hair=TRUE,backbone=TRUE}
                                           {eggs=FALSE} 0.3762376 0.9743590
##
   [9]
        {hair=TRUE,airborne=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.9729730
   [10] {hair=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3168317 0.9696970
  [11] {hair=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2871287 0.9666667
  [12] {hair=TRUE,predator=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.9500000
##
  [13] {aquatic=FALSE, toothed=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.9210526
  [14] {toothed=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.8857143
  [15] {toothed=TRUE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.8809524
  [16] {toothed=TRUE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.8510638
  [17] {toothed=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.8409091
  [18] {aquatic=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2574257 0.8387097
  [19] {feathers=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.8157895
  [20] {breathes=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.7948718
  [21] {predator=FALSE,toothed=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.7916667
## [22] {legs=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2772277 0.7567568
  [23] {airborne=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.7560976
  [24] {predator=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.1188119 0.7500000
  [25] {fins=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2673267 0.7500000
  [26] {airborne=FALSE,aquatic=FALSE}
                                         => {eggs=FALSE} 0.3366337 0.7391304
   [27] {feathers=FALSE,aquatic=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.7058824
  [28] {toothed=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.7017544
  [29] {airborne=FALSE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3861386 0.6964286
## [30] {feathers=FALSE,breathes=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.6833333
  [31] {toothed=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.6730769
  [32] {airborne=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3564356 0.6666667
  [33] {aquatic=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.6603774
  [34] {feathers=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3762376 0.6551724
  [35] {feathers=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3564356 0.6545455
  [36] {feathers=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.6507937
  [37] {aquatic=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.6326531
  [38] {aquatic=FALSE,predator=TRUE}
                                         => {eggs=FALSE} 0.1683168 0.6296296
  [39] {airborne=FALSE,predator=FALSE}
                                           {eggs=FALSE} 0.1683168 0.6071429
  [40] {airborne=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3861386 0.6000000
  [41] {airborne=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.6000000
  [42] {airborne=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3366337 0.5964912
  [43] {feathers=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3762376 0.5937500
## [44] {backbone=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.5797101
## [45] {legs=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3267327 0.5789474
## [46] {backbone=TRUE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.5781250
```

```
## [47] {aguatic=FALSE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3465347 0.5737705
  [48] {breathes=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.5737705
  [49] {predator=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.2178218 0.5641026
  [50] {backbone=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.5606061
   [51] {fins=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3267327 0.5593220
  [52] {feathers=FALSE,predator=FALSE} => {eggs=FALSE} 0.1881188 0.5588235
##
  [53] {feathers=FALSE,airborne=FALSE} => {eggs=FALSE} 0.3960396 0.5479452
   [54] {feathers=FALSE, venomous=FALSE} =>
                                            {eggs=FALSE} 0.3960396 0.5479452
   [55] {airborne=FALSE, venomous=FALSE} =>
                                            {eggs=FALSE} 0.3762376 0.5352113
   [56] {breathes=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5333333
   [57] {predator=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.5277778
   [58] {predator=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.1683168 0.5151515
##
   [59] {backbone=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5063291
                                         => {eggs=FALSE} 0.3663366 0.5000000
   [60] {venomous=FALSE,legs=TRUE}
   [61] {backbone=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.4939759
##
   [62] {venomous=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.4675325
##
        lift
##
   [1]
        2.404762
   [2]
##
        2.404762
##
   [3]
        2.404762
##
   [4]
        2.404762
  [5]
        2.404762
##
  [6]
        2.346109
##
   [7]
##
        2.346109
##
  [8]
        2.343101
  [9]
        2.339768
  [10] 2.331890
##
##
   [11] 2.324603
  [12] 2.284524
## [13] 2.214912
  [14] 2.129932
##
   [15] 2.118481
  [16] 2.046606
  [17] 2.022186
   [18] 2.016897
##
  [19] 1.961779
## [20] 1.911477
## [21] 1.903770
  [22] 1.819820
##
  [23] 1.818235
  [24] 1.803571
  [25] 1.803571
##
  [26] 1.777433
##
  [27] 1.697479
## [28] 1.687552
  [29] 1.674745
##
  [30] 1.643254
  [31] 1.618590
  [32] 1.603175
  [33] 1.588050
##
  [34] 1.575534
## [35] 1.574026
## [36] 1.565004
## [37] 1.521380
```

```
## [38] 1.514109
   [39] 1.460034
  [40] 1.442857
  [41] 1.442857
   [42] 1.434419
##
  [43] 1.427827
  [44] 1.394065
  [45] 1.392231
   [46] 1.390253
  [47] 1.379781
  [48] 1.379781
  [49] 1.356532
##
   [50] 1.348124
  [51] 1.345036
  [52] 1.343838
   [53] 1.317678
##
   [54] 1.317678
   [55] 1.287056
   [56] 1.282540
   [57] 1.269180
##
   [58] 1.238817
  [59] 1.217601
  [60] 1.202381
##
   [61] 1.187894
##
   [62] 1.124304
        lhs
                                         support
                                                    confidence lift
##
   [1]
                          => {eggs=TRUE} 0.1287129 1.0000000
        {type=fish}
                                                               1.7118644
                                                               1.7118644
##
   [2]
        {type=bird}
                          => {eggs=TRUE} 0.1980198 1.0000000
##
   [3]
        {feathers=TRUE}
                          => {eggs=TRUE} 0.1980198 1.0000000
                                                               1.7118644
                          => {eggs=TRUE} 0.3861386 0.9750000
##
  [4]
        {toothed=FALSE}
                                                               1.6690678
##
  [5]
        {breathes=FALSE}
                         => {eggs=TRUE} 0.1980198 0.9523810
                                                               1.6303471
##
   [6]
        {hair=FALSE}
                          => {eggs=TRUE} 0.5346535 0.9310345
                                                               1.5938048
  [7]
        {airborne=TRUE}
                          => {eggs=TRUE} 0.2178218 0.9166667
                                                               1.5692090
##
  [8]
                          => {eggs=TRUE} 0.2970297 0.8333333
        {aquatic=TRUE}
                                                               1.4265537
   [9]
        {legs=FALSE}
                          => {eggs=TRUE} 0.1881188 0.8260870
                                                               1.4141489
##
  [10] {tail=FALSE}
                          => {eggs=TRUE} 0.1980198 0.7692308
                                                               1.3168188
  [11] {fins=TRUE}
                          => {eggs=TRUE} 0.1287129 0.7647059
  [12] {predator=TRUE}
                          => {eggs=TRUE} 0.3267327 0.5892857
##
                                                               1.0087772
   [13] {catsize=TRUE}
                          => {eggs=TRUE} 0.1287129 0.2954545
##
                                                               0.5057781
##
       lhs
                                         rhs
                                                       support
                                                                  confidence
  [1] {hair=TRUE,predator=TRUE}
                                      => {eggs=FALSE} 0.1881188 0.9500000
   [2] {aquatic=FALSE,predator=TRUE} => {eggs=FALSE} 0.1683168 0.6296296
   [3] {predator=TRUE,breathes=TRUE} => {eggs=FALSE} 0.2178218 0.5641026
##
##
       lift
  [1] 2.284524
   [2] 1.514109
##
   [3] 1.356532
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
  [1] {hair=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2871287 0.9666667
   [2] {toothed=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.8857143
   [3] {aquatic=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2574257 0.8387097
  [4] {feathers=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.8157895
## [5] {breathes=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.7948718
## [6] {legs=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2772277 0.7567568
```

```
## [7] {airborne=FALSE,catsize=TRUE} => {eggs=FALSE} 0.3069307 0.7560976
   [8] {predator=FALSE,catsize=TRUE} => {eggs=FALSE} 0.1188119 0.7500000
   [9] {fins=FALSE, catsize=TRUE}
                                      => {eggs=FALSE} 0.2673267 0.7500000
##
       lift
##
   [1] 2.324603
##
   [2] 2.129932
  [3] 2.016897
  [4] 1.961779
   [5] 1.911477
   [6] 1.819820
  [7] 1.818235
##
   [8] 1.803571
##
   [9] 1.803571
##
       "Número de reglas con consecuente negado"
##
                                                           support
##
   [1]
        {milk=TRUE,predator=TRUE}
                                            {catsize=TRUE} 0.1980198
                                           {catsize=TRUE} 0.1980198
##
   [2]
        {predator=TRUE, type=mammal}
   [3]
        {hair=TRUE, predator=TRUE}
                                         => {catsize=TRUE} 0.1782178
##
   [4]
        {eggs=FALSE,predator=TRUE}
                                         => {catsize=TRUE} 0.1881188
##
   [5]
        {hair=TRUE,airborne=FALSE}
                                            {catsize=TRUE} 0.2970297
##
   [6]
        {milk=TRUE,domestic=FALSE}
                                           {catsize=TRUE} 0.2574257
  [7]
        {domestic=FALSE, type=mammal}
                                            {catsize=TRUE} 0.2574257
  [8]
##
        {milk=TRUE}
                                            {catsize=TRUE} 0.3168317
##
  [9]
        {type=mammal}
                                            {catsize=TRUE} 0.3168317
  [10] {eggs=FALSE, venomous=FALSE}
                                           {catsize=TRUE} 0.3069307
  [11] {hair=TRUE,backbone=TRUE}
                                           {catsize=TRUE} 0.2970297
  [12] {hair=TRUE,tail=TRUE}
                                           {catsize=TRUE} 0.2475248
##
  [13] {eggs=FALSE,backbone=TRUE}
                                           {catsize=TRUE} 0.3069307
  [14] {eggs=FALSE}
                                         => {catsize=TRUE} 0.3069307
  [15] {hair=TRUE, venomous=FALSE}
                                         => {catsize=TRUE} 0.2970297
  [16] {hair=TRUE,domestic=FALSE}
                                         => {catsize=TRUE} 0.2376238
  [17] {hair=TRUE}
                                         => {catsize=TRUE} 0.2970297
  [18] {aquatic=FALSE, toothed=TRUE}
                                         => {catsize=TRUE} 0.2574257
  [19] {toothed=TRUE,legs=TRUE}
                                         => {catsize=TRUE} 0.2772277
   [20] {toothed=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.3069307
  [21] {airborne=FALSE,breathes=TRUE}
                                           {catsize=TRUE} 0.3564356
  [22] {airborne=FALSE,aquatic=FALSE}
                                            {catsize=TRUE} 0.2871287
  [23] {airborne=FALSE,legs=TRUE}
                                           {catsize=TRUE} 0.3366337
  [24] {predator=TRUE, toothed=TRUE}
                                            {catsize=TRUE} 0.2277228
  [25] {airborne=FALSE,backbone=TRUE}
                                           {catsize=TRUE} 0.3960396
  [26] {airborne=FALSE,tail=TRUE}
                                           {catsize=TRUE} 0.3465347
  [27] {toothed=TRUE,fins=FALSE}
                                           {catsize=TRUE} 0.2673267
## [28] {toothed=TRUE, venomous=FALSE}
                                         => {catsize=TRUE} 0.3366337
  [29] {aquatic=FALSE,predator=TRUE}
                                         => {catsize=TRUE} 0.1584158
## [30] {predator=TRUE,breathes=TRUE}
                                         => {catsize=TRUE} 0.2277228
  [31] {feathers=FALSE,backbone=TRUE}
                                         => {catsize=TRUE} 0.3663366
  [32] {aquatic=FALSE,backbone=TRUE}
                                         => {catsize=TRUE} 0.3069307
  [33] {feathers=FALSE,tail=TRUE}
                                         => {catsize=TRUE} 0.3168317
  [34] {toothed=TRUE,tail=TRUE}
                                         => {catsize=TRUE} 0.2970297
  [35] {predator=TRUE,backbone=TRUE}
                                         => {catsize=TRUE} 0.2673267
  [36] {backbone=TRUE,breathes=TRUE}
                                           {catsize=TRUE} 0.3861386
## [37] {airborne=FALSE, venomous=FALSE} =>
                                           {catsize=TRUE} 0.3960396
## [38] {backbone=TRUE,legs=TRUE}
                                         => {catsize=TRUE} 0.3564356
## [39] {legs=TRUE,tail=TRUE}
                                           {catsize=TRUE} 0.3168317
```

```
## [40] {breathes=TRUE,tail=TRUE}
                                          => {catsize=TRUE} 0.3366337
   [41] {aquatic=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.2673267
                                             {catsize=TRUE} 0.3267327
   [42] {airborne=FALSE,fins=FALSE}
   [43] {feathers=FALSE,breathes=TRUE}
                                             {catsize=TRUE} 0.3267327
##
   [44] {predator=TRUE,tail=TRUE}
                                             {catsize=TRUE} 0.2277228
##
   [45] {predator=TRUE, venomous=FALSE}
                                             {catsize=TRUE} 0.2673267
   [46] {predator=TRUE,legs=TRUE}
                                             {catsize=TRUE} 0.2079208
   [47] {feathers=FALSE,legs=TRUE}
                                             {catsize=TRUE} 0.3069307
##
   Γ481
       {feathers=FALSE,predator=TRUE}
                                             {catsize=TRUE} 0.2475248
   [49]
       {backbone=TRUE, venomous=FALSE}
                                             {catsize=TRUE} 0.4158416
   [50] {backbone=TRUE,fins=FALSE}
                                            {catsize=TRUE} 0.3465347
   [51]
       {feathers=FALSE, aquatic=FALSE}
                                            {catsize=TRUE} 0.2673267
   [52]
        {fins=FALSE,tail=TRUE}
                                             {catsize=TRUE} 0.3069307
   [53]
       {venomous=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3663366
       {backbone=TRUE,domestic=FALSE}
   [54]
                                            {catsize=TRUE} 0.3663366
   [55]
        {breathes=TRUE, venomous=FALSE}
                                             {catsize=TRUE} 0.3861386
##
   [56]
        {aquatic=FALSE, venomous=FALSE}
                                             {catsize=TRUE} 0.3069307
        {feathers=FALSE, venomous=FALSE} =>
                                             {catsize=TRUE} 0.3663366
   [58]
       {venomous=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3663366
   [59]
       {aquatic=FALSE}
                                             {catsize=TRUE} 0.3069307
##
   [60]
       {aquatic=TRUE}
                                            {catsize=TRUE} 0.1287129
                                            {catsize=TRUE} 0.1386139
##
   [61]
       {hair=FALSE}
                                          => {catsize=TRUE} 0.1188119
##
   [62] {milk=FALSE}
##
        confidence lift
                   2.0867769
##
   [1]
        0.9090909
   [2]
        0.9090909
                   2.0867769
   [3]
        0.9000000
                   2.0659091
##
##
   [4]
        0.8260870
                    1.8962451
   [5]
##
        0.8108108
                    1.8611794
                    1.8085399
##
   [6]
        0.7878788
##
   [7]
        0.7878788
                    1.8085399
##
   [8]
        0.7804878
                    1.7915743
   [9]
        0.7804878
                    1.7915743
   [10]
       0.7750000
                    1.7789773
        0.7692308
   [11]
                    1.7657343
##
   [12] 0.7575758
                    1.7389807
   [13] 0.7560976
                    1.7355876
   [14] 0.7380952
##
                    1.6942641
   [15] 0.7317073
                    1.6796009
   [16] 0.7058824
                    1.6203209
   [17] 0.6976744
                    1.6014799
   [18] 0.6842105
                    1.5705742
   [19] 0.6666667
                    1.5303030
   [20] 0.6595745
                    1.5140232
                    1.4756494
   [21] 0.6428571
   [22] 0.6304348
                    1.4471344
                    1.4452862
##
   [23] 0.6296296
   [24] 0.6216216
                    1.4269042
   [25] 0.6153846
                    1.4125874
   [26] 0.6140351
                    1.4094896
##
   [27]
       0.6136364
                    1.4085744
  [28] 0.5964912
                    1.3692185
## [29] 0.5925926
                    1.3602694
                   1.3537296
## [30] 0.5897436
```

```
[31] 0.5873016
                    1.3481241
   [32] 0.5849057
                    1.3426244
   [33] 0.5818182
                    1.3355372
   [34] 0.5769231
                    1.3243007
   [35] 0.5744681
                    1.3186654
##
   [36] 0.5652174
                    1.2974308
   [37] 0.5633803
                    1.2932138
   [38] 0.5625000
                    1.2911932
   [39] 0.5614035
                    1.2886762
   [40] 0.5573770
                    1.2794337
   [41] 0.5510204
                    1.2648423
   [42] 0.5500000
                    1.2625000
                    1.2625000
   [43] 0.5500000
   [44] 0.5476190
                    1.2570346
   [45] 0.5400000
                    1.2395455
   [46] 0.5384615
                    1.2360140
   [47] 0.5344828
                    1.2268809
   [48] 0.5319149
                    1.2209865
   [49] 0.5316456
                    1.2203682
   [50] 0.5303030
                    1.2172865
##
   [51] 0.5294118
                    1.2152406
   [52] 0.5254237
                    1.2060863
                    1.1962228
   [53] 0.5211268
##
   [54] 0.5211268
                    1.1962228
   [55] 0.5200000
                    1.1936364
   [56] 0.5081967
                    1.1665425
   [57]
        0.5068493
                    1.1634496
##
   [58] 0.5000000
                    1.1477273
   [59] 0.4769231
                    1.0947552
   [60] 0.3611111
                    0.8289141
##
   [61]
        0.2413793
                    0.5540752
##
   [62]
        0.2000000
                   0.4590909
##
        lhs
                                                         confidence lift
                                              support
##
   [1]
        {backbone=FALSE} => {catsize=FALSE} 0.1683168 0.9444444
                                                                    1.6734893
##
   [2]
        {airborne=TRUE}
                          => {catsize=FALSE} 0.2079208 0.8750000
                                                                     1.5504386
##
   [3]
        {milk=FALSE}
                          => {catsize=FALSE} 0.4752475 0.8000000
                                                                    1.4175439
##
   [4]
        {eggs=TRUE}
                          => {catsize=FALSE} 0.4554455 0.7796610
                                                                     1.3815046
##
   [5]
        {tail=FALSE}
                          => {catsize=FALSE} 0.1980198 0.7692308
                                                                    1.3630229
   [6]
        {breathes=FALSE} =>
                             {catsize=FALSE} 0.1584158 0.7619048
##
                                                                     1.3500418
                             {catsize=FALSE} 0.1386139 0.7000000
##
   [7]
        {type=bird}
                                                                     1.2403509
                             {catsize=FALSE} 0.1386139 0.7000000
   [8]
        {feathers=TRUE}
                                                                    1.2403509
   [9]
        {legs=FALSE}
                          => {catsize=FALSE} 0.1584158 0.6956522
##
                                                                    1.2326468
##
   Γ10]
       {aquatic=TRUE}
                          => {catsize=FALSE} 0.2277228 0.6388889
                                                                     1.1320663
                          => {catsize=FALSE} 0.2772277 0.5000000
##
       {predator=TRUE}
                                                                    0.8859649
   [12] {airborne=FALSE}
                          => {catsize=FALSE} 0.3564356 0.4675325
                                                                     0.8284347
                          => {catsize=FALSE} 0.1287129 0.3023256
##
   [13]
        {hair=TRUE}
                                                                     0.5356997
##
   [14]
        {eggs=FALSE}
                          => {catsize=FALSE} 0.1089109 0.2619048
                                                                    0.4640769
##
        lhs
                                                            support
                                                                       confidence
##
   [1]
        {milk=TRUE, predator=TRUE}
                                         => {catsize=TRUE} 0.1980198 0.9090909
##
   [2]
        {predator=TRUE, type=mammal}
                                         => {catsize=TRUE} 0.1980198 0.9090909
   [3]
##
        {hair=TRUE, predator=TRUE}
                                         => {catsize=TRUE} 0.1782178 0.9000000
##
   [4]
        {eggs=FALSE,predator=TRUE}
                                         => {catsize=TRUE} 0.1881188 0.8260870
##
   [5]
        {predator=TRUE, toothed=TRUE}
                                         => {catsize=TRUE} 0.2277228 0.6216216
  [6]
        {aquatic=FALSE, predator=TRUE}
                                         => {catsize=TRUE} 0.1584158 0.5925926
```

```
{predator=TRUE,breathes=TRUE} => {catsize=TRUE} 0.2277228 0.5897436
       {predator=TRUE,backbone=TRUE} => {catsize=TRUE} 0.2673267 0.5744681
## [8]
       {predator=TRUE,tail=TRUE}
                                       => {catsize=TRUE} 0.2277228 0.5476190
## [10] {predator=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2673267 0.5400000
## [11] {predator=TRUE,legs=TRUE}
                                       => {catsize=TRUE} 0.2079208 0.5384615
## [12] {feathers=FALSE,predator=TRUE} => {catsize=TRUE} 0.2475248 0.5319149
##
        lift
## [1]
       2.086777
## [2]
        2.086777
## [3]
       2.065909
## [4]
        1.896245
## [5]
        1.426904
##
  [6]
        1.360269
## [7]
        1.353730
## [8]
        1.318665
## [9]
        1.257035
## [10] 1.239545
## [11] 1.236014
## [12] 1.220986
##
       lhs
                                           rhs
                                                          support
                                                                    confidence
## [1] {hair=TRUE,airborne=FALSE}
                                       => {catsize=TRUE} 0.2970297 0.8108108
## [2] {airborne=FALSE,breathes=TRUE}
                                       => {catsize=TRUE} 0.3564356 0.6428571
## [3] {airborne=FALSE,aquatic=FALSE}
                                       => {catsize=TRUE} 0.2871287 0.6304348
## [4] {airborne=FALSE,legs=TRUE}
                                        => {catsize=TRUE} 0.3366337 0.6296296
## [5] {airborne=FALSE,backbone=TRUE}
                                       => {catsize=TRUE} 0.3960396 0.6153846
                                       => {catsize=TRUE} 0.3465347 0.6140351
## [6] {airborne=FALSE,tail=TRUE}
## [7] {airborne=FALSE,venomous=FALSE} => {catsize=TRUE} 0.3960396 0.5633803
  [8] {airborne=FALSE,fins=FALSE}
                                       => {catsize=TRUE} 0.3267327 0.5500000
##
##
       lift
## [1] 1.861179
## [2] 1.475649
## [3] 1.447134
## [4] 1.445286
## [5] 1.412587
## [6] 1.409490
## [7] 1.293214
## [8] 1.262500
##
       lhs
                                     rhs
                                                     support
                                                               confidence
## [1] {hair=TRUE,predator=TRUE} => {catsize=TRUE} 0.1782178 0.9000000
## [2] {hair=TRUE,airborne=FALSE} => {catsize=TRUE} 0.2970297 0.8108108
## [3] {hair=TRUE,backbone=TRUE} => {catsize=TRUE} 0.2970297 0.7692308
## [4] {hair=TRUE,tail=TRUE}
                                  => {catsize=TRUE} 0.2475248 0.7575758
## [5] {hair=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2970297 0.7317073
  [6] {hair=TRUE,domestic=FALSE} => {catsize=TRUE} 0.2376238 0.7058824
##
       lift
## [1] 2.065909
## [2] 1.861179
## [3] 1.765734
## [4] 1.738981
## [5] 1.679601
## [6] 1.620321
##
       lhs
                                      rhs
                                                      support
## [1] {eggs=FALSE,predator=TRUE} => {catsize=TRUE} 0.1881188 0.8260870
## [2] {eggs=FALSE,venomous=FALSE} => {catsize=TRUE} 0.3069307 0.7750000
```

```
[3] {eggs=FALSE,backbone=TRUE} => {catsize=TRUE} 0.3069307 0.7560976
##
       lift.
  [1] 1.896245
##
   [2] 1.778977
   [3]
      1.735588
##
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                        support
                                                                  confidence
##
  [1]
        {milk=TRUE, predator=FALSE}
                                         => {hair=TRUE} 0.1881188 1.0000000
##
   [2]
        {milk=TRUE,aquatic=FALSE}
                                           {hair=TRUE} 0.3465347 1.0000000
##
   [3]
        {milk=TRUE,legs=TRUE}
                                           {hair=TRUE} 0.3762376 1.0000000
   [4]
        {milk=TRUE,fins=FALSE}
                                           {hair=TRUE} 0.3663366 1.0000000
        {predator=FALSE, type=mammal}
##
   [5]
                                           {hair=TRUE} 0.1881188 1.0000000
##
   [6]
        {aquatic=FALSE, type=mammal}
                                            {hair=TRUE} 0.3465347 1.0000000
##
   [7]
        {legs=TRUE, type=mammal}
                                            {hair=TRUE} 0.3762376 1.0000000
  [8]
##
        {fins=FALSE,type=mammal}
                                           {hair=TRUE} 0.3663366 1.0000000
##
   [9]
        {eggs=FALSE,predator=FALSE}
                                            {hair=TRUE} 0.1881188 1.0000000
  [10] {eggs=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3663366 0.9736842
  [11] {eggs=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3465347 0.9722222
  [12] {milk=TRUE}
                                            {hair=TRUE} 0.3861386 0.9512195
  [13] {type=mammal}
                                            {hair=TRUE} 0.3861386 0.9512195
  [14] {eggs=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.9500000
  [15] {eggs=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3564356 0.9473684
  [16] {eggs=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.9268293
##
  [17] {aquatic=FALSE,toothed=TRUE}
                                            {hair=TRUE} 0.3465347 0.9210526
  [18] {eggs=FALSE}
                                            {hair=TRUE} 0.3762376 0.9047619
  [19] {toothed=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3663366 0.8809524
                                            {hair=TRUE} 0.2574257 0.8387097
  [20] {aquatic=FALSE,catsize=TRUE}
  [21] {toothed=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2871287 0.8285714
## [22] {toothed=TRUE,fins=FALSE}
                                           {hair=TRUE} 0.3564356 0.8181818
## [23] {toothed=TRUE,breathes=TRUE}
                                         => {hair=TRUE} 0.3762376 0.8085106
  [24] {predator=FALSE,toothed=TRUE}
                                           {hair=TRUE} 0.1881188 0.7916667
   [25]
       {feathers=FALSE, catsize=TRUE}
                                           {hair=TRUE} 0.2970297 0.7894737
   [26] {legs=TRUE,catsize=TRUE}
                                           {hair=TRUE} 0.2871287 0.7837838
  [27] {fins=FALSE,catsize=TRUE}
                                           {hair=TRUE} 0.2772277 0.7777778
       {breathes=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2970297 0.7692308
  [29] {feathers=FALSE, aquatic=FALSE}
                                            {hair=TRUE} 0.3861386 0.7647059
  [30] {predator=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.1188119 0.7500000
  [31] {feathers=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.7241379
  [32] {airborne=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3267327 0.7173913
  [33] {feathers=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.4257426 0.7166667
  [34] {feathers=FALSE,predator=FALSE} =>
                                            {hair=TRUE} 0.2277228 0.6764706
  [35] {toothed=TRUE, venomous=FALSE}
                                           {hair=TRUE} 0.3762376 0.6666667
  [36] {airborne=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3564356 0.6666667
  [37] {airborne=FALSE,breathes=TRUE}
                                           {hair=TRUE} 0.3663366 0.6607143
  [38] {aquatic=FALSE,backbone=TRUE}
                                           {hair=TRUE} 0.3465347 0.6603774
   [39]
       {aquatic=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.3861386 0.6500000
   [40] {feathers=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.4059406 0.6406250
  [41] {toothed=TRUE}
                                           {hair=TRUE} 0.3762376 0.6229508
  [42] {feathers=FALSE,backbone=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6190476
  [43] {aquatic=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.2970297 0.6122449
## [44] {aquatic=FALSE,breathes=TRUE}
                                           {hair=TRUE} 0.3861386 0.6093750
## [45] {airborne=FALSE, predator=FALSE} =>
                                           {hair=TRUE} 0.1683168 0.6071429
## [46] {aquatic=FALSE, venomous=FALSE}
                                           {hair=TRUE} 0.3663366 0.6065574
## [47] {feathers=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.3267327 0.6000000
```

```
## [48] {backbone=TRUE,legs=TRUE}
                                         => {hair=TRUE} 0.3762376 0.5937500
                                           {hair=TRUE} 0.2277228 0.5897436
  [49] {predator=FALSE,legs=TRUE}
  [50] {airborne=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.3465347 0.5833333
  [51] {legs=TRUE,tail=TRUE}
                                           {hair=TRUE} 0.3267327 0.5789474
##
  [52] {breathes=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.5753425
##
  [53] {airborne=FALSE,backbone=TRUE}
                                           {hair=TRUE} 0.3663366 0.5692308
  [54] {backbone=TRUE.breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.5652174
  [55] {feathers=FALSE, venomous=FALSE} =>
                                            {hair=TRUE} 0.4059406 0.5616438
   [56]
       {predator=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.2277228 0.5609756
   [57] {predator=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.2277228 0.5609756
  [58] {backbone=TRUE,fins=FALSE}
                                         => {hair=TRUE} 0.3663366 0.5606061
                                         => {hair=TRUE} 0.4059406 0.5466667
  [59] {breathes=TRUE, venomous=FALSE}
  [60] {airborne=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.3069307 0.5438596
  [61] {fins=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.3168317 0.5423729
  [62] {breathes=TRUE,tail=TRUE}
                                         => {hair=TRUE} 0.3267327 0.5409836
   [63]
        {venomous=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.3960396 0.5405405
   [64]
                                           {hair=TRUE} 0.4059406 0.5394737
       {breathes=TRUE,fins=FALSE}
   [65] {predator=FALSE,backbone=TRUE}
                                           {hair=TRUE} 0.1881188 0.5277778
   [66] {airborne=FALSE, venomous=FALSE} =>
                                           {hair=TRUE} 0.3663366 0.5211268
   [67] {predator=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.1683168 0.5151515
##
  [68] {predator=FALSE}
                                           {hair=TRUE} 0.2277228 0.5111111
                                           {hair=TRUE} 0.3861386 0.5064935
  [69] {venomous=FALSE,fins=FALSE}
## [70] {backbone=TRUE, venomous=FALSE}
                                            {hair=TRUE} 0.3861386 0.4936709
   [71] {backbone=TRUE}
                                           {hair=TRUE} 0.3861386 0.4698795
  [72] {venomous=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.3267327 0.4647887
   [73] {domestic=FALSE}
                                         => {hair=TRUE} 0.3366337 0.3863636
##
        lift
##
   [1]
        2.3488372
##
   [2]
        2.3488372
##
  [3]
        2.3488372
##
  [4]
        2.3488372
##
   [5]
        2.3488372
##
   [6]
        2.3488372
  [7]
        2.3488372
##
   [8]
        2.3488372
##
   [9]
       2.3488372
  [10] 2.2870257
## [11] 2.2835917
  [12] 2.2342598
##
  [13] 2.2342598
  [14] 2.2313953
  [15] 2.2252142
  [16] 2.1769711
## [17] 2.1634027
## [18] 2.1251384
## [19] 2.0692137
  [20] 1.9699925
  [21] 1.9461794
  [22] 1.9217759
## [23] 1.8990599
## [24] 1.8594961
## [25] 1.8543452
## [26] 1.8409805
## [27] 1.8268734
```

```
## [28] 1.8067979
  [29] 1.7961696
  [30] 1.7616279
  [31] 1.7008821
   [32] 1.6850354
##
  [33] 1.6833333
  [34] 1.5889193
  [35] 1.5658915
##
   [36] 1.5658915
   [37] 1.5519103
  [38] 1.5511189
   [39] 1.5267442
   [40] 1.5047238
  [41] 1.4632101
## [42] 1.4540421
   [43] 1.4380636
  [44] 1.4313227
  [45] 1.4260797
  [46] 1.4247045
  [47] 1.4093023
##
  [48] 1.3946221
  [49] 1.3852117
  [50] 1.3701550
   [51] 1.3598531
##
  [52] 1.3513858
  [53] 1.3370304
   [54] 1.3276036
##
   [55] 1.3192099
   [56] 1.3176404
   [57] 1.3176404
   [58] 1.3167724
##
   [59] 1.2840310
   [60] 1.2774378
   [61] 1.2739456
   [62] 1.2706824
##
   [63] 1.2696417
  [64] 1.2671359
  [65] 1.2396641
   [66] 1.2240419
##
   [67] 1.2100070
   [68] 1.2005168
   [69] 1.1896708
   [70] 1.1595525
  [71] 1.1036705
  [72] 1.0917131
  [73] 0.9075053
##
##
        lhs
                             rhs
                                          support
                                                     confidence lift
##
  [1]
        {type=fish}
                          => {hair=FALSE} 0.1287129 1.0000000
   [2]
        {breathes=FALSE} => {hair=FALSE} 0.2079208 1.0000000
                                                                1.7413793
##
   [3]
        {legs=FALSE}
                          => {hair=FALSE} 0.2178218 0.9565217
                                                                1.6656672
                          => {hair=FALSE} 0.3168317 0.8888889
##
   [4]
        {aquatic=TRUE}
                                                                1.5478927
##
   [5]
        {toothed=FALSE}
                         => {hair=FALSE} 0.3465347 0.8750000
##
  [6]
        {backbone=FALSE} => {hair=FALSE} 0.1386139 0.7777778
                                                                1.3544061
## [7]
        {catsize=FALSE} => {hair=FALSE} 0.4356436 0.7719298 1.3442226
```

```
{airborne=TRUE}
                         => {hair=FALSE} 0.1782178 0.7500000 1.3060345
                         => {hair=FALSE} 0.3564356 0.6428571
##
  [9]
        {predator=TRUE}
                                                               1.1194581
  [10] {tail=FALSE}
                          => {hair=FALSE} 0.1584158 0.6153846
  [11] {backbone=TRUE}
                         => {hair=FALSE} 0.4356436 0.5301205
                                                                0.9231408
   [12] {breathes=TRUE}
                         => {hair=FALSE} 0.3663366 0.4625000
                                                                0.8053879
  [13] {legs=TRUE}
                         => {hair=FALSE} 0.3564356 0.4615385
##
                                                                0.8037135
##
  [14] {aquatic=FALSE}
                         => {hair=FALSE} 0.2574257 0.4000000
                                                                0.6965517
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
##
   [1] {aquatic=FALSE,backbone=TRUE} => {hair=TRUE} 0.3465347 0.6603774
   [2] {feathers=FALSE,backbone=TRUE} => {hair=TRUE} 0.3861386 0.6190476
  [3] {backbone=TRUE,legs=TRUE}
                                       => {hair=TRUE} 0.3762376 0.5937500
   [4] {airborne=FALSE,backbone=TRUE} => {hair=TRUE} 0.3663366 0.5692308
   [5] {backbone=TRUE,breathes=TRUE} => {hair=TRUE} 0.3861386 0.5652174
   [6] {backbone=TRUE,fins=FALSE}
                                       => {hair=TRUE} 0.3663366 0.5606061
  [7] {predator=FALSE,backbone=TRUE} => {hair=TRUE} 0.1881188 0.5277778
##
   [8] {backbone=TRUE, venomous=FALSE} => {hair=TRUE} 0.3861386 0.4936709
##
       lift
##
  [1] 1.551119
  [2] 1.454042
##
   [3] 1.394622
##
  [4] 1.337030
  [5] 1.327604
  [6] 1.316772
##
   [7] 1.239664
  [8] 1.159553
##
##
        lhs
                                           rhs
                                                        support
                                                                  confidence
##
        {eggs=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3762376 0.9268293
   [1]
##
   [2]
        {toothed=TRUE,breathes=TRUE}
                                        => {hair=TRUE} 0.3762376 0.8085106
##
  [3]
        {breathes=TRUE, catsize=TRUE}
                                        => {hair=TRUE} 0.2970297 0.7692308
##
  [4]
        {feathers=FALSE,breathes=TRUE} => {hair=TRUE} 0.4257426 0.7166667
##
  [5]
        {airborne=FALSE,breathes=TRUE} => {hair=TRUE} 0.3663366 0.6607143
##
   [6]
        {aquatic=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6093750
##
  [7]
        {breathes=TRUE,legs=TRUE}
                                        => {hair=TRUE} 0.4158416 0.5753425
  [8]
##
        {backbone=TRUE,breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.5652174
   [9]
        {predator=FALSE,breathes=TRUE} => {hair=TRUE} 0.2277228 0.5609756
  [10] {breathes=TRUE, venomous=FALSE} => {hair=TRUE} 0.4059406 0.5466667
##
  [11] {breathes=TRUE,tail=TRUE}
                                        => {hair=TRUE} 0.3267327 0.5409836
  [12] {breathes=TRUE,fins=FALSE}
                                        => {hair=TRUE} 0.4059406 0.5394737
##
##
        lift
##
        2.176971
  [1]
   [2]
        1.899060
   [3]
        1.806798
##
##
   [4]
        1.683333
##
   [5]
        1.551910
##
  [6]
        1.431323
  [7]
##
        1.351386
##
   [8]
        1.327604
##
  [9]
        1.317640
  [10] 1.284031
##
   [11]
       1.270682
   [12]
##
       1.267136
##
        lhs
                                       rhs
                                                   support
                                                              confidence
## [1]
        {milk=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.3762376 1.0000000
## [2]
        {legs=TRUE, type=mammal}
                                    => {hair=TRUE} 0.3762376 1.0000000
```

```
## [3]
        {eggs=FALSE,legs=TRUE}
                                    => {hair=TRUE} 0.3663366 0.9736842
##
   [4]
                                    => {hair=TRUE} 0.3663366 0.8809524
        {toothed=TRUE,legs=TRUE}
   [5]
        {legs=TRUE,catsize=TRUE}
                                    => {hair=TRUE} 0.2871287 0.7837838
   [6]
        {feathers=FALSE,legs=TRUE} => {hair=TRUE} 0.4158416 0.7241379
##
##
   [7]
        {airborne=FALSE,legs=TRUE} => {hair=TRUE} 0.3564356 0.6666667
##
        {aquatic=FALSE,legs=TRUE}
   [8]
                                    => {hair=TRUE} 0.3861386 0.6500000
   [9]
        {backbone=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.3762376 0.5937500
   [10] {predator=FALSE,legs=TRUE} => {hair=TRUE} 0.2277228 0.5897436
##
   [11] {legs=TRUE,tail=TRUE}
                                    => {hair=TRUE} 0.3267327 0.5789474
   [12] {breathes=TRUE,legs=TRUE} => {hair=TRUE} 0.4158416 0.5753425
       {venomous=FALSE,legs=TRUE} => {hair=TRUE} 0.3960396 0.5405405
##
        lift
##
   [1]
        2.348837
##
   [2]
        2.348837
   [3]
##
        2.287026
##
   [4]
        2.069214
   [5]
##
        1.840981
   [6]
        1.700882
##
   [7]
##
        1.565891
##
   [8]
        1.526744
##
   [9]
        1.394622
  [10] 1.385212
  [11] 1.359853
##
   [12] 1.351386
##
   [13] 1.269642
        lhs
                                            rhs
                                                        support
                                                                  confidence
##
   [1]
        {milk=TRUE,aquatic=FALSE}
                                        => {hair=TRUE} 0.3465347 1.0000000
##
   [2]
        {aquatic=FALSE, type=mammal}
                                        => {hair=TRUE} 0.3465347 1.0000000
   [3]
##
        {eggs=FALSE,aquatic=FALSE}
                                        => {hair=TRUE} 0.3465347 0.9722222
##
  [4]
        {aquatic=FALSE,toothed=TRUE}
                                        => {hair=TRUE} 0.3465347 0.9210526
##
   [5]
        {aquatic=FALSE, catsize=TRUE}
                                           {hair=TRUE} 0.2574257 0.8387097
##
   [6]
        {feathers=FALSE,aquatic=FALSE} =>
                                           {hair=TRUE} 0.3861386 0.7647059
##
   [7]
        {airborne=FALSE,aquatic=FALSE} =>
                                           {hair=TRUE} 0.3267327 0.7173913
   [8]
##
        {aquatic=FALSE,backbone=TRUE}
                                        => {hair=TRUE} 0.3465347 0.6603774
   [9]
        {aquatic=FALSE,legs=TRUE}
                                         => {hair=TRUE} 0.3861386 0.6500000
##
   [10] {aquatic=FALSE,tail=TRUE}
                                        => {hair=TRUE} 0.2970297 0.6122449
   [11] {aquatic=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6093750
   [12] {aquatic=FALSE, venomous=FALSE} => {hair=TRUE} 0.3663366 0.6065574
##
##
        lift
        2.348837
##
   [1]
   [2]
        2.348837
   [3]
        2.283592
##
##
   [4]
        2.163403
##
   [5]
        1.969992
##
   [6]
        1.796170
   [7]
##
        1.685035
##
   [8]
        1.551119
##
   [9]
        1.526744
  [10] 1.438064
   [11] 1.431323
##
   [12] 1.424705
##
   [1] "Número de reglas con consecuente negado"
##
                                            rhs
        lhs
                                                         support
                                                                    confidence
## [1] {hair=TRUE,eggs=FALSE}
                                         => {milk=TRUE} 0.3762376 1.0000000
```

```
{eggs=FALSE,catsize=TRUE}
   [2]
                                         => {milk=TRUE} 0.3069307 1.0000000
##
   [3]
        {eggs=FALSE,predator=FALSE}
                                            {milk=TRUE} 0.1881188 1.0000000
        {eggs=FALSE, venomous=FALSE}
##
   [4]
                                            {milk=TRUE} 0.3960396 1.0000000
                                            {milk=TRUE} 0.2970297 1.0000000
   [5]
        {hair=TRUE,catsize=TRUE}
##
##
   [6]
        {hair=TRUE, predator=TRUE}
                                            {milk=TRUE} 0.1980198 1.0000000
##
   [7]
        {hair=TRUE, toothed=TRUE}
                                            {milk=TRUE} 0.3762376 1.0000000
##
   [8]
        {hair=TRUE.tail=TRUE}
                                            {milk=TRUE} 0.3267327 1.0000000
##
   [9]
        {hair=TRUE,airborne=FALSE}
                                            {milk=TRUE} 0.3663366 1.0000000
##
   Γ107
       {hair=TRUE,backbone=TRUE}
                                            fmilk=TRUE} 0.3861386 1.0000000
   [11] {eggs=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.9756098
   [12] {eggs=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3960396 0.9756098
   [13] {eggs=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3663366 0.9736842
   [14] {hair=TRUE, venomous=FALSE}
                                            {milk=TRUE} 0.3861386 0.9512195
   [15] {aquatic=FALSE,toothed=TRUE}
                                            {milk=TRUE} 0.3465347 0.9210526
   [16] {hair=TRUE,domestic=FALSE}
                                            {milk=TRUE} 0.3069307 0.9117647
        {toothed=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3069307 0.8857143
   Γ17]
       {toothed=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3663366 0.8809524
   [18]
   [19] {toothed=TRUE,breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.8510638
   [20] {feathers=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.8421053
   [21] {aquatic=FALSE, catsize=TRUE}
                                            {milk=TRUE} 0.2574257 0.8387097
##
  [22] {breathes=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.8205128
  [23] {toothed=TRUE,fins=FALSE}
                                            {milk=TRUE} 0.3564356 0.8181818
  [24] {predator=FALSE,toothed=TRUE}
                                            {milk=TRUE} 0.1881188 0.7916667
   [25]
       {legs=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2871287 0.7837838
   [26] {airborne=FALSE, catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.7804878
   [27] {fins=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.2772277 0.7777778
                                            {milk=TRUE} 0.1188119 0.7500000
   [28] {predator=FALSE,catsize=TRUE}
   [29] {backbone=TRUE, catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.7441860
   [30] {venomous=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
   [31] {airborne=FALSE,aquatic=FALSE}
                                           {milk=TRUE} 0.3267327 0.7173913
   [32]
        {toothed=TRUE, venomous=FALSE}
                                            {milk=TRUE} 0.3960396 0.7017544
##
   [33]
        {airborne=FALSE, breathes=TRUE}
                                            {milk=TRUE} 0.3861386 0.6964286
   [34] {feathers=FALSE, aquatic=FALSE}
                                            {milk=TRUE} 0.3465347 0.6862745
   [35] {feathers=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.4059406 0.6833333
   [36] {airborne=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3564356 0.6666667
##
   [37] {aquatic=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3465347 0.6603774
   [38] {toothed=TRUE}
                                            {milk=TRUE} 0.3960396 0.6557377
   [39] {feathers=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.6551724
##
       {feathers=FALSE, backbone=TRUE}
                                            {milk=TRUE} 0.4059406 0.6507937
   [40]
##
   [41] {feathers=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.3465347 0.6363636
   [42] {aquatic=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.2970297 0.6122449
   [43] {airborne=FALSE, predator=FALSE} =>
                                            {milk=TRUE} 0.1683168 0.6071429
##
   [44]
       {airborne=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 0.6000000
       {backbone=TRUE, breathes=TRUE}
##
  [45]
                                            {milk=TRUE} 0.4059406 0.5942029
  [46] {backbone=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.5937500
   [47]
        {aquatic=FALSE, predator=TRUE}
                                            {milk=TRUE} 0.1584158 0.5925926
##
   [48]
       {aquatic=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3465347 0.5833333
   [49]
       {airborne=FALSE,fins=FALSE}
                                            {milk=TRUE} 0.3465347 0.5833333
   [50] {airborne=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 0.5789474
   [51] {legs=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 0.5789474
##
   [52]
       {feathers=FALSE,fins=FALSE}
                                            {milk=TRUE} 0.3663366 0.5781250
  [53] {aquatic=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3465347 0.5737705
## [54] {breathes=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.5737705
## [55] {predator=TRUE, breathes=TRUE}
                                            {milk=TRUE} 0.2178218 0.5641026
```

```
## [56] {feathers=FALSE,venomous=FALSE} => {milk=TRUE} 0.4059406 0.5616438
   [57] {backbone=TRUE,fins=FALSE}
                                         => {milk=TRUE} 0.3663366 0.5606061
  [58] {feathers=FALSE,predator=FALSE} => {milk=TRUE} 0.1881188 0.5588235
  [59] {airborne=FALSE, venomous=FALSE} => {milk=TRUE} 0.3861386 0.5492958
   [60] {aquatic=FALSE,breathes=TRUE}
##
                                         => {milk=TRUE} 0.3465347 0.5468750
  [61] {breathes=TRUE, venomous=FALSE}
                                         => {milk=TRUE} 0.4059406 0.5466667
  [62] {fins=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3168317 0.5423729
  [63] {feathers=FALSE,airborne=FALSE} =>
                                           {milk=TRUE} 0.3861386 0.5342466
   [64] {predator=FALSE,backbone=TRUE}
                                         =>
                                            {milk=TRUE} 0.1881188 0.5277778
   [65] {breathes=TRUE,legs=TRUE}
                                         => {milk=TRUE} 0.3762376 0.5205479
   [66] {backbone=TRUE, venomous=FALSE}
                                         => {milk=TRUE} 0.4059406 0.5189873
                                           {milk=TRUE} 0.1683168 0.5151515
   [67] {predator=FALSE,tail=TRUE}
   [68] {venomous=FALSE,legs=TRUE}
                                         => {milk=TRUE} 0.3762376 0.5135135
  [69] {feathers=FALSE}
                                         => {milk=TRUE} 0.4059406 0.5061728
                                         => {milk=TRUE} 0.3465347 0.4929577
## [70] {venomous=FALSE,tail=TRUE}
        {venomous=FALSE,fins=FALSE}
                                         => {milk=TRUE} 0.3663366 0.4805195
   [72] {predator=FALSE, venomous=FALSE} => {milk=TRUE} 0.1881188 0.4418605
   [73] {predator=TRUE}
                                         => {milk=TRUE} 0.2178218 0.3928571
##
        lift
##
   [1]
        2.463415
##
  [2]
        2.463415
  [3]
        2.463415
  [4]
        2.463415
##
##
   [5]
        2.463415
##
  [6]
        2.463415
  [7]
        2.463415
   [8]
##
        2.463415
##
   [9]
        2.463415
  [10] 2.463415
## [11] 2.403331
## [12] 2.403331
  [13] 2.398588
  [14] 2.343248
  [15] 2.268935
   [16] 2.246055
##
  [17] 2.181882
## [18] 2.170151
## [19] 2.096523
  [20] 2.074454
  [21] 2.066090
  [22] 2.021263
  [23] 2.015521
  [24] 1.950203
  [25] 1.930784
## [26] 1.922665
## [27] 1.915989
  [28] 1.847561
  [29] 1.833239
  [30] 1.833239
  [31] 1.767232
##
  [32] 1.728712
## [33] 1.715592
## [34] 1.690579
## [35] 1.683333
```

```
## [36] 1.642276
   [37] 1.626783
   [38] 1.615354
   [39] 1.613961
   [40] 1.603175
##
  [41] 1.567627
  [42] 1.508213
## [43] 1.495645
   [44] 1.478049
   [45] 1.463768
   [46] 1.462652
   [47] 1.459801
   [48] 1.436992
  [49] 1.436992
   [50] 1.426187
   [51] 1.426187
##
   [52] 1.424162
   [53] 1.413435
   [54] 1.413435
   [55] 1.389619
##
   [56] 1.383562
   [57] 1.381005
   [58] 1.376614
##
   [59] 1.353143
##
   [60] 1.347180
   [61] 1.346667
   [62] 1.336089
##
   [63] 1.316071
   [64] 1.300136
   [65] 1.282325
   [66] 1.278481
##
   [67] 1.269032
   [68] 1.264997
   [69] 1.246914
   [70] 1.214359
##
   [71] 1.183719
   [72] 1.088486
##
   [73] 0.967770
##
        lhs
                                           support
                                                     confidence lift
                             rhs
##
                          => {milk=FALSE} 0.1287129 1.0000000
   [1]
        {type=fish}
                                                                1.6833333
        {backbone=FALSE} => {milk=FALSE} 0.1782178 1.0000000
   [2]
                                                                1.6833333
##
   [3]
        {type=bird}
                          => {milk=FALSE} 0.1980198 1.0000000
                                                                1.6833333
##
   [4]
        {feathers=TRUE}
                          => {milk=FALSE} 0.1980198 1.0000000
                                                                1.6833333
##
   [5]
        {breathes=FALSE} => {milk=FALSE} 0.2079208 1.0000000
                                                                1.6833333
                                                                1.6548023
##
   [6]
        {eggs=TRUE}
                          => {milk=FALSE} 0.5742574 0.9830508
                          => {milk=FALSE} 0.5544554 0.9655172
   [7]
##
        {hair=FALSE}
                                                                 1.6252874
##
   [8]
        {airborne=TRUE}
                             {milk=FALSE} 0.2178218 0.9166667
                                                                 1.5430556
   [9]
        {legs=FALSE}
                          => {milk=FALSE} 0.1980198 0.8695652
                                                                 1.4637681
   [10] {aquatic=TRUE}
                          => {milk=FALSE} 0.2970297 0.8333333
                                                                1.4027778
   [11] {tail=FALSE}
                          => {milk=FALSE} 0.1980198 0.7692308
                                                                 1.2948718
                          => {milk=FALSE} 0.1287129 0.7647059
##
   [12] {fins=TRUE}
                                                                1.2872549
## [13] {predator=TRUE}
                          => {milk=FALSE} 0.3366337 0.6071429
                                                                 1.0220238
## [14] {fins=FALSE}
                          => {milk=FALSE} 0.4653465 0.5595238
                                                                0.9418651
## [15] {tail=TRUE}
                          => {milk=FALSE} 0.3960396 0.5333333 0.8977778
```

```
## [16] {backbone=TRUE} => {milk=FALSE} 0.4158416 0.5060241
                                                               0.8518072
  [17] {aquatic=FALSE} => {milk=FALSE} 0.2970297 0.4615385
                                                              0.7769231
  [18] {toothed=TRUE}
                         => {milk=FALSE} 0.2079208 0.3442623
##
       lhs
                                         rhs
                                                     support
                                                               confidence
##
  [1] {hair=TRUE,predator=TRUE}
                                     => {milk=TRUE} 0.1980198 1.0000000
   [2] {aquatic=FALSE,predator=TRUE} => {milk=TRUE} 0.1584158 0.5925926
  [3] {predator=TRUE,breathes=TRUE} => {milk=TRUE} 0.2178218 0.5641026
##
       lift
##
  [1] 2.463415
##
   [2] 1.459801
  [3] 1.389619
##
       lhs
                                      rhs
                                                   support
                                                             confidence
## [1] {toothed=TRUE,fins=FALSE}
                                   => {milk=TRUE} 0.3564356 0.8181818
## [2] {fins=FALSE,catsize=TRUE}
                                   => {milk=TRUE} 0.2772277 0.7777778
## [3] {airborne=FALSE,fins=FALSE} => {milk=TRUE} 0.3465347 0.5833333
## [4] {feathers=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5781250
  [5] {backbone=TRUE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5606061
  [6] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
   [7] {venomous=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.4805195
##
##
       lift.
## [1] 2.015521
## [2] 1.915989
## [3] 1.436992
## [4] 1.424162
## [5] 1.381005
  [6] 1.336089
##
  [7] 1.183719
##
       lhs
                                     rhs
                                                  support
                                                            confidence
## [1] {hair=TRUE,tail=TRUE}
                                  => {milk=TRUE} 0.3267327 1.0000000
## [2] {feathers=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.6363636
## [3] {aquatic=FALSE,tail=TRUE}
                                  => {milk=TRUE} 0.2970297 0.6122449
  [4] {airborne=FALSE,tail=TRUE} => {milk=TRUE} 0.3267327 0.5789474
## [5] {legs=TRUE,tail=TRUE}
                                  => {milk=TRUE} 0.3267327 0.5789474
## [6] {breathes=TRUE,tail=TRUE}
                                  => {milk=TRUE} 0.3465347 0.5737705
   [7] {fins=FALSE,tail=TRUE}
                                  => {milk=TRUE} 0.3168317 0.5423729
  [8] {predator=FALSE,tail=TRUE} => {milk=TRUE} 0.1683168 0.5151515
  [9] {venomous=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.4929577
##
       lift.
## [1] 2.463415
##
  [2] 1.567627
  [3] 1.508213
  [4] 1.426187
## [5] 1.426187
## [6] 1.413435
## [7] 1.336089
## [8] 1.269032
##
  [9] 1.214359
##
        lhs
                                           rhs
                                                       support
                                                                 confidence
## [1]
        {hair=TRUE,backbone=TRUE}
                                        => {milk=TRUE} 0.3861386 1.0000000
##
  [2]
        {eggs=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3960396 0.9756098
  [3]
##
        {backbone=TRUE,catsize=TRUE}
                                        => {milk=TRUE} 0.3168317 0.7441860
## [4]
        {aquatic=FALSE,backbone=TRUE}
                                       => {milk=TRUE} 0.3465347 0.6603774
## [5]
        {feathers=FALSE,backbone=TRUE} => {milk=TRUE} 0.4059406 0.6507937
## [6]
        {airborne=FALSE,backbone=TRUE} => {milk=TRUE} 0.3861386 0.6000000
```

```
{backbone=TRUE, breathes=TRUE} => {milk=TRUE} 0.4059406 0.5942029
##
  [8]
        {backbone=TRUE,legs=TRUE}
                                        => {milk=TRUE} 0.3762376 0.5937500
                                        => {milk=TRUE} 0.3663366 0.5606061
  [9]
        {backbone=TRUE,fins=FALSE}
  [10] {predator=FALSE,backbone=TRUE} => {milk=TRUE} 0.1881188 0.5277778
##
   [11] {backbone=TRUE, venomous=FALSE} => {milk=TRUE} 0.4059406 0.5189873
##
        lift
## [1]
        2.463415
        2.403331
## [2]
##
  [3]
        1.833239
  [4]
##
        1.626783
  [5]
        1.603175
   [6]
##
        1.478049
##
   [7]
        1.463768
##
  [8]
        1.462652
## [9]
        1.381005
  [10] 1.300136
##
  [11] 1.278481
##
        lhs
                                            rhs
                                                        support
                                                                  confidence
                                        => {milk=TRUE} 0.3465347 0.9210526
##
  [1]
        {aquatic=FALSE, toothed=TRUE}
   [2]
        {aquatic=FALSE, catsize=TRUE}
                                        => {milk=TRUE} 0.2574257 0.8387097
##
  [3]
        {airborne=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3267327 0.7173913
  [4]
        {feathers=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3465347 0.6862745
##
## [5]
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
  [6]
        {aquatic=FALSE,tail=TRUE}
##
                                        => {milk=TRUE} 0.2970297 0.6122449
##
  [7]
        {aquatic=FALSE, predator=TRUE}
                                        => {milk=TRUE} 0.1584158 0.5925926
  [8]
        {aquatic=FALSE,legs=TRUE}
                                        => {milk=TRUE} 0.3465347 0.5833333
   [9]
        {aquatic=FALSE, venomous=FALSE} => {milk=TRUE} 0.3465347 0.5737705
##
##
   [10]
       {aquatic=FALSE,breathes=TRUE} => {milk=TRUE} 0.3465347 0.5468750
##
        lift
## [1]
        2.268935
##
  [2]
        2.066090
##
   [3]
        1.767232
##
  [4]
        1.690579
  [5]
##
        1.626783
   [6]
##
        1.508213
##
   [7]
        1.459801
  [8]
        1.436992
## [9]
        1.413435
  [10] 1.347180
##
##
       lhs
                                         rhs
                                                      support
                                                                confidence
  [1] {hair=TRUE,toothed=TRUE}
                                      => {milk=TRUE} 0.3762376 1.0000000
  [2] {aquatic=FALSE, toothed=TRUE}
                                      => {milk=TRUE} 0.3465347 0.9210526
  [3] {toothed=TRUE,catsize=TRUE}
                                      => {milk=TRUE} 0.3069307 0.8857143
  [4] {toothed=TRUE,legs=TRUE}
                                      => {milk=TRUE} 0.3663366 0.8809524
## [5] {toothed=TRUE,breathes=TRUE}
                                      => {milk=TRUE} 0.3960396 0.8510638
  [6] {toothed=TRUE,fins=FALSE}
                                      => {milk=TRUE} 0.3564356 0.8181818
   [7] {predator=FALSE,toothed=TRUE} => {milk=TRUE} 0.1881188 0.7916667
   [8] {toothed=TRUE, venomous=FALSE} => {milk=TRUE} 0.3960396 0.7017544
##
##
       lift
## [1] 2.463415
## [2] 2.268935
## [3] 2.181882
## [4] 2.170151
## [5] 2.096523
```

```
## [6] 2.015521
   [7] 1.950203
   [8] 1.728712
       "Número de reglas con consecuente negado"
                                                         support
                                                                   confidence
##
  [1]
        {backbone=FALSE}
                                         => {fins=FALSE} 0.1782178 1.0000000
  [2]
        {type=bird}
                                         => {fins=FALSE} 0.1980198 1.0000000
  [3]
##
        {feathers=TRUE}
                                           {fins=FALSE} 0.1980198 1.0000000
##
  [4]
        {airborne=TRUE}
                                            {fins=FALSE} 0.2376238 1.0000000
##
  [5]
        {toothed=FALSE}
                                           {fins=FALSE} 0.3960396 1.0000000
  [6]
        {predator=FALSE,tail=FALSE}
                                           {fins=FALSE} 0.1188119 1.0000000
  [7]
##
        {legs=TRUE,tail=FALSE}
                                           {fins=FALSE} 0.2079208 1.0000000
##
   [8]
        {milk=TRUE,predator=FALSE}
                                         => {fins=FALSE} 0.1881188 1.0000000
        {predator=FALSE, type=mammal}
                                         => {fins=FALSE} 0.1881188 1.0000000
                                         => {fins=FALSE} 0.1881188 1.0000000
## [10] {eggs=FALSE,predator=FALSE}
  [11] {eggs=FALSE,catsize=FALSE}
                                           {fins=FALSE} 0.1089109 1.0000000
  [12] {hair=TRUE,catsize=FALSE}
                                         => {fins=FALSE} 0.1287129 1.0000000
  [13] {predator=FALSE,catsize=TRUE}
                                         => {fins=FALSE} 0.1584158 1.0000000
  [14] {legs=TRUE,catsize=FALSE}
                                         => {fins=FALSE} 0.4059406 1.0000000
  [15] {breathes=TRUE,catsize=FALSE}
                                           {fins=FALSE} 0.4059406 1.0000000
## [16] {hair=FALSE,legs=TRUE}
                                         => {fins=FALSE} 0.3564356 1.0000000
## [17] {eggs=TRUE,legs=TRUE}
                                           {fins=FALSE} 0.3960396 1.0000000
                                           {fins=FALSE} 0.3861386 1.0000000
## [18] {eggs=TRUE,breathes=TRUE}
  [19] {milk=FALSE,legs=TRUE}
                                            {fins=FALSE} 0.3960396 1.0000000
  [20] {milk=FALSE,breathes=TRUE}
                                           {fins=FALSE} 0.3861386 1.0000000
  [21] {legs=TRUE}
                                           {fins=FALSE} 0.7623762 0.9871795
                                           {fins=FALSE} 0.4059406 0.9534884
  [22] {hair=TRUE}
## [23] {breathes=TRUE}
                                           {fins=FALSE} 0.7524752 0.9500000
## [24] {domestic=TRUE}
                                         => {fins=FALSE} 0.1188119 0.9230769
## [25] {predator=FALSE,domestic=FALSE} =>
                                           {fins=FALSE} 0.3069307 0.9117647
  [26] {predator=FALSE}
                                           {fins=FALSE} 0.4059406 0.9111111
##
  [27] {eggs=FALSE}
                                           {fins=FALSE} 0.3762376 0.9047619
  [28] {milk=TRUE}
                                         => {fins=FALSE} 0.3663366 0.9024390
                                         => {fins=FALSE} 0.3663366 0.9024390
  [29] {type=mammal}
   [30] {catsize=FALSE}
                                           {fins=FALSE} 0.4752475 0.8421053
                                         => {fins=FALSE} 0.7623762 0.8279570
  [31] {venomous=FALSE}
## [32] {catsize=TRUE}
                                         => {fins=FALSE} 0.3564356 0.8181818
## [33] {domestic=FALSE}
                                         => {fins=FALSE} 0.7128713 0.8181818
                                            {fins=FALSE} 0.6534653 0.7951807
  [34]
       {backbone=TRUE}
                                         => {fins=FALSE} 0.6336634 0.7901235
  [35] {feathers=FALSE}
  [36] {tail=TRUE}
                                           {fins=FALSE} 0.5841584 0.7866667
                                         => {fins=FALSE} 0.4554455 0.7796610
  [37] {eggs=TRUE}
## [38] {airborne=FALSE}
                                         => {fins=FALSE} 0.5940594 0.7792208
                                         => {fins=FALSE} 0.4257426 0.7678571
## [39] {predator=TRUE}
## [40] {hair=FALSE}
                                         => {fins=FALSE} 0.4257426 0.7413793
                                         => {fins=FALSE} 0.4356436 0.7213115
## [41] {toothed=TRUE}
##
   [42] {aquatic=TRUE}
                                         => {fins=FALSE} 0.1881188 0.5277778
##
        lift
## [1]
        1.2023810
##
  [2]
        1.2023810
##
   [3]
        1.2023810
## [4]
        1.2023810
## [5]
        1.2023810
## [6]
        1.2023810
```

```
## [7]
        1.2023810
  [8]
        1.2023810
  [9]
        1.2023810
  [10] 1.2023810
  [11] 1.2023810
## [12] 1.2023810
## [13] 1.2023810
## [14] 1.2023810
## [15] 1.2023810
## [16] 1.2023810
## [17] 1.2023810
## [18] 1.2023810
## [19] 1.2023810
## [20] 1.2023810
## [21] 1.1869658
## [22] 1.1464563
## [23] 1.1422619
## [24] 1.1098901
## [25] 1.0962885
## [26] 1.0955026
## [27] 1.0878685
## [28] 1.0850755
## [29] 1.0850755
## [30] 1.0125313
## [31] 0.9955197
## [32] 0.9837662
## [33] 0.9837662
## [34] 0.9561102
## [35] 0.9500294
## [36] 0.9458730
## [37] 0.9374496
  [38] 0.9369202
  [39] 0.9232568
  [40] 0.8914204
   [41] 0.8672912
##
  [42] 0.6345899
##
       lhs
                            rhs
                                        support
                                                  confidence lift
## [1] {type=fish}
                        => {fins=TRUE} 0.1287129 1.0000000 5.941176
   [2] {breathes=FALSE} => {fins=TRUE} 0.1287129 0.6190476
                                                              3.677871
##
   [3] {hair=FALSE}
                        => {fins=TRUE} 0.1485149 0.2586207 1.536511
##
                                                          confidence lift
       lhs
                                  rhs
                                               support
   [1] {hair=FALSE,legs=TRUE} => {fins=FALSE} 0.3564356 1
                                                                     1.202381
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
## [1]
        {milk=TRUE,predator=FALSE}
                                         => {hair=TRUE} 0.1881188 1.0000000
  [2]
                                         => {hair=TRUE} 0.3465347 1.0000000
        {milk=TRUE,aquatic=FALSE}
##
   [3]
        {milk=TRUE,legs=TRUE}
                                         => {hair=TRUE} 0.3762376 1.0000000
  [4]
        {milk=TRUE,fins=FALSE}
                                         => {hair=TRUE} 0.3663366 1.0000000
  [5]
        {predator=FALSE, type=mammal}
                                         => {hair=TRUE} 0.1881188 1.0000000
   [6]
        {aquatic=FALSE, type=mammal}
                                            {hair=TRUE} 0.3465347 1.0000000
                                         => {hair=TRUE} 0.3762376 1.0000000
##
  [7]
        {legs=TRUE, type=mammal}
## [8]
        {fins=FALSE, type=mammal}
                                         => {hair=TRUE} 0.3663366 1.0000000
## [9]
        {eggs=FALSE,predator=FALSE}
                                         => {hair=TRUE} 0.1881188 1.0000000
## [10] {eggs=FALSE,legs=TRUE}
                                         => {hair=TRUE} 0.3663366 0.9736842
```

```
## [11] {eggs=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3465347 0.9722222
  [12] {milk=TRUE}
                                            {hair=TRUE} 0.3861386 0.9512195
  [13] {type=mammal}
                                            {hair=TRUE} 0.3861386 0.9512195
  [14] {eggs=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.9500000
  [15] {eggs=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3564356 0.9473684
  [16] {eggs=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.9268293
  [17] {aquatic=FALSE, toothed=TRUE}
                                            {hair=TRUE} 0.3465347 0.9210526
  [18] {eggs=FALSE}
                                            {hair=TRUE} 0.3762376 0.9047619
   Г197
       {toothed=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3663366 0.8809524
   [20] {aquatic=FALSE, catsize=TRUE}
                                            {hair=TRUE} 0.2574257 0.8387097
   [21] {toothed=TRUE,catsize=TRUE}
                                           {hair=TRUE} 0.2871287 0.8285714
   [22] {toothed=TRUE,fins=FALSE}
                                           {hair=TRUE} 0.3564356 0.8181818
   [23] {toothed=TRUE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.8085106
  [24] {predator=FALSE, toothed=TRUE}
                                           {hair=TRUE} 0.1881188 0.7916667
  [25] {feathers=FALSE,catsize=TRUE}
                                           {hair=TRUE} 0.2970297 0.7894737
   [26] {legs=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2871287 0.7837838
   [27]
       {fins=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2772277 0.7777778
       {breathes=TRUE,catsize=TRUE}
                                           {hair=TRUE} 0.2970297 0.7692308
   [29] {feathers=FALSE, aquatic=FALSE}
                                           {hair=TRUE} 0.3861386 0.7647059
   [30] {predator=FALSE, catsize=TRUE}
                                            {hair=TRUE} 0.1188119 0.7500000
##
  [31] {feathers=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.7241379
  [32] {airborne=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3267327 0.7173913
  [33] {feathers=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.4257426 0.7166667
   [34] {feathers=FALSE,predator=FALSE}
##
                                            {hair=TRUE} 0.2277228 0.6764706
   [35] {toothed=TRUE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.6666667
   [36] {airborne=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3564356 0.6666667
                                            {hair=TRUE} 0.3663366 0.6607143
   [37] {airborne=FALSE,breathes=TRUE}
   [38] {aquatic=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3465347 0.6603774
   [39] {aquatic=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3861386 0.6500000
  [40] {feathers=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.4059406 0.6406250
  [41] {toothed=TRUE}
                                            {hair=TRUE} 0.3762376 0.6229508
   [42]
       {feathers=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3861386 0.6190476
   [43] {aquatic=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.2970297 0.6122449
  [44] {aquatic=FALSE, breathes=TRUE}
                                           {hair=TRUE} 0.3861386 0.6093750
   [45] {airborne=FALSE, predator=FALSE}
                                            {hair=TRUE} 0.1683168 0.6071429
  [46] {aquatic=FALSE, venomous=FALSE}
##
                                            {hair=TRUE} 0.3663366 0.6065574
       {feathers=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.6000000
  [48] {backbone=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3762376 0.5937500
       {predator=FALSE,legs=TRUE}
##
   [49]
                                            {hair=TRUE} 0.2277228 0.5897436
   [50] {airborne=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3465347 0.5833333
   [51] {legs=TRUE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.5789474
   [52] {breathes=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.5753425
   [53]
       {airborne=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3663366 0.5692308
       {backbone=TRUE, breathes=TRUE}
   Γ54]
                                            {hair=TRUE} 0.3861386 0.5652174
  [55] {feathers=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.4059406 0.5616438
   [56]
        {predator=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.2277228 0.5609756
##
   [57]
        {predator=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.2277228 0.5609756
       {backbone=TRUE,fins=FALSE}
                                           {hair=TRUE} 0.3663366 0.5606061
   [59] {breathes=TRUE, venomous=FALSE}
                                        => {hair=TRUE} 0.4059406 0.5466667
   [60] {airborne=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.3069307 0.5438596
##
   [61]
       {fins=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.3168317 0.5423729
  [62] {breathes=TRUE,tail=TRUE}
                                           {hair=TRUE} 0.3267327 0.5409836
## [63] {venomous=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.3960396 0.5405405
## [64] {breathes=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.4059406 0.5394737
```

```
## [65] {predator=FALSE,backbone=TRUE} => {hair=TRUE} 0.1881188 0.5277778
  [66] {airborne=FALSE, venomous=FALSE} => {hair=TRUE} 0.3663366 0.5211268
  [67] {predator=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.1683168 0.5151515
                                         => {hair=TRUE} 0.2277228 0.5111111
## [68] {predator=FALSE}
## [69] {venomous=FALSE,fins=FALSE}
                                         => {hair=TRUE} 0.3861386 0.5064935
## [70] {backbone=TRUE, venomous=FALSE}
                                         => {hair=TRUE} 0.3861386 0.4936709
## [71] {backbone=TRUE}
                                         => {hair=TRUE} 0.3861386 0.4698795
                                         => {hair=TRUE} 0.3267327 0.4647887
## [72] {venomous=FALSE,tail=TRUE}
  [73] {domestic=FALSE}
                                         => {hair=TRUE} 0.3366337 0.3863636
##
        lift
## [1]
        2.3488372
  [2]
##
        2.3488372
##
  [3]
        2.3488372
## [4]
        2.3488372
## [5]
        2.3488372
## [6]
        2.3488372
## [7]
        2.3488372
## [8]
        2.3488372
## [9]
        2.3488372
## [10] 2.2870257
## [11] 2.2835917
## [12] 2.2342598
## [13] 2.2342598
## [14] 2.2313953
## [15] 2.2252142
## [16] 2.1769711
## [17] 2.1634027
## [18] 2.1251384
## [19] 2.0692137
## [20] 1.9699925
## [21] 1.9461794
## [22] 1.9217759
## [23] 1.8990599
## [24] 1.8594961
## [25] 1.8543452
## [26] 1.8409805
## [27] 1.8268734
## [28] 1.8067979
## [29] 1.7961696
## [30] 1.7616279
## [31] 1.7008821
## [32] 1.6850354
## [33] 1.6833333
## [34] 1.5889193
## [35] 1.5658915
## [36] 1.5658915
## [37] 1.5519103
## [38] 1.5511189
## [39] 1.5267442
## [40] 1.5047238
## [41] 1.4632101
## [42] 1.4540421
## [43] 1.4380636
## [44] 1.4313227
```

```
## [45] 1.4260797
   [46] 1.4247045
   [47] 1.4093023
  [48] 1.3946221
   [49] 1.3852117
##
   [50] 1.3701550
   [51] 1.3598531
   [52] 1.3513858
   [53] 1.3370304
   [54] 1.3276036
   [55] 1.3192099
   [56] 1.3176404
##
   [57] 1.3176404
   [58] 1.3167724
   [59] 1.2840310
   [60] 1.2774378
##
   [61] 1.2739456
   [62] 1.2706824
   [63] 1.2696417
   [64] 1.2671359
##
   [65] 1.2396641
   [66] 1.2240419
   [67] 1.2100070
##
##
   [68] 1.2005168
   [69] 1.1896708
   [70] 1.1595525
##
   [71] 1.1036705
##
   [72] 1.0917131
##
   [73] 0.9075053
##
        lhs
                             rhs
                                          support
                                                     confidence lift
##
  [1]
        {type=fish}
                          => {hair=FALSE} 0.1287129 1.0000000
                                                                1.7413793
##
   [2]
        {breathes=FALSE} => {hair=FALSE} 0.2079208 1.0000000
                                                                1.7413793
##
   [3]
        {legs=FALSE}
                          => {hair=FALSE} 0.2178218 0.9565217
                                                                1.6656672
   [4]
##
        {aquatic=TRUE}
                          => {hair=FALSE} 0.3168317 0.8888889
                                                                1.5478927
##
   [5]
        {toothed=FALSE}
                             {hair=FALSE} 0.3465347 0.8750000
                                                                1.5237069
##
                         => {hair=FALSE} 0.1386139 0.7777778
                                                                1.3544061
   [6]
        {backbone=FALSE}
   [7]
        {catsize=FALSE}
                          => {hair=FALSE} 0.4356436 0.7719298
##
  [8]
                          => {hair=FALSE} 0.1782178 0.7500000
        {airborne=TRUE}
                                                                1.3060345
   [9]
        {predator=TRUE}
                          => {hair=FALSE} 0.3564356 0.6428571
                                                                1.1194581
                          => {hair=FALSE} 0.1584158 0.6153846
##
  [10] {tail=FALSE}
                                                                1.0716180
   [11] {backbone=TRUE}
                          => {hair=FALSE} 0.4356436 0.5301205
                                                                0.9231408
   [12] {breathes=TRUE}
                          => {hair=FALSE} 0.3663366 0.4625000
                                                                0.8053879
##
   [13] {legs=TRUE}
                          => {hair=FALSE} 0.3564356 0.4615385
                                                                0.8037135
##
                          => {hair=FALSE} 0.2574257 0.4000000
   [14] {aquatic=FALSE}
                                                                0.6965517
##
                                          rhs
                                                       support
                                                                 confidence
   [1] {aquatic=FALSE,backbone=TRUE} => {hair=TRUE} 0.3465347 0.6603774
##
   [2] {feathers=FALSE,backbone=TRUE} => {hair=TRUE} 0.3861386 0.6190476
   [3] {backbone=TRUE,legs=TRUE}
                                       => {hair=TRUE} 0.3762376 0.5937500
   [4] {airborne=FALSE,backbone=TRUE} => {hair=TRUE} 0.3663366 0.5692308
       {backbone=TRUE, breathes=TRUE} => {hair=TRUE} 0.3861386 0.5652174
   [6] {backbone=TRUE,fins=FALSE}
                                       => {hair=TRUE} 0.3663366 0.5606061
   [7] {predator=FALSE,backbone=TRUE} => {hair=TRUE} 0.1881188 0.5277778
##
  [8] {backbone=TRUE, venomous=FALSE} => {hair=TRUE} 0.3861386 0.4936709
##
       lift
```

```
## [1] 1.551119
   [2] 1.454042
   [3] 1.394622
   [4] 1.337030
##
##
   [5] 1.327604
##
   [6] 1.316772
   [7] 1.239664
##
   [8] 1.159553
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
##
   [1]
        {eggs=FALSE,breathes=TRUE}
                                         => {hair=TRUE} 0.3762376 0.9268293
        {toothed=TRUE,breathes=TRUE}
                                         => {hair=TRUE} 0.3762376 0.8085106
   [3]
        {breathes=TRUE, catsize=TRUE}
                                         => {hair=TRUE} 0.2970297 0.7692308
##
##
   [4]
        {feathers=FALSE,breathes=TRUE} =>
                                            {hair=TRUE} 0.4257426 0.7166667
##
   [5]
        {airborne=FALSE,breathes=TRUE} =>
                                            {hair=TRUE} 0.3663366 0.6607143
   [6]
        {aquatic=FALSE,breathes=TRUE}
                                         => {hair=TRUE} 0.3861386 0.6093750
##
##
   [7]
        {breathes=TRUE,legs=TRUE}
                                         => {hair=TRUE} 0.4158416 0.5753425
   [8]
##
        {backbone=TRUE,breathes=TRUE}
                                         => {hair=TRUE} 0.3861386 0.5652174
   [9]
        {predator=FALSE,breathes=TRUE} => {hair=TRUE} 0.2277228 0.5609756
   [10] {breathes=TRUE, venomous=FALSE} => {hair=TRUE} 0.4059406 0.5466667
   [11] {breathes=TRUE,tail=TRUE}
                                         => {hair=TRUE} 0.3267327 0.5409836
##
   Γ12]
       {breathes=TRUE,fins=FALSE}
                                         => {hair=TRUE} 0.4059406 0.5394737
##
        lift.
  [1]
        2.176971
##
   [2]
##
        1.899060
   [3]
##
        1.806798
   [4]
        1.683333
   [5]
##
        1.551910
##
   [6]
        1.431323
   [7]
##
        1.351386
##
   [8]
        1.327604
##
   [9]
        1.317640
##
   [10] 1.284031
   [11] 1.270682
##
   [12] 1.267136
##
        lhs
                                                    support
                                                               confidence
##
   [1]
        {milk=TRUE,legs=TRUE}
                                     => {hair=TRUE} 0.3762376 1.0000000
   [2]
        {legs=TRUE, type=mammal}
                                     => {hair=TRUE} 0.3762376 1.0000000
   [3]
        {eggs=FALSE,legs=TRUE}
                                     => {hair=TRUE} 0.3663366 0.9736842
##
   [4]
        {toothed=TRUE,legs=TRUE}
                                        {hair=TRUE} 0.3663366 0.8809524
##
   [5]
        {legs=TRUE,catsize=TRUE}
##
                                     => {hair=TRUE} 0.2871287 0.7837838
        {feathers=FALSE,legs=TRUE} => {hair=TRUE} 0.4158416 0.7241379
   [6]
   [7]
        {airborne=FALSE,legs=TRUE} => {hair=TRUE} 0.3564356 0.6666667
##
        {aquatic=FALSE,legs=TRUE}
##
   [8]
                                    => {hair=TRUE} 0.3861386 0.6500000
   [9]
        {backbone=TRUE,legs=TRUE}
##
                                    => {hair=TRUE} 0.3762376 0.5937500
   [10] {predator=FALSE,legs=TRUE} => {hair=TRUE} 0.2277228 0.5897436
   [11] {legs=TRUE,tail=TRUE}
                                     => {hair=TRUE} 0.3267327 0.5789474
##
   [12] {breathes=TRUE,legs=TRUE} => {hair=TRUE} 0.4158416 0.5753425
   [13] {venomous=FALSE,legs=TRUE} => {hair=TRUE} 0.3960396 0.5405405
##
##
        lift
##
   [1]
        2.348837
##
   [2]
        2.348837
##
   [3]
        2.287026
## [4]
        2.069214
## [5]
        1.840981
```

```
[6]
        1.700882
##
   [7]
        1.565891
   [8]
        1.526744
   [9]
        1.394622
##
##
   [10]
        1.385212
   [11] 1.359853
##
   [12] 1.351386
##
   [13] 1.269642
##
        lhs
                                            rhs
                                                                   confidence
                                                        support
##
   [1]
        {milk=TRUE,aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 1.0000000
        {aquatic=FALSE, type=mammal}
                                         => {hair=TRUE} 0.3465347 1.0000000
   [3]
##
        {eggs=FALSE,aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 0.9722222
##
   [4]
        {aquatic=FALSE, toothed=TRUE}
                                            {hair=TRUE} 0.3465347 0.9210526
   [5]
##
        {aquatic=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2574257 0.8387097
   [6]
##
        {feathers=FALSE, aquatic=FALSE} =>
                                            {hair=TRUE} 0.3861386 0.7647059
##
   [7]
        {airborne=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3267327 0.7173913
   [8]
##
        {aquatic=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3465347 0.6603774
        {aquatic=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.3861386 0.6500000
   [10] {aquatic=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.2970297 0.6122449
   [11] {aquatic=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6093750
##
   Γ12]
       {aquatic=FALSE, venomous=FALSE} => {hair=TRUE} 0.3663366 0.6065574
##
        2.348837
   [1]
##
   [2]
        2.348837
##
   [3]
##
        2.283592
   [4]
        2.163403
   [5]
##
        1.969992
##
   [6]
        1.796170
   [7]
##
        1.685035
##
   [8]
        1.551119
##
   [9]
        1.526744
##
   [10] 1.438064
   [11] 1.431323
   [12] 1.424705
##
##
       "Número de reglas con consecuente negado"
##
        lhs
                                                          support
                                                                    confidence
##
   [1]
        {hair=TRUE,eggs=FALSE}
                                             {milk=TRUE} 0.3762376 1.0000000
##
   [2]
                                             {milk=TRUE} 0.3069307 1.0000000
        {eggs=FALSE,catsize=TRUE}
   [3]
                                             {milk=TRUE} 0.1881188 1.0000000
##
        {eggs=FALSE,predator=FALSE}
                                             {milk=TRUE} 0.3960396 1.0000000
   [4]
##
        {eggs=FALSE, venomous=FALSE}
   [5]
        {hair=TRUE, catsize=TRUE}
                                             {milk=TRUE} 0.2970297 1.0000000
   [6]
                                             {milk=TRUE} 0.1980198 1.0000000
##
        {hair=TRUE, predator=TRUE}
##
   [7]
        {hair=TRUE, toothed=TRUE}
                                             {milk=TRUE} 0.3762376 1.0000000
##
   [8]
                                             {milk=TRUE} 0.3267327 1.0000000
        {hair=TRUE,tail=TRUE}
   [9]
        {hair=TRUE,airborne=FALSE}
                                             {milk=TRUE} 0.3663366 1.0000000
       {hair=TRUE,backbone=TRUE}
                                             {milk=TRUE} 0.3861386 1.0000000
   [10]
##
   [11]
        {eggs=FALSE,breathes=TRUE}
                                             {milk=TRUE} 0.3960396 0.9756098
       {eggs=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3960396 0.9756098
   [13] {eggs=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3663366 0.9736842
   [14] {hair=TRUE, venomous=FALSE}
                                             {milk=TRUE} 0.3861386 0.9512195
   [15] {aquatic=FALSE,toothed=TRUE}
                                             {milk=TRUE} 0.3465347 0.9210526
  [16] {hair=TRUE,domestic=FALSE}
                                             {milk=TRUE} 0.3069307 0.9117647
## [17] {toothed=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3069307 0.8857143
## [18] {toothed=TRUE,legs=TRUE}
                                             {milk=TRUE} 0.3663366 0.8809524
```

```
[19] {toothed=TRUE,breathes=TRUE}
                                         => {milk=TRUE} 0.3960396 0.8510638
                                           {milk=TRUE} 0.3168317 0.8421053
   [20] {feathers=FALSE,catsize=TRUE}
  [21] {aquatic=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.2574257 0.8387097
  [22] {breathes=TRUE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.8205128
  [23] {toothed=TRUE,fins=FALSE}
                                            {milk=TRUE} 0.3564356 0.8181818
##
  [24] {predator=FALSE,toothed=TRUE}
                                           {milk=TRUE} 0.1881188 0.7916667
  [25] {legs=TRUE,catsize=TRUE}
                                           {milk=TRUE} 0.2871287 0.7837838
  [26] {airborne=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7804878
   [27] {fins=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.2772277 0.7777778
   [28] {predator=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.1188119 0.7500000
   [29] {backbone=TRUE, catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
   [30] {venomous=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
   [31] {airborne=FALSE,aquatic=FALSE}
                                        => {milk=TRUE} 0.3267327 0.7173913
   [32] {toothed=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.3960396 0.7017544
  [33] {airborne=FALSE,breathes=TRUE}
                                        => {milk=TRUE} 0.3861386 0.6964286
       {feathers=FALSE, aquatic=FALSE}
                                            {milk=TRUE} 0.3465347 0.6862745
   [35] {feathers=FALSE,breathes=TRUE}
                                           {milk=TRUE} 0.4059406 0.6833333
   [36] {airborne=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3564356 0.6666667
   [37] {aquatic=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.3465347 0.6603774
   [38] {toothed=TRUE}
                                            {milk=TRUE} 0.3960396 0.6557377
##
  [39] {feathers=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.6551724
  [40] {feathers=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.4059406 0.6507937
  [41] {feathers=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.6363636
  [42] {aquatic=FALSE,tail=TRUE}
##
                                            {milk=TRUE} 0.2970297 0.6122449
  [43] {airborne=FALSE, predator=FALSE} =>
                                            {milk=TRUE} 0.1683168 0.6071429
  [44] {airborne=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.3861386 0.6000000
   [45] {backbone=TRUE, breathes=TRUE}
                                           {milk=TRUE} 0.4059406 0.5942029
   [46] {backbone=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5937500
  [47] {aquatic=FALSE, predator=TRUE}
                                           {milk=TRUE} 0.1584158 0.5925926
  [48] {aquatic=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3465347 0.5833333
   [49]
       {airborne=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3465347 0.5833333
##
   [50]
       {airborne=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
   [51] {legs=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
   [52] {feathers=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.5781250
       {aquatic=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3465347 0.5737705
##
   [54] {breathes=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.5737705
   [55] {predator=TRUE, breathes=TRUE}
                                           {milk=TRUE} 0.2178218 0.5641026
  [56] {feathers=FALSE, venomous=FALSE} =>
                                           {milk=TRUE} 0.4059406 0.5616438
##
       {backbone=TRUE,fins=FALSE}
                                            {milk=TRUE} 0.3663366 0.5606061
   [57]
       {feathers=FALSE,predator=FALSE} =>
##
                                           {milk=TRUE} 0.1881188 0.5588235
   [59] {airborne=FALSE, venomous=FALSE} =>
                                           {milk=TRUE} 0.3861386 0.5492958
   [60] {aquatic=FALSE, breathes=TRUE}
                                           {milk=TRUE} 0.3465347 0.5468750
   [61] {breathes=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.4059406 0.5466667
##
   [62] {fins=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3168317 0.5423729
  [63] {feathers=FALSE,airborne=FALSE} =>
                                           {milk=TRUE} 0.3861386 0.5342466
   [64] {predator=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.1881188 0.5277778
   [65]
##
       {breathes=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5205479
   [66]
       {backbone=TRUE, venomous=FALSE}
                                        => {milk=TRUE} 0.4059406 0.5189873
   [67]
       {predator=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.1683168 0.5151515
   [68]
       {venomous=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5135135
  [69]
       {feathers=FALSE}
                                         => {milk=TRUE} 0.4059406 0.5061728
## [70] {venomous=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.3465347 0.4929577
## [71] {venomous=FALSE,fins=FALSE}
                                         => {milk=TRUE} 0.3663366 0.4805195
## [72] {predator=FALSE, venomous=FALSE} => {milk=TRUE} 0.1881188 0.4418605
```

```
## [73] {predator=TRUE}
                                      => {milk=TRUE} 0.2178218 0.3928571
##
        lift
## [1]
        2.463415
## [2]
        2.463415
## [3]
        2.463415
## [4]
        2.463415
## [5]
        2.463415
## [6]
        2.463415
## [7]
        2.463415
## [8]
        2.463415
## [9]
        2.463415
## [10] 2.463415
## [11] 2.403331
## [12] 2.403331
## [13] 2.398588
## [14] 2.343248
## [15] 2.268935
## [16] 2.246055
## [17] 2.181882
## [18] 2.170151
## [19] 2.096523
## [20] 2.074454
## [21] 2.066090
## [22] 2.021263
## [23] 2.015521
## [24] 1.950203
## [25] 1.930784
## [26] 1.922665
## [27] 1.915989
## [28] 1.847561
## [29] 1.833239
## [30] 1.833239
## [31] 1.767232
## [32] 1.728712
## [33] 1.715592
## [34] 1.690579
## [35] 1.683333
## [36] 1.642276
## [37] 1.626783
## [38] 1.615354
## [39] 1.613961
## [40] 1.603175
## [41] 1.567627
## [42] 1.508213
## [43] 1.495645
## [44] 1.478049
## [45] 1.463768
## [46] 1.462652
## [47] 1.459801
## [48] 1.436992
## [49] 1.436992
## [50] 1.426187
## [51] 1.426187
```

## [52] 1.424162

```
## [53] 1.413435
   [54] 1.413435
  [55] 1.389619
  [56] 1.383562
   [57] 1.381005
##
  [58] 1.376614
  [59] 1.353143
  [60] 1.347180
   [61] 1.346667
  [62] 1.336089
  [63] 1.316071
  [64] 1.300136
   [65] 1.282325
  [66] 1.278481
  [67] 1.269032
   [68] 1.264997
   [69] 1.246914
  [70] 1.214359
  [71] 1.183719
  [72] 1.088486
##
   [73] 0.967770
##
        lhs
                                          support
                                                     confidence lift
                          => {milk=FALSE} 0.1287129 1.0000000
##
  [1]
                                                                1.6833333
        {type=fish}
##
   [2]
        {backbone=FALSE} => {milk=FALSE} 0.1782178 1.0000000
                                                                1.6833333
##
  [3]
        {type=bird}
                          => {milk=FALSE} 0.1980198 1.0000000
                                                                1.6833333
  [4]
        {feathers=TRUE}
                          => {milk=FALSE} 0.1980198 1.0000000
                                                                1.6833333
##
  [5]
        {breathes=FALSE} => {milk=FALSE} 0.2079208 1.0000000
                                                                1.6833333
##
   [6]
        {eggs=TRUE}
                          => {milk=FALSE} 0.5742574 0.9830508
                                                                1.6548023
##
  [7]
                          => {milk=FALSE} 0.5544554 0.9655172
        {hair=FALSE}
                                                                1.6252874
                                                                1.5430556
  [8]
        {airborne=TRUE}
                         => {milk=FALSE} 0.2178218 0.9166667
                         => {milk=FALSE} 0.1980198 0.8695652
## [9]
        {legs=FALSE}
                                                                1.4637681
  [10] {aquatic=TRUE}
                          => {milk=FALSE} 0.2970297 0.8333333
                                                                1.4027778
  [11] {tail=FALSE}
                          => {milk=FALSE} 0.1980198 0.7692308
                                                                1.2948718
                          => {milk=FALSE} 0.1287129 0.7647059
  [12] {fins=TRUE}
                                                                1.2872549
   [13] {predator=TRUE}
                         => {milk=FALSE} 0.3366337 0.6071429
                                                                1.0220238
                          => {milk=FALSE} 0.4653465 0.5595238
  [14] {fins=FALSE}
                                                                0.9418651
## [15] {tail=TRUE}
                          => {milk=FALSE} 0.3960396 0.5333333
                                                                0.8977778
  [16] {backbone=TRUE}
                         => {milk=FALSE} 0.4158416 0.5060241
                                                                0.8518072
   [17] {aquatic=FALSE}
                          => {milk=FALSE} 0.2970297 0.4615385
                                                                0.7769231
##
  [18] {toothed=TRUE}
                          => {milk=FALSE} 0.2079208 0.3442623
                                                                0.5795082
##
       lhs
                                         rhs
                                                     support
                                                                confidence
   [1] {hair=TRUE,predator=TRUE}
                                      => {milk=TRUE} 0.1980198 1.0000000
   [2] {aquatic=FALSE,predator=TRUE} => {milk=TRUE} 0.1584158 0.5925926
   [3] {predator=TRUE,breathes=TRUE} => {milk=TRUE} 0.2178218 0.5641026
##
##
       lift
  [1] 2.463415
##
##
   [2] 1.459801
##
   [3] 1.389619
##
       lhs
                                                    support
                                                              confidence
                                       rhs
##
  [1] {toothed=TRUE,fins=FALSE}
                                      {milk=TRUE} 0.3564356 0.8181818
   [2] {fins=FALSE,catsize=TRUE}
                                    => {milk=TRUE} 0.2772277 0.7777778
  [3] {airborne=FALSE,fins=FALSE} => {milk=TRUE} 0.3465347 0.5833333
## [4] {feathers=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5781250
## [5] {backbone=TRUE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5606061
```

```
## [6] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
   [7] {venomous=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.4805195
##
       lift
## [1] 2.015521
##
  [2] 1.915989
##
  [3] 1.436992
  [4] 1.424162
## [5] 1.381005
  [6] 1.336089
##
  [7] 1.183719
##
       lhs
                                      rhs
                                                            confidence
                                                  support
                                   => {milk=TRUE} 0.3267327 1.0000000
## [1] {hair=TRUE,tail=TRUE}
  [2] {feathers=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.6363636
  [3] {aquatic=FALSE,tail=TRUE}
                                 => {milk=TRUE} 0.2970297 0.6122449
## [4] {airborne=FALSE,tail=TRUE} => {milk=TRUE} 0.3267327 0.5789474
  [5] {legs=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 0.5789474
  [6] {breathes=TRUE,tail=TRUE}
                                  => {milk=TRUE} 0.3465347 0.5737705
  [7] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
  [8] {predator=FALSE,tail=TRUE} => {milk=TRUE} 0.1683168 0.5151515
   [9] {venomous=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.4929577
##
       lift
## [1] 2.463415
## [2] 1.567627
## [3] 1.508213
## [4] 1.426187
## [5] 1.426187
  [6] 1.413435
  [7] 1.336089
## [8] 1.269032
## [9] 1.214359
##
        lhs
                                                       support
                                                                  confidence
## [1]
        {hair=TRUE,backbone=TRUE}
                                        => {milk=TRUE} 0.3861386 1.0000000
##
  [2]
        {eggs=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3960396 0.9756098
  [3]
##
        {backbone=TRUE,catsize=TRUE}
                                        => {milk=TRUE} 0.3168317 0.7441860
   [4]
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
##
        {feathers=FALSE,backbone=TRUE} => {milk=TRUE} 0.4059406 0.6507937
  [5]
##
  [6]
        {airborne=FALSE,backbone=TRUE} => {milk=TRUE} 0.3861386 0.6000000
  [7]
        {backbone=TRUE,breathes=TRUE}
                                        => {milk=TRUE} 0.4059406 0.5942029
##
  [8]
        {backbone=TRUE,legs=TRUE}
                                        => {milk=TRUE} 0.3762376 0.5937500
##
  [9]
        {backbone=TRUE,fins=FALSE}
                                        => {milk=TRUE} 0.3663366 0.5606061
##
  [10] {predator=FALSE,backbone=TRUE} => {milk=TRUE} 0.1881188 0.5277778
   [11] {backbone=TRUE,venomous=FALSE} => {milk=TRUE} 0.4059406 0.5189873
##
##
        lift
## [1]
        2.463415
## [2]
        2.403331
## [3]
        1.833239
##
  [4]
        1.626783
##
  [5]
        1.603175
##
  [6]
        1.478049
##
   [7]
        1.463768
  [8]
##
        1.462652
## [9]
        1.381005
## [10] 1.300136
## [11] 1.278481
```

```
##
                                           rhs
                                                        support
                                                                  confidence
##
  [1]
        {aquatic=FALSE, toothed=TRUE}
                                        => {milk=TRUE} 0.3465347 0.9210526
        {aquatic=FALSE, catsize=TRUE}
                                        => {milk=TRUE} 0.2574257 0.8387097
  [3]
        {airborne=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3267327 0.7173913
##
##
   [4]
        {feathers=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3465347 0.6862745
##
   [5]
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
##
   [6]
        {aquatic=FALSE,tail=TRUE}
                                        => {milk=TRUE} 0.2970297 0.6122449
        {aquatic=FALSE,predator=TRUE}
##
  [7]
                                        => {milk=TRUE} 0.1584158 0.5925926
##
   [8]
        {aquatic=FALSE,legs=TRUE}
                                        => {milk=TRUE} 0.3465347 0.5833333
##
   [9]
        {aquatic=FALSE, venomous=FALSE} => {milk=TRUE} 0.3465347 0.5737705
   [10]
       {aquatic=FALSE,breathes=TRUE} => {milk=TRUE} 0.3465347 0.5468750
##
        lift
##
  [1]
        2.268935
##
   [2]
        2.066090
  [3]
##
        1.767232
##
   [4]
        1.690579
   [5]
##
        1.626783
   [6]
##
        1.508213
   [7]
##
        1.459801
##
   [8]
        1.436992
##
   [9]
        1.413435
##
  [10] 1.347180
##
       lhs
                                         rhs
                                                      support
                                                                confidence
## [1] {hair=TRUE, toothed=TRUE}
                                      => {milk=TRUE} 0.3762376 1.0000000
   [2] {aquatic=FALSE, toothed=TRUE}
                                      => {milk=TRUE} 0.3465347 0.9210526
  [3] {toothed=TRUE,catsize=TRUE}
                                      => {milk=TRUE} 0.3069307 0.8857143
  [4] {toothed=TRUE,legs=TRUE}
                                      => {milk=TRUE} 0.3663366 0.8809524
  [5] {toothed=TRUE,breathes=TRUE}
                                      => {milk=TRUE} 0.3960396 0.8510638
  [6] {toothed=TRUE,fins=FALSE}
                                      => {milk=TRUE} 0.3564356 0.8181818
## [7] {predator=FALSE,toothed=TRUE} => {milk=TRUE} 0.1881188 0.7916667
##
  [8] {toothed=TRUE, venomous=FALSE} => {milk=TRUE} 0.3960396 0.7017544
##
       lift
##
  [1] 2.463415
  [2] 2.268935
   [3] 2.181882
  [4] 2.170151
##
  [5] 2.096523
  [6] 2.015521
##
   [7] 1.950203
  [8] 1.728712
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                          support
                                                                    confidence
##
  Г17
        {type=fish}
                                            {hair=FALSE} 0.1287129 1.0000000
##
  [2]
                                         => {hair=FALSE} 0.2079208 1.0000000
        {breathes=FALSE}
        {eggs=TRUE,fins=TRUE}
##
  [3]
                                         => {hair=FALSE} 0.1287129 1.0000000
## [4]
                                            {hair=FALSE} 0.1287129 1.0000000
        {milk=FALSE,fins=TRUE}
##
  [5]
        {airborne=FALSE,backbone=FALSE} =>
                                            {hair=FALSE} 0.1188119 1.0000000
##
  [6]
        {legs=FALSE,catsize=FALSE}
                                            {hair=FALSE} 0.1584158 1.0000000
##
  [7]
        {eggs=TRUE,legs=FALSE}
                                            {hair=FALSE} 0.1881188 1.0000000
##
   [8]
        {milk=FALSE,legs=FALSE}
                                            {hair=FALSE} 0.1980198 1.0000000
##
  [9]
        {aquatic=TRUE,catsize=FALSE}
                                         => {hair=FALSE} 0.2277228 1.0000000
## [10] {milk=FALSE,aquatic=TRUE}
                                            {hair=FALSE} 0.2970297 1.0000000
## [11] {milk=FALSE,catsize=TRUE}
                                         => {hair=FALSE} 0.1188119 1.0000000
## [12] {milk=FALSE,predator=TRUE}
                                            {hair=FALSE} 0.3366337 1.0000000
```

```
## [13] {eggs=TRUE,toothed=TRUE}
                                         => {hair=FALSE} 0.1980198 1.0000000
                                           {hair=FALSE} 0.2079208 1.0000000
  [14] {milk=FALSE,toothed=TRUE}
  [15] {milk=FALSE,tail=TRUE}
                                           {hair=FALSE} 0.3960396 1.0000000
  [16] {milk=FALSE,airborne=FALSE}
                                           {hair=FALSE} 0.3762376 1.0000000
  [17] {milk=FALSE,backbone=TRUE}
                                            {hair=FALSE} 0.4158416 1.0000000
  [18] {eggs=TRUE,backbone=TRUE}
                                           {hair=FALSE} 0.4059406 0.9761905
  [19] {eggs=TRUE,tail=TRUE}
                                            {hair=FALSE} 0.3762376 0.9743590
## [20] {eggs=TRUE,airborne=FALSE}
                                            {hair=FALSE} 0.3564356 0.9729730
  [21] {eggs=TRUE,predator=TRUE}
                                            {hair=FALSE} 0.3168317 0.9696970
   [22] {eggs=TRUE,aquatic=TRUE}
                                           {hair=FALSE} 0.2871287 0.9666667
  [23] {milk=FALSE, venomous=FALSE}
                                         => {hair=FALSE} 0.4950495 0.9615385
  [24] {legs=FALSE}
                                           {hair=FALSE} 0.2178218 0.9565217
  [25] {toothed=FALSE,tail=TRUE}
                                           {hair=FALSE} 0.2178218 0.9565217
## [26] {toothed=FALSE,backbone=TRUE}
                                         => {hair=FALSE} 0.2079208 0.9545455
                                         => {hair=FALSE} 0.1782178 0.9473684
## [27] {predator=TRUE,toothed=FALSE}
## [28]
        {milk=FALSE,domestic=FALSE}
                                           {hair=FALSE} 0.5148515 0.9454545
  [29] {airborne=FALSE, toothed=FALSE}
                                         => {hair=FALSE} 0.1683168 0.9444444
  [30] {predator=TRUE,catsize=FALSE}
                                         => {hair=FALSE} 0.2574257 0.9285714
                                         => {hair=FALSE} 0.4950495 0.9259259
  [31] {eggs=TRUE,domestic=FALSE}
  [32] {aquatic=TRUE, toothed=FALSE}
                                           {hair=FALSE} 0.1188119 0.9230769
##
  [33] {eggs=TRUE,catsize=TRUE}
                                           {hair=FALSE} 0.1188119 0.9230769
  [34] {aquatic=TRUE,fins=FALSE}
                                           {hair=FALSE} 0.1683168 0.8947368
                                           {hair=FALSE} 0.3168317 0.8888889
  [35] {aquatic=TRUE}
  [36] {airborne=TRUE,backbone=TRUE}
                                            {hair=FALSE} 0.1584158 0.8888889
  [37] {toothed=FALSE,domestic=FALSE}
                                           {hair=FALSE} 0.3168317 0.8888889
  [38] {toothed=FALSE}
                                           {hair=FALSE} 0.3465347 0.8750000
  [39] {backbone=FALSE, venomous=FALSE}
                                           {hair=FALSE} 0.1188119 0.8571429
  [40] {airborne=FALSE, catsize=FALSE}
                                            {hair=FALSE} 0.2871287 0.8055556
## [41] {domestic=FALSE, catsize=FALSE}
                                           {hair=FALSE} 0.3960396 0.8000000
## [42] {tail=TRUE,catsize=FALSE}
                                         => {hair=FALSE} 0.2871287 0.7837838
## [43]
        {venomous=FALSE, catsize=FALSE}
                                         => {hair=FALSE} 0.3861386 0.7800000
  [44]
        {backbone=FALSE}
                                         => {hair=FALSE} 0.1386139 0.7777778
  [45] {backbone=TRUE, catsize=FALSE}
                                         => {hair=FALSE} 0.3069307 0.7750000
                                         => {hair=FALSE} 0.4356436 0.7719298
## [46] {catsize=FALSE}
  [47] {airborne=TRUE}
                                            {hair=FALSE} 0.1782178 0.7500000
                                           {hair=FALSE} 0.1584158 0.6956522
## [48] {tail=FALSE,domestic=FALSE}
  [49] {predator=TRUE}
                                           {hair=FALSE} 0.3564356 0.6428571
## [50] {venomous=FALSE,tail=FALSE}
                                           {hair=FALSE} 0.1386139 0.6363636
   [51] {tail=FALSE}
                                            {hair=FALSE} 0.1584158 0.6153846
                                         => {hair=FALSE} 0.4356436 0.5301205
##
  [52] {backbone=TRUE}
   [53] {breathes=TRUE}
                                         => {hair=FALSE} 0.3663366 0.4625000
                                         => {hair=FALSE} 0.3564356 0.4615385
   [54] {legs=TRUE}
##
   [55] {aquatic=FALSE}
                                        => {hair=FALSE} 0.2574257 0.4000000
##
        lift
## [1]
        1.7413793
  [2]
##
        1.7413793
##
   [3]
        1.7413793
##
  [4]
        1.7413793
##
   [5]
        1.7413793
##
   [6]
        1.7413793
   [7]
##
        1.7413793
## [8]
        1.7413793
## [9]
        1.7413793
## [10] 1.7413793
```

```
## [11] 1.7413793
## [12] 1.7413793
## [13] 1.7413793
## [14] 1.7413793
## [15] 1.7413793
## [16] 1.7413793
## [17] 1.7413793
## [18] 1.6999179
   [19] 1.6967286
  [20] 1.6943150
  [21] 1.6886102
## [22] 1.6833333
  [23] 1.6744032
## [24] 1.6656672
## [25] 1.6656672
  [26] 1.6622257
  [27] 1.6497278
   [28] 1.6463950
  [29] 1.6446360
## [30] 1.6169951
## [31] 1.6123883
## [32] 1.6074271
## [33] 1.6074271
  [34] 1.5580762
  [35] 1.5478927
  [36] 1.5478927
  [37] 1.5478927
  [38] 1.5237069
## [39] 1.4926108
## [40] 1.4027778
## [41] 1.3931034
  [42] 1.3648649
  [43] 1.3582759
## [44] 1.3544061
   [45] 1.3495690
## [46] 1.3442226
## [47] 1.3060345
## [48] 1.2113943
## [49] 1.1194581
  [50] 1.1081505
  [51] 1.0716180
  [52] 0.9231408
   [53] 0.8053879
  [54] 0.8037135
  [55] 0.6965517
##
       lhs
                           rhs
                                        support
                                                  confidence lift
## [1] {milk=TRUE}
                        => {hair=TRUE} 0.3861386 0.9512195 2.2342598
                        => {hair=TRUE} 0.3861386 0.9512195
   [2] {type=mammal}
                                                             2.2342598
  [3] {eggs=FALSE}
                        => {hair=TRUE} 0.3762376 0.9047619
                                                             2.1251384
  [4] {toothed=TRUE}
                        => {hair=TRUE} 0.3762376 0.6229508
                                                             1.4632101
## [5] {predator=FALSE} => {hair=TRUE} 0.2277228 0.5111111
                                                             1.2005168
## [6] {backbone=TRUE} => {hair=TRUE} 0.3861386 0.4698795
## [7] {domestic=FALSE} => {hair=TRUE} 0.3366337 0.3863636 0.9075053
##
       lhs
                                     rhs
                                                  support
                                                            confidence
```

```
## [1] {eggs=TRUE,toothed=TRUE} => {hair=FALSE} 0.1980198 1
   [2] {milk=FALSE,toothed=TRUE} => {hair=FALSE} 0.2079208 1
##
       lift.
  [1] 1.741379
##
##
   [2] 1.741379
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
  [1] {milk=FALSE,backbone=TRUE}
                                      => {hair=FALSE} 0.4158416 1.0000000
  [2] {eggs=TRUE,backbone=TRUE}
                                      => {hair=FALSE} 0.4059406 0.9761905
   [3] {toothed=FALSE,backbone=TRUE} => {hair=FALSE} 0.2079208 0.9545455
   [4] {airborne=TRUE,backbone=TRUE} => {hair=FALSE} 0.1584158 0.8888889
   [5] {backbone=TRUE,catsize=FALSE} => {hair=FALSE} 0.3069307 0.7750000
##
       lift
## [1] 1.741379
## [2] 1.699918
## [3] 1.662226
  [4] 1.547893
##
  [5] 1.349569
##
       lhs
                                                       support
                                                                  confidence
## [1] {milk=FALSE,domestic=FALSE}
                                       => {hair=FALSE} 0.5148515 0.9454545
  [2] {eggs=TRUE,domestic=FALSE}
                                       => {hair=FALSE} 0.4950495 0.9259259
  [3] {toothed=FALSE,domestic=FALSE} => {hair=FALSE} 0.3168317 0.8888889
## [4] {domestic=FALSE,catsize=FALSE} => {hair=FALSE} 0.3960396 0.8000000
  [5] {tail=FALSE,domestic=FALSE}
                                       => {hair=FALSE} 0.1584158 0.6956522
##
       lift.
## [1] 1.646395
  [2] 1.612388
  [3] 1.547893
  [4] 1.393103
  [5] 1.211394
       "Número de reglas con consecuente negado"
##
##
                                                             support
##
  [1]
        {domestic=TRUE}
                                        => {predator=FALSE} 0.1089109
##
  [2]
        {hair=TRUE,catsize=FALSE}
                                        => {predator=FALSE} 0.1089109
##
  [3]
        {airborne=TRUE, aquatic=FALSE}
                                        => {predator=FALSE} 0.1485149
   [4]
        {airborne=TRUE}
##
                                        => {predator=FALSE} 0.1683168
##
  [5]
        {aquatic=FALSE, toothed=FALSE}
                                        => {predator=FALSE} 0.1881188
  [6]
        {aquatic=FALSE,tail=FALSE}
                                        => {predator=FALSE} 0.1089109
  [7]
##
        {aquatic=FALSE, catsize=FALSE}
                                        => {predator=FALSE} 0.2277228
##
  [8]
        {eggs=TRUE,aquatic=FALSE}
                                        => {predator=FALSE} 0.1881188
##
  [9]
        {toothed=FALSE,breathes=TRUE}
                                        => {predator=FALSE} 0.2079208
  [10] {milk=FALSE,aquatic=FALSE}
                                        => {predator=FALSE} 0.1881188
## [11] {breathes=TRUE,tail=FALSE}
                                        => {predator=FALSE} 0.1188119
## [12] {breathes=TRUE,catsize=FALSE}
                                        => {predator=FALSE} 0.2475248
## [13] {aquatic=FALSE, venomous=FALSE}
                                        => {predator=FALSE} 0.3564356
## [14] {eggs=TRUE,breathes=TRUE}
                                        => {predator=FALSE} 0.2178218
## [15] {milk=FALSE,breathes=TRUE}
                                        => {predator=FALSE} 0.2178218
## [16] {legs=TRUE,catsize=FALSE}
                                        => {predator=FALSE} 0.2277228
  [17] {type=bird}
                                        => {predator=FALSE} 0.1089109
## [18] {feathers=TRUE}
                                        => {predator=FALSE} 0.1089109
## [19] {toothed=FALSE,backbone=TRUE}
                                        => {predator=FALSE} 0.1188119
## [20] {venomous=FALSE,catsize=FALSE}
                                        => {predator=FALSE} 0.2673267
## [21] {toothed=FALSE, venomous=FALSE}
                                        => {predator=FALSE} 0.1881188
## [22] {toothed=FALSE}
                                        => {predator=FALSE} 0.2079208
## [23] {fins=FALSE,catsize=FALSE}
                                        => {predator=FALSE} 0.2475248
```

```
## [24] {breathes=TRUE, venomous=FALSE} => {predator=FALSE} 0.3861386
   [25] {catsize=FALSE}
                                        => {predator=FALSE} 0.2871287
   [26] {legs=TRUE,tail=TRUE}
                                        => {predator=FALSE} 0.2871287
   [27] {venomous=FALSE,fins=FALSE}
                                        => {predator=FALSE} 0.3861386
   [28] {fins=FALSE,tail=TRUE}
                                        => {predator=FALSE} 0.2871287
  [29] {milk=TRUE}
                                        => {predator=FALSE} 0.1881188
  [30] {type=mammal}
                                        => {predator=FALSE} 0.1881188
  [31] {tail=FALSE}
                                        => {predator=FALSE} 0.1188119
   [32]
       {eggs=FALSE}
                                        => {predator=FALSE} 0.1881188
   [33]
       {eggs=TRUE}
                                        => {predator=FALSE} 0.2574257
   [34] {milk=FALSE}
                                        => {predator=FALSE} 0.2574257
   [35] {domestic=FALSE}
                                        => {predator=FALSE} 0.3366337
   [36] {hair=FALSE}
                                        => {predator=FALSE} 0.2178218
##
   [37] {catsize=TRUE}
                                        => {predator=FALSE} 0.1584158
##
        confidence lift
##
   [1]
        0.8461538
                   1.8991453
##
   [2]
        0.8461538
                   1.8991453
   [3]
        0.7894737
                   1.7719298
   [4]
##
        0.7083333
                   1.5898148
   [5]
        0.7037037
                   1.5794239
##
   [6]
        0.6875000
                   1.5430556
   [7]
        0.6764706
                   1.5183007
   [8]
##
        0.6551724
                   1.4704981
   [9]
        0.6363636
                   1.4282828
  [10] 0.6333333
                   1.4214815
  [11] 0.6315789
                   1.4175439
  [12] 0.6097561
                   1.3685637
   [13] 0.5901639
                   1.3245902
  [14] 0.5641026
                   1.2660969
                   1.2660969
  [15] 0.5641026
   [16] 0.5609756
                   1.2590786
   [17] 0.5500000
                   1.2344444
   [18] 0.5500000
                   1.2344444
   [19] 0.5454545
                   1.2242424
   [20] 0.5400000
                   1.2120000
  [21] 0.5277778
                   1.1845679
  [22] 0.5250000
                   1.1783333
## [23] 0.5208333
                   1.1689815
   [24] 0.5200000
                   1.1671111
   [25] 0.5087719
                   1.1419103
   [26] 0.5087719
                   1.1419103
   [27] 0.5064935
                   1.1367965
   [28] 0.4915254
                   1.1032015
   [29] 0.4634146
                   1.0401084
  [30] 0.4634146
                   1.0401084
   [31] 0.4615385
                   1.0358974
                   1.0153439
   [32] 0.4523810
   [33] 0.4406780
                   0.9890772
   [34] 0.4333333
                   0.9725926
   [35] 0.3863636
                   0.8671717
   [36] 0.3793103
                   0.8513410
##
   [37] 0.3636364
                   0.8161616
##
       lhs
                                             support
                                                       confidence lift
                            rhs
## [1] {breathes=FALSE} => {predator=TRUE} 0.1683168 0.8095238 1.4600340
```

```
## [2] {aquatic=TRUE}
                         => {predator=TRUE} 0.2871287 0.8055556
                                                                  1.4528770
                         => {predator=TRUE} 0.1287129 0.7647059
## [3] {fins=TRUE}
                                                                  1.3792017
## [4] {catsize=TRUE}
                         => {predator=TRUE} 0.2772277 0.6363636
                                                                  1.1477273
                        => {predator=TRUE} 0.4653465 0.5662651
  [5] {backbone=TRUE}
                                                                  1.0212995
  [6] {eggs=FALSE}
                         => {predator=TRUE} 0.2277228 0.5476190
                                                                  0.9876701
  [7] {legs=TRUE}
                         => {predator=TRUE} 0.3861386 0.5000000
##
                                                                  0.9017857
  [8] {hair=TRUE}
                         => {predator=TRUE} 0.1980198 0.4651163
                                                                  0.8388704
##
   [9] {aquatic=FALSE}
                        => {predator=TRUE} 0.2673267 0.4153846
                                                                  0.7491758
##
                                         rhs
                                                          support
                                                                     confidence
   [1] {toothed=FALSE,backbone=TRUE} => {predator=FALSE} 0.1188119 0.5454545
##
       lift
   [1] 1.224242
##
##
       lhs
                                     rhs
                                                      support
                                                                 confidence
   [1] {legs=TRUE,catsize=FALSE} => {predator=FALSE} 0.2277228 0.5609756
                                  => {predator=FALSE} 0.2871287 0.5087719
   [2] {legs=TRUE,tail=TRUE}
##
       lift
##
  [1] 1.259079
   [2] 1.141910
##
       lhs
                                     rhs
                                                      support
                                                                 confidence
##
   [1] {hair=TRUE,catsize=FALSE} => {predator=FALSE} 0.1089109 0.8461538
##
       lift.
  [1] 1.899145
##
##
       lhs
                                          rhs
                                                            support
## [1] {airborne=TRUE,aquatic=FALSE}
                                       => {predator=FALSE} 0.1485149
   [2] {aquatic=FALSE,toothed=FALSE}
                                       => {predator=FALSE} 0.1881188
  [3] {aquatic=FALSE,tail=FALSE}
                                       => {predator=FALSE} 0.1089109
   [4] {aquatic=FALSE, catsize=FALSE}
                                       => {predator=FALSE} 0.2277228
  [5] {eggs=TRUE,aquatic=FALSE}
                                       => {predator=FALSE} 0.1881188
  [6] {milk=FALSE,aquatic=FALSE}
                                       => {predator=FALSE} 0.1881188
   [7] {aquatic=FALSE, venomous=FALSE} => {predator=FALSE} 0.3564356
##
       confidence lift
## [1] 0.7894737
                 1.771930
  [2] 0.7037037
                  1.579424
## [3] 0.6875000
                  1.543056
   [4] 0.6764706
                  1.518301
  [5] 0.6551724
                  1.470498
## [6] 0.6333333
                  1.421481
## [7] 0.5901639 1.324590
       "Número de reglas con consecuente negado"
##
##
        lhs
                                           rhs
                                                             support
  [1]
        {domestic=TRUE}
##
                                        => {predator=FALSE} 0.1089109
  [2]
        {hair=TRUE,catsize=FALSE}
##
                                        => {predator=FALSE} 0.1089109
  [3]
        {airborne=TRUE, aquatic=FALSE}
                                        => {predator=FALSE} 0.1485149
## [4]
                                        => {predator=FALSE} 0.1683168
        {airborne=TRUE}
## [5]
        {aquatic=FALSE, toothed=FALSE}
                                        => {predator=FALSE} 0.1881188
## [6]
        {aquatic=FALSE,tail=FALSE}
                                        => {predator=FALSE} 0.1089109
##
  [7]
        {aquatic=FALSE, catsize=FALSE}
                                        => {predator=FALSE} 0.2277228
  [8]
        {eggs=TRUE,aquatic=FALSE}
                                        => {predator=FALSE} 0.1881188
  [9]
        {toothed=FALSE,breathes=TRUE}
                                        => {predator=FALSE} 0.2079208
## [10] {milk=FALSE,aquatic=FALSE}
                                        => {predator=FALSE} 0.1881188
## [11] {breathes=TRUE,tail=FALSE}
                                        => {predator=FALSE} 0.1188119
## [12] {breathes=TRUE,catsize=FALSE}
                                        => {predator=FALSE} 0.2475248
## [13] {aquatic=FALSE, venomous=FALSE} => {predator=FALSE} 0.3564356
## [14] {eggs=TRUE,breathes=TRUE}
                                        => {predator=FALSE} 0.2178218
```

```
## [15] {milk=FALSE,breathes=TRUE}
                                        => {predator=FALSE} 0.2178218
   [16] {legs=TRUE,catsize=FALSE}
                                        => {predator=FALSE} 0.2277228
                                        => {predator=FALSE} 0.1089109
  [17] {type=bird}
  [18] {feathers=TRUE}
                                        => {predator=FALSE} 0.1089109
   [19] {toothed=FALSE,backbone=TRUE}
                                        => {predator=FALSE} 0.1188119
  [20] {venomous=FALSE, catsize=FALSE} => {predator=FALSE} 0.2673267
  [21] {toothed=FALSE, venomous=FALSE} => {predator=FALSE} 0.1881188
  [22] {toothed=FALSE}
                                        => {predator=FALSE} 0.2079208
   [23] {fins=FALSE,catsize=FALSE}
                                        => {predator=FALSE} 0.2475248
   [24] {breathes=TRUE, venomous=FALSE} => {predator=FALSE} 0.3861386
   [25] {catsize=FALSE}
                                        => {predator=FALSE} 0.2871287
   [26] {legs=TRUE,tail=TRUE}
                                        => {predator=FALSE} 0.2871287
   [27] {venomous=FALSE,fins=FALSE}
                                        => {predator=FALSE} 0.3861386
                                        => {predator=FALSE} 0.2871287
  [28] {fins=FALSE,tail=TRUE}
  [29] {milk=TRUE}
                                        => {predator=FALSE} 0.1881188
   [30] {type=mammal}
                                           {predator=FALSE} 0.1881188
   [31] {tail=FALSE}
                                        => {predator=FALSE} 0.1188119
   [32] {eggs=FALSE}
                                        => {predator=FALSE} 0.1881188
   [33] {eggs=TRUE}
                                        => {predator=FALSE} 0.2574257
   [34] {milk=FALSE}
                                        => {predator=FALSE} 0.2574257
##
   [35] {domestic=FALSE}
                                        => {predator=FALSE} 0.3366337
   [36] {hair=FALSE}
                                        => {predator=FALSE} 0.2178218
   [37] {catsize=TRUE}
##
                                        => {predator=FALSE} 0.1584158
        confidence lift
                  1.8991453
##
  [1]
        0.8461538
   [2]
        0.8461538
                   1.8991453
   [3]
##
        0.7894737
                   1.7719298
   [4]
        0.7083333
                   1.5898148
   [5]
##
        0.7037037
                   1.5794239
  [6]
        0.6875000
                   1.5430556
##
   [7]
        0.6764706
                   1.5183007
##
   [8]
        0.6551724
                   1.4704981
   [9]
        0.6363636
                   1.4282828
   [10] 0.6333333
                   1.4214815
   [11] 0.6315789
                   1.4175439
  [12] 0.6097561
                   1.3685637
  [13] 0.5901639
                   1.3245902
  [14] 0.5641026
                   1.2660969
   [15] 0.5641026
                   1.2660969
  [16] 0.5609756
                   1.2590786
  [17] 0.5500000
                   1.2344444
  [18] 0.5500000
                   1.2344444
   [19] 0.5454545
                   1.2242424
  [20] 0.5400000
                   1.2120000
  [21] 0.5277778
                   1.1845679
  [22] 0.5250000
                   1.1783333
                   1.1689815
   [23] 0.5208333
   [24] 0.5200000
                   1.1671111
   [25] 0.5087719
                   1.1419103
   [26] 0.5087719
                   1.1419103
  [27] 0.5064935
                   1.1367965
## [28] 0.4915254
                   1.1032015
## [29] 0.4634146
                   1.0401084
## [30] 0.4634146
                   1.0401084
```

```
## [31] 0.4615385 1.0358974
  [32] 0.4523810
                   1.0153439
  [33] 0.4406780
                   0.9890772
  [34] 0.4333333
                   0.9725926
  [35] 0.3863636
                   0.8671717
  [36] 0.3793103
                   0.8513410
  [37] 0.3636364 0.8161616
##
       lhs
                                            support
                                                      confidence lift
## [1] {breathes=FALSE} => {predator=TRUE} 0.1683168 0.8095238
                                                                 1.4600340
  [2] {aquatic=TRUE}
                        => {predator=TRUE} 0.2871287 0.8055556
                                                                 1.4528770
## [3] {fins=TRUE}
                        => {predator=TRUE} 0.1287129 0.7647059
                                                                 1.3792017
                        => {predator=TRUE} 0.2772277 0.6363636
## [4] {catsize=TRUE}
                                                                 1.1477273
## [5] {backbone=TRUE}
                        => {predator=TRUE} 0.4653465 0.5662651
                                                                 1.0212995
                        => {predator=TRUE} 0.2277228 0.5476190
## [6] {eggs=FALSE}
                        => {predator=TRUE} 0.3861386 0.5000000
## [7] {legs=TRUE}
                                                                 0.9017857
  [8] {hair=TRUE}
                        => {predator=TRUE} 0.1980198 0.4651163
                                                                 0.8388704
##
   [9] {aquatic=FALSE}
                        => {predator=TRUE} 0.2673267 0.4153846
                                                                 0.7491758
##
                                         rhs
                                                          support
                                                                     confidence
   [1] {toothed=FALSE,backbone=TRUE} => {predator=FALSE} 0.1188119 0.5454545
##
##
   [1] 1.224242
##
       lhs
                                    rhs
                                                      support
                                                                 confidence
   [1] {legs=TRUE,catsize=FALSE} => {predator=FALSE} 0.2277228 0.5609756
   [2] {legs=TRUE,tail=TRUE}
                                 => {predator=FALSE} 0.2871287 0.5087719
##
##
       lift
  [1] 1.259079
   [2] 1.141910
##
##
       lhs
                                     rhs
                                                      support
                                                                 confidence
   [1] {hair=TRUE,catsize=FALSE} => {predator=FALSE} 0.1089109 0.8461538
##
##
       lift
## [1] 1.899145
##
       lhs
                                          rhs
                                                           support
  [1] {airborne=TRUE, aquatic=FALSE}
                                       => {predator=FALSE} 0.1485149
  [2] {aquatic=FALSE,toothed=FALSE}
                                       => {predator=FALSE} 0.1881188
  [3] {aquatic=FALSE,tail=FALSE}
                                       => {predator=FALSE} 0.1089109
## [4] {aquatic=FALSE,catsize=FALSE}
                                       => {predator=FALSE} 0.2277228
## [5] {eggs=TRUE,aquatic=FALSE}
                                       => {predator=FALSE} 0.1881188
## [6] {milk=FALSE,aquatic=FALSE}
                                       => {predator=FALSE} 0.1881188
## [7] {aquatic=FALSE, venomous=FALSE} => {predator=FALSE} 0.3564356
##
       confidence lift
## [1] 0.7894737 1.771930
## [2] 0.7037037 1.579424
## [3] 0.6875000
                  1.543056
## [4] 0.6764706
                 1.518301
## [5] 0.6551724
                  1.470498
## [6] 0.6333333
                  1.421481
  [7] 0.5901639 1.324590
  [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                           support
## [1]
        {type=fish}
                                           {aquatic=TRUE} 0.1287129
## [2]
        {fins=TRUE}
                                         => {aquatic=TRUE} 0.1683168
## [3]
        {breathes=FALSE,tail=TRUE}
                                         => {aquatic=TRUE} 0.1386139
## [4]
        {backbone=TRUE,breathes=FALSE}
                                         => {aquatic=TRUE} 0.1386139
## [5]
       {breathes=FALSE}
                                         => {aquatic=TRUE} 0.1980198
```

```
{backbone=TRUE,legs=FALSE}
                                         => {aquatic=TRUE} 0.1683168
##
   [7]
        {hair=FALSE,toothed=TRUE}
                                            {aquatic=TRUE} 0.1980198
        {milk=FALSE,toothed=TRUE}
  [8]
                                           {aquatic=TRUE} 0.1782178
   [9]
        {eggs=TRUE,toothed=TRUE}
##
                                           {aquatic=TRUE} 0.1683168
##
   [10] {predator=TRUE,legs=FALSE}
                                            {aquatic=TRUE} 0.1386139
   [11] {venomous=FALSE,legs=FALSE}
                                           {aquatic=TRUE} 0.1485149
##
  [12] {legs=FALSE}
                                           {aquatic=TRUE} 0.1782178
  [13] {eggs=TRUE,predator=TRUE}
                                            {aquatic=TRUE} 0.2277228
   [14] {hair=FALSE,predator=TRUE}
                                            {aquatic=TRUE} 0.2475248
   [15] {hair=FALSE, feathers=FALSE}
                                           {aquatic=TRUE} 0.2574257
   [16] {milk=FALSE,predator=TRUE}
                                         => {aquatic=TRUE} 0.2277228
   [17] {eggs=TRUE,airborne=FALSE}
                                           {aquatic=TRUE} 0.2475248
                                         => {aquatic=TRUE} 0.2673267
   [18] {hair=FALSE,airborne=FALSE}
                                           {aquatic=TRUE} 0.2475248
       {milk=FALSE,airborne=FALSE}
  [20] {feathers=FALSE,eggs=TRUE}
                                           {aquatic=TRUE} 0.2376238
   [21] {predator=TRUE, catsize=FALSE}
                                            {aquatic=TRUE} 0.1683168
   [22]
       {feathers=FALSE,milk=FALSE}
                                           {aquatic=TRUE} 0.2376238
       {hair=FALSE,backbone=TRUE}
                                           {aquatic=TRUE} 0.2574257
       {predator=TRUE, toothed=FALSE}
                                           {aquatic=TRUE} 0.1089109
   [24]
   [25]
       {hair=FALSE,domestic=FALSE}
                                           {aquatic=TRUE} 0.3069307
##
  [26] {eggs=TRUE,backbone=TRUE}
                                           {aquatic=TRUE} 0.2376238
  [27] {milk=FALSE,backbone=TRUE}
                                           {aquatic=TRUE} 0.2376238
  [28] {toothed=TRUE,catsize=FALSE}
                                           {aquatic=TRUE} 0.1386139
       {eggs=TRUE,tail=TRUE}
   [29]
                                           {aquatic=TRUE} 0.2079208
   [30] {predator=TRUE,domestic=FALSE}
                                           {aquatic=TRUE} 0.2871287
   [31] {eggs=TRUE,domestic=FALSE}
                                           {aquatic=TRUE} 0.2871287
   [32] {airborne=FALSE, catsize=FALSE}
                                           {aquatic=TRUE} 0.1881188
   [33] {milk=FALSE,domestic=FALSE}
                                         => {aquatic=TRUE} 0.2871287
  [34] {milk=FALSE,tail=TRUE}
                                           {aquatic=TRUE} 0.2079208
  [35] {backbone=TRUE, catsize=FALSE}
                                         => {aquatic=TRUE} 0.1782178
       {feathers=FALSE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1881188
   [37]
        {airborne=FALSE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2970297
       {domestic=FALSE,catsize=FALSE}
                                            {aquatic=TRUE} 0.2178218
   [39]
       {toothed=TRUE,domestic=FALSE}
                                           {aquatic=TRUE} 0.2178218
        {feathers=FALSE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
       {backbone=TRUE,domestic=FALSE}
##
   [41]
                                         => {aquatic=TRUE} 0.2871287
       {tail=TRUE,catsize=FALSE}
                                           {aquatic=TRUE} 0.1485149
  [43] {feathers=FALSE,backbone=TRUE}
                                           {aquatic=TRUE} 0.2376238
                                            {aquatic=TRUE} 0.2970297
   [44]
       {backbone=TRUE}
   [45] {tail=TRUE}
                                           {aquatic=TRUE} 0.2574257
   [46] {venomous=FALSE}
                                           {aquatic=TRUE} 0.3168317
                                           {aquatic=TRUE} 0.1287129
   [47]
       {toothed=FALSE}
##
   Γ48]
       {breathes=TRUE}
                                         => {aquatic=TRUE} 0.1584158
##
        confidence lift
##
  [1]
        1.0000000
                   2.8055556
   [2]
##
        1.0000000
                   2.8055556
##
   [3]
        1.0000000
                   2.8055556
##
   [4]
        1.0000000
                   2.8055556
##
   [5]
        0.9523810
                   2.6719577
##
   [6]
        0.8947368
                   2.5102339
                   2.4396135
##
   [7]
        0.8695652
   [8]
        0.8571429
                   2.4047619
  [9]
        0.8500000
                   2.3847222
## [10] 0.8235294
                   2.3104575
```

```
## [11] 0.7894737
                    2.2149123
   [12] 0.7826087
                   2.1956522
   [13] 0.6969697
                    1.9553872
   [14] 0.6944444
                    1.9483025
   [15] 0.6842105
                    1.9195906
   [16] 0.6764706
                    1.8978758
   [17] 0.6756757
                    1.8956456
   [18] 0.6750000
                    1.8937500
   [19] 0.6578947
                    1.8457602
   [20] 0.6153846
                    1.7264957
   [21] 0.6071429
                    1.7033730
   [22] 0.6000000
                    1.6833333
   [23] 0.5909091
                    1.6578283
   [24] 0.5789474
                    1.6242690
   [25] 0.5740741
                    1.6105967
   [26] 0.5714286
                    1.6031746
   [27] 0.5714286
                    1.6031746
   [28] 0.5384615
                    1.5106838
   [29] 0.5384615
                    1.5106838
   [30] 0.5370370
                    1.5066872
##
   [31] 0.5370370
                    1.5066872
   [32] 0.5277778
                    1.4807099
   [33] 0.5272727
                    1.4792929
   [34] 0.5250000
                    1.4729167
   [35] 0.4500000
                    1.2625000
   [36] 0.4418605
                    1.2396641
   [37]
        0.4411765
                    1.2377451
                    1.2344444
   [38] 0.4400000
   [39] 0.4230769
                    1.1869658
   [40] 0.4084507
                    1.1459311
   [41] 0.4084507
                    1.1459311
##
   [42] 0.4054054
                    1.1373874
   [43]
       0.3809524
                    1.0687831
   [44]
        0.3614458
                    1.0140562
   [45]
        0.3466667
                    0.9725926
                   0.9653524
##
   [46] 0.3440860
   [47] 0.3250000
                    0.9118056
##
   [48] 0.2000000
                   0.5611111
##
        lhs
                                                         confidence lift
                             rhs
                                              support
##
                                                                    1.4343195
   [1]
        {domestic=TRUE}
                          => {aquatic=FALSE} 0.1188119 0.9230769
   [2]
                          => {aquatic=FALSE} 0.3861386 0.9069767
        {hair=TRUE}
                                                                    1.4093023
   [3]
        {eggs=FALSE}
                          => {aquatic=FALSE} 0.3564356 0.8571429
##
                                                                    1.3318681
##
   [4]
        {milk=TRUE}
                          => {aquatic=FALSE} 0.3465347 0.8536585
                                                                    1.3264540
##
   [5]
        {type=mammal}
                          => {aquatic=FALSE} 0.3465347 0.8536585
                                                                    1.3264540
   [6]
        {predator=FALSE}
                          => {aquatic=FALSE} 0.3762376 0.8444444
                                                                    1.3121368
   [7]
                          => {aquatic=FALSE} 0.6435644 0.7738095
##
        {fins=FALSE}
                                                                    1.2023810
##
   [8]
        {toothed=FALSE}
                          => {aquatic=FALSE} 0.2673267 0.6750000
                                                                    1.0488462
   [9]
        {toothed=TRUE}
                          => {aquatic=FALSE} 0.3762376 0.6229508
                                                                    0.9679697
   [10]
       {tail=FALSE}
                          => {aquatic=FALSE} 0.1584158 0.6153846
                                                                    0.9562130
   [11] {domestic=FALSE}
                          => {aquatic=FALSE} 0.5247525 0.6022727
                                                                    0.9358392
   [12] {catsize=FALSE}
                          => {aquatic=FALSE} 0.3366337 0.5964912
                                                                    0.9268556
##
   [13] {eggs=TRUE}
                          => {aquatic=FALSE} 0.2871287 0.4915254
                                                                    0.7637549
##
       lhs
                                          rhs
                                                          support
                                                                    confidence
## [1] {predator=TRUE,toothed=FALSE} => {aquatic=TRUE} 0.1089109 0.5789474
```

```
##
       lift
## [1] 1.624269
##
       lhs
                                                        support
                                                                  confidence
## [1] {hair=FALSE,toothed=TRUE}
                                     => {aquatic=TRUE} 0.1980198 0.8695652
                                     => {aquatic=TRUE} 0.1782178 0.8571429
## [2] {milk=FALSE,toothed=TRUE}
## [3] {eggs=TRUE,toothed=TRUE}
                                     => {aquatic=TRUE} 0.1683168 0.8500000
## [4] {toothed=TRUE,catsize=FALSE}
                                     => {aquatic=TRUE} 0.1386139 0.5384615
## [5] {toothed=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2178218 0.4230769
##
       lift
## [1] 2.439614
## [2] 2.404762
## [3] 2.384722
## [4] 1.510684
## [5] 1.186966
##
       lhs
                                           rhs
                                                          support
                                                                    confidence
## [1] {hair=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.3069307 0.5740741
  [2] {predator=TRUE,domestic=FALSE}
                                       => {aquatic=TRUE} 0.2871287 0.5370370
## [3] {eggs=TRUE,domestic=FALSE}
                                       => {aguatic=TRUE} 0.2871287 0.5370370
## [4] {milk=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5272727
## [5] {airborne=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2970297 0.4411765
## [6] {domestic=FALSE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.2178218 0.4400000
## [7] {toothed=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4230769
## [8] {feathers=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.4084507
## [9] {backbone=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.4084507
##
       lift
## [1] 1.610597
## [2] 1.506687
## [3] 1.506687
## [4] 1.479293
## [5] 1.237745
## [6] 1.234444
## [7] 1.186966
## [8] 1.145931
## [9] 1.145931
##
                                                         support
                                                                   confidence
## [1] {predator=TRUE,catsize=FALSE}
                                     => {aquatic=TRUE} 0.1683168 0.6071429
## [2] {toothed=TRUE,catsize=FALSE}
                                      => {aquatic=TRUE} 0.1386139 0.5384615
## [3] {airborne=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.5277778
## [4] {backbone=TRUE,catsize=FALSE} => {aquatic=TRUE} 0.1782178 0.4500000
## [5] {feathers=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.4418605
## [6] {domestic=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.2178218 0.4400000
## [7] {tail=TRUE,catsize=FALSE}
                                      => {aquatic=TRUE} 0.1485149 0.4054054
       lift
## [1] 1.703373
## [2] 1.510684
## [3] 1.480710
## [4] 1.262500
## [5] 1.239664
## [6] 1.234444
## [7] 1.137387
##
       lhs
                                     rhs
                                                     support
                                                               confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                  => {aquatic=TRUE} 0.1683168 0.8500000
## [2] {eggs=TRUE,predator=TRUE} => {aquatic=TRUE} 0.2277228 0.6969697
## [3] {eggs=TRUE,airborne=FALSE} => {aquatic=TRUE} 0.2475248 0.6756757
```

```
## [4] {feathers=FALSE,eggs=TRUE} => {aquatic=TRUE} 0.2376238 0.6153846
   [5] {eggs=TRUE,backbone=TRUE} => {aquatic=TRUE} 0.2376238 0.5714286
   [6] {eggs=TRUE,tail=TRUE}
                                  => {aquatic=TRUE} 0.2079208 0.5384615
   [7] {eggs=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.5370370
##
       lift.
##
  [1] 2.384722
  [2] 1.955387
   [3] 1.895646
##
   [4] 1.726496
##
   [5] 1.603175
  [6] 1.510684
##
   [7]
       1.506687
##
       "Número de reglas con consecuente negado"
##
                                                         support
                                                                   confidence
##
  [1]
        {milk=TRUE,toothed=TRUE}
                                         => {eggs=FALSE} 0.3960396 1.0000000
##
   [2]
        {milk=TRUE,aquatic=FALSE}
                                            {eggs=FALSE} 0.3465347 1.0000000
##
   [3]
        {toothed=TRUE, type=mammal}
                                         => {eggs=FALSE} 0.3960396 1.0000000
   [4]
        {aquatic=FALSE, type=mammal}
                                           {eggs=FALSE} 0.3465347 1.0000000
##
   [5]
        {hair=TRUE, toothed=TRUE}
                                           {eggs=FALSE} 0.3762376 1.0000000
##
   [6]
        {milk=TRUE}
                                           {eggs=FALSE} 0.3960396 0.9756098
##
   [7]
        {type=mammal}
                                           {eggs=FALSE} 0.3960396 0.9756098
##
  [8]
        {hair=TRUE,backbone=TRUE}
                                           {eggs=FALSE} 0.3762376 0.9743590
##
  [9]
        {hair=TRUE,airborne=FALSE}
                                           {eggs=FALSE} 0.3564356 0.9729730
   [10] {hair=TRUE,tail=TRUE}
                                           {eggs=FALSE} 0.3168317 0.9696970
  [11] {hair=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2871287 0.9666667
  [12] {hair=TRUE,predator=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.9500000
   [13] {aquatic=FALSE, toothed=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.9210526
  [14] {toothed=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.8857143
  [15] {toothed=TRUE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.8809524
  [16] {toothed=TRUE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.8510638
  [17] {toothed=TRUE,fins=FALSE}
                                           {eggs=FALSE} 0.3663366 0.8409091
  [18] {aquatic=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2574257 0.8387097
  [19] {feathers=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.8157895
  [20] {breathes=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.7948718
   [21] {predator=FALSE,toothed=TRUE}
                                           {eggs=FALSE} 0.1881188 0.7916667
##
  [22] {legs=TRUE,catsize=TRUE}
                                           {eggs=FALSE} 0.2772277 0.7567568
  [23] {airborne=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.3069307 0.7560976
  [24] {predator=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.1188119 0.7500000
  [25] {fins=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.2673267 0.7500000
  [26] {airborne=FALSE,aquatic=FALSE}
                                         => {eggs=FALSE} 0.3366337 0.7391304
  [27] {feathers=FALSE,aquatic=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.7058824
  [28] {toothed=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.7017544
  [29] {airborne=FALSE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3861386 0.6964286
  [30] {feathers=FALSE,breathes=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.6833333
## [31] {toothed=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.6730769
  [32] {airborne=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3564356 0.6666667
  [33]
       {aquatic=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.6603774
  [34] {feathers=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3762376 0.6551724
  [35] {feathers=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3564356 0.6545455
   [36] {feathers=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.6507937
##
  [37] {aquatic=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.6326531
  [38] {aquatic=FALSE,predator=TRUE}
                                         => {eggs=FALSE} 0.1683168 0.6296296
## [39] {airborne=FALSE,predator=FALSE} => {eggs=FALSE} 0.1683168 0.6071429
## [40] {airborne=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3861386 0.6000000
```

```
## [41] {airborne=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.6000000
  [42] {airborne=FALSE,tail=TRUE}
                                           {eggs=FALSE} 0.3366337 0.5964912
                                         => {eggs=FALSE} 0.3762376 0.5937500
  [43] {feathers=FALSE,fins=FALSE}
  [44] {backbone=TRUE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.5797101
  [45] {legs=TRUE,tail=TRUE}
                                            {eggs=FALSE} 0.3267327 0.5789474
  [46] {backbone=TRUE,legs=TRUE}
                                           {eggs=FALSE} 0.3663366 0.5781250
  [47] {aquatic=FALSE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3465347 0.5737705
  [48] {breathes=TRUE,tail=TRUE}
                                           {eggs=FALSE} 0.3465347 0.5737705
   [49] {predator=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.2178218 0.5641026
   [50] {backbone=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.5606061
   [51] {fins=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3267327 0.5593220
   [52] {feathers=FALSE,predator=FALSE}
                                        => {eggs=FALSE} 0.1881188 0.5588235
   [53] {feathers=FALSE,airborne=FALSE}
                                        => {eggs=FALSE} 0.3960396 0.5479452
  [54] {feathers=FALSE, venomous=FALSE}
                                            {eggs=FALSE} 0.3960396 0.5479452
  [55] {airborne=FALSE, venomous=FALSE} =>
                                            {eggs=FALSE} 0.3762376 0.5352113
        {breathes=TRUE, venomous=FALSE}
                                            {eggs=FALSE} 0.3960396 0.5333333
   [57]
       {predator=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.5277778
   [58] {predator=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.1683168 0.5151515
   [59] {backbone=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5063291
   [60] {venomous=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.5000000
##
   [61] {backbone=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.4939759
   [62] {venomous=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.4675325
##
        lift.
##
   Г17
        2.404762
   [2]
##
        2.404762
   [3]
        2.404762
   [4]
##
        2.404762
##
   [5]
        2.404762
   [6]
##
        2.346109
  [7]
        2.346109
##
  [8]
        2.343101
##
   [9]
        2.339768
  [10] 2.331890
  [11] 2.324603
   [12] 2.284524
##
  [13] 2.214912
  [14] 2.129932
## [15] 2.118481
   [16] 2.046606
  [17] 2.022186
  [18] 2.016897
  [19] 1.961779
  [20] 1.911477
  [21] 1.903770
## [22] 1.819820
## [23] 1.818235
  [24] 1.803571
  [25] 1.803571
  [26] 1.777433
  [27] 1.697479
## [28] 1.687552
## [29] 1.674745
## [30] 1.643254
## [31] 1.618590
```

```
## [32] 1.603175
  [33] 1.588050
  [34] 1.575534
  [35] 1.574026
   [36] 1.565004
  [37] 1.521380
  [38] 1.514109
  [39] 1.460034
   [40] 1.442857
  [41] 1.442857
  [42] 1.434419
  [43] 1.427827
  [44] 1.394065
## [45] 1.392231
  [46] 1.390253
  [47] 1.379781
  [48] 1.379781
  [49] 1.356532
  [50] 1.348124
   [51] 1.345036
##
  [52] 1.343838
  [53] 1.317678
  [54] 1.317678
##
   [55] 1.287056
  [56] 1.282540
  [57] 1.269180
  [58] 1.238817
##
   [59] 1.217601
  [60] 1.202381
  [61] 1.187894
##
   [62] 1.124304
##
        lhs
                             rhs
                                         support
                                                    confidence lift
##
  [1]
        {type=fish}
                          => {eggs=TRUE} 0.1287129 1.0000000
                                                               1.7118644
   [2]
        {type=bird}
                          => {eggs=TRUE} 0.1980198 1.0000000
                                                               1.7118644
   [3]
        {feathers=TRUE}
                          => {eggs=TRUE} 0.1980198 1.0000000
                                                               1.7118644
##
  [4]
        {toothed=FALSE}
                          => {eggs=TRUE} 0.3861386 0.9750000
                                                               1.6690678
  [5]
        {breathes=FALSE} => {eggs=TRUE} 0.1980198 0.9523810
                                                               1.6303471
##
  [6]
        {hair=FALSE}
                          => {eggs=TRUE} 0.5346535 0.9310345
                                                               1.5938048
  [7]
        {airborne=TRUE}
                          => {eggs=TRUE} 0.2178218 0.9166667
                                                               1.5692090
                          => {eggs=TRUE} 0.2970297 0.8333333
                                                               1.4265537
##
  [8]
        {aquatic=TRUE}
                          => {eggs=TRUE} 0.1881188 0.8260870
  [9]
        {legs=FALSE}
                                                               1.4141489
  [10] {tail=FALSE}
                          => {eggs=TRUE} 0.1980198 0.7692308
                                                               1.3168188
   [11] {fins=TRUE}
                          => {eggs=TRUE} 0.1287129 0.7647059
                                                               1.3090728
   [12] {predator=TRUE}
                          => {eggs=TRUE} 0.3267327 0.5892857
                                                               1.0087772
##
   [13] {catsize=TRUE}
                          => {eggs=TRUE} 0.1287129 0.2954545
                                                               0.5057781
##
       lhs
                                         rhs
                                                       support
                                                                  confidence
  [1] {hair=TRUE,predator=TRUE}
                                      => {eggs=FALSE} 0.1881188 0.9500000
   [2] {aquatic=FALSE,predator=TRUE} => {eggs=FALSE} 0.1683168 0.6296296
   [3] {predator=TRUE,breathes=TRUE} => {eggs=FALSE} 0.2178218 0.5641026
##
       lift
## [1] 2.284524
## [2] 1.514109
## [3] 1.356532
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
```

```
## [1] {hair=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2871287 0.9666667
  [2] {toothed=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.8857143
  [3] {aquatic=FALSE, catsize=TRUE}
                                      => {eggs=FALSE} 0.2574257 0.8387097
  [4] {feathers=FALSE,catsize=TRUE} => {eggs=FALSE} 0.3069307 0.8157895
  [5] {breathes=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.7948718
  [6] {legs=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2772277 0.7567568
##
  [7] {airborne=FALSE, catsize=TRUE} => {eggs=FALSE} 0.3069307 0.7560976
   [8] {predator=FALSE,catsize=TRUE} => {eggs=FALSE} 0.1188119 0.7500000
##
   [9] {fins=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2673267 0.7500000
##
       lift
  [1] 2.324603
   [2] 2.129932
##
   [3] 2.016897
  [4] 1.961779
  [5] 1.911477
   [6] 1.819820
##
  [7] 1.818235
  [8] 1.803571
  [9] 1.803571
       "Número de reglas con consecuente negado"
##
                                            rhs
        lhs
                                                           support
##
  [1]
        {milk=TRUE, predator=TRUE}
                                         => {catsize=TRUE} 0.1980198
##
  [2]
        {predator=TRUE, type=mammal}
                                         => {catsize=TRUE} 0.1980198
##
  [3]
        {hair=TRUE, predator=TRUE}
                                            {catsize=TRUE} 0.1782178
##
  [4]
        {eggs=FALSE,predator=TRUE}
                                           {catsize=TRUE} 0.1881188
  [5]
        {hair=TRUE,airborne=FALSE}
                                           {catsize=TRUE} 0.2970297
   [6]
        {milk=TRUE,domestic=FALSE}
##
                                           {catsize=TRUE} 0.2574257
##
   [7]
        {domestic=FALSE, type=mammal}
                                         => {catsize=TRUE} 0.2574257
  [8]
##
        {milk=TRUE}
                                         => {catsize=TRUE} 0.3168317
##
  [9]
                                         => {catsize=TRUE} 0.3168317
        {type=mammal}
  [10] {eggs=FALSE, venomous=FALSE}
                                           {catsize=TRUE} 0.3069307
       {hair=TRUE,backbone=TRUE}
                                         => {catsize=TRUE} 0.2970297
  Г11]
  [12] {hair=TRUE,tail=TRUE}
                                         => {catsize=TRUE} 0.2475248
  [13] {eggs=FALSE,backbone=TRUE}
                                         => {catsize=TRUE} 0.3069307
                                            {catsize=TRUE} 0.3069307
   [14] {eggs=FALSE}
##
  [15] {hair=TRUE, venomous=FALSE}
                                           {catsize=TRUE} 0.2970297
## [16] {hair=TRUE,domestic=FALSE}
                                           {catsize=TRUE} 0.2376238
## [17] {hair=TRUE}
                                           {catsize=TRUE} 0.2970297
## [18] {aquatic=FALSE,toothed=TRUE}
                                            {catsize=TRUE} 0.2574257
  [19] {toothed=TRUE,legs=TRUE}
                                           {catsize=TRUE} 0.2772277
  [20] {toothed=TRUE,breathes=TRUE}
                                           {catsize=TRUE} 0.3069307
  [21] {airborne=FALSE,breathes=TRUE}
                                           {catsize=TRUE} 0.3564356
## [22] {airborne=FALSE,aquatic=FALSE}
                                         => {catsize=TRUE} 0.2871287
## [23] {airborne=FALSE,legs=TRUE}
                                         => {catsize=TRUE} 0.3366337
## [24] {predator=TRUE,toothed=TRUE}
                                         => {catsize=TRUE} 0.2277228
## [25] {airborne=FALSE,backbone=TRUE}
                                         => {catsize=TRUE} 0.3960396
  [26] {airborne=FALSE,tail=TRUE}
                                         => {catsize=TRUE} 0.3465347
## [27] {toothed=TRUE,fins=FALSE}
                                         => {catsize=TRUE} 0.2673267
  [28] {toothed=TRUE, venomous=FALSE}
                                         => {catsize=TRUE} 0.3366337
  [29] {aquatic=FALSE,predator=TRUE}
                                         => {catsize=TRUE} 0.1584158
  [30] {predator=TRUE,breathes=TRUE}
                                         => {catsize=TRUE} 0.2277228
##
## [31] {feathers=FALSE,backbone=TRUE}
                                         => {catsize=TRUE} 0.3663366
## [32] {aquatic=FALSE,backbone=TRUE}
                                         => {catsize=TRUE} 0.3069307
## [33] {feathers=FALSE,tail=TRUE}
                                         => {catsize=TRUE} 0.3168317
```

```
[34] {toothed=TRUE,tail=TRUE}
                                          => {catsize=TRUE} 0.2970297
   [35] {predator=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2673267
   [36] {backbone=TRUE,breathes=TRUE}
                                             {catsize=TRUE} 0.3861386
   [37] {airborne=FALSE, venomous=FALSE} =>
                                             {catsize=TRUE} 0.3960396
##
   [38]
       {backbone=TRUE,legs=TRUE}
                                             {catsize=TRUE} 0.3564356
   [39]
       {legs=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.3168317
##
   [40] {breathes=TRUE.tail=TRUE}
                                             {catsize=TRUE} 0.3366337
   [41] {aquatic=FALSE,tail=TRUE}
                                             {catsize=TRUE} 0.2673267
   [42]
       {airborne=FALSE,fins=FALSE}
                                             {catsize=TRUE} 0.3267327
   [43]
       {feathers=FALSE, breathes=TRUE}
                                            {catsize=TRUE} 0.3267327
   [44] {predator=TRUE, tail=TRUE}
                                            {catsize=TRUE} 0.2277228
   [45] {predator=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.2673267
   [46] {predator=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.2079208
   [47] {feathers=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3069307
   [48] {feathers=FALSE,predator=TRUE}
                                            {catsize=TRUE} 0.2475248
   [49]
        {backbone=TRUE, venomous=FALSE}
                                             {catsize=TRUE} 0.4158416
   [50]
        {backbone=TRUE,fins=FALSE}
                                            {catsize=TRUE} 0.3465347
       {feathers=FALSE,aquatic=FALSE}
                                            {catsize=TRUE} 0.2673267
   Γ51]
   [52] {fins=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3069307
   [53]
       {venomous=FALSE,tail=TRUE}
                                             {catsize=TRUE} 0.3663366
##
   [54]
       {backbone=TRUE,domestic=FALSE}
                                            {catsize=TRUE} 0.3663366
       {breathes=TRUE, venomous=FALSE}
                                             {catsize=TRUE} 0.3861386
       {aquatic=FALSE, venomous=FALSE}
                                             {catsize=TRUE} 0.3069307
##
   [57]
        {feathers=FALSE, venomous=FALSE}
                                             {catsize=TRUE} 0.3663366
   [58]
       {venomous=FALSE,legs=TRUE}
                                             {catsize=TRUE} 0.3663366
   [59]
       {aquatic=FALSE}
                                            {catsize=TRUE} 0.3069307
   [60] {aquatic=TRUE}
                                            {catsize=TRUE} 0.1287129
##
   [61] {hair=FALSE}
                                          => {catsize=TRUE} 0.1386139
##
   [62] {milk=FALSE}
                                         => {catsize=TRUE} 0.1188119
##
        confidence lift
##
   [1]
        0.9090909
                   2.0867769
##
   [2]
        0.9090909
                    2.0867769
##
   [3]
        0.900000
                    2.0659091
   [4]
##
        0.8260870
                    1.8962451
   [5]
##
        0.8108108
                    1.8611794
                    1.8085399
##
   [6]
        0.7878788
   [7]
        0.7878788
                    1.8085399
   [8]
        0.7804878
##
                    1.7915743
   [9]
        0.7804878
                    1.7915743
##
   [10] 0.7750000
                    1.7789773
   [11] 0.7692308
                    1.7657343
   [12] 0.7575758
                    1.7389807
   [13] 0.7560976
                    1.7355876
   [14] 0.7380952
                    1.6942641
   [15] 0.7317073
                    1.6796009
   [16] 0.7058824
                    1.6203209
##
   [17] 0.6976744
                    1.6014799
   [18] 0.6842105
                    1.5705742
   [19] 0.6666667
                    1.5303030
   [20]
        0.6595745
                    1.5140232
##
   [21] 0.6428571
                    1.4756494
## [22] 0.6304348
                    1.4471344
## [23] 0.6296296
                    1.4452862
## [24] 0.6216216
                   1.4269042
```

```
## [25] 0.6153846
                   1.4125874
   [26] 0.6140351
                    1.4094896
   [27] 0.6136364
                    1.4085744
   [28] 0.5964912
                    1.3692185
   [29] 0.5925926
                    1.3602694
   [30] 0.5897436
                    1.3537296
   [31] 0.5873016
                    1.3481241
   [32] 0.5849057
                    1.3426244
   [33] 0.5818182
                    1.3355372
   [34] 0.5769231
                    1.3243007
   [35] 0.5744681
                    1.3186654
   [36] 0.5652174
                    1.2974308
   [37] 0.5633803
                    1.2932138
   [38] 0.5625000
                    1.2911932
   [39] 0.5614035
                    1.2886762
   [40] 0.5573770
                    1.2794337
                    1.2648423
   [41] 0.5510204
   [42] 0.5500000
                    1.2625000
   [43] 0.5500000
                    1.2625000
                    1.2570346
   [44] 0.5476190
##
  [45] 0.5400000
                    1.2395455
   [46] 0.5384615
                    1.2360140
                    1.2268809
   [47] 0.5344828
   [48] 0.5319149
                    1.2209865
   [49] 0.5316456
                    1.2203682
   [50] 0.5303030
                    1.2172865
   [51] 0.5294118
                    1.2152406
   [52] 0.5254237
                    1.2060863
   [53] 0.5211268
                    1.1962228
   [54] 0.5211268
                    1.1962228
   [55] 0.5200000
                    1.1936364
   [56] 0.5081967
                    1.1665425
   [57] 0.5068493
                    1.1634496
   [58] 0.5000000
                    1.1477273
   [59] 0.4769231
                    1.0947552
##
   [60] 0.3611111
                   0.8289141
   [61] 0.2413793
                   0.5540752
##
   [62] 0.2000000
                   0.4590909
##
        lhs
                                                        confidence lift
                             rhs
                                              support
##
   [1]
        {backbone=FALSE} => {catsize=FALSE} 0.1683168 0.9444444
                                                                    1.6734893
                          => {catsize=FALSE} 0.2079208 0.8750000
        {airborne=TRUE}
                                                                    1.5504386
##
   [3]
        {milk=FALSE}
                          => {catsize=FALSE} 0.4752475 0.8000000
                                                                    1.4175439
   [4]
##
        {eggs=TRUE}
                          => {catsize=FALSE} 0.4554455 0.7796610
                                                                    1.3815046
##
   [5]
        {tail=FALSE}
                          => {catsize=FALSE} 0.1980198 0.7692308
                                                                    1.3630229
  [6]
        {breathes=FALSE}
                          => {catsize=FALSE} 0.1584158 0.7619048
                                                                    1.3500418
  [7]
                          => {catsize=FALSE} 0.1386139 0.7000000
##
        {type=bird}
                                                                    1.2403509
##
   [8]
        {feathers=TRUE}
                          => {catsize=FALSE} 0.1386139 0.7000000
                                                                    1.2403509
##
   [9]
        {legs=FALSE}
                          => {catsize=FALSE} 0.1584158 0.6956522
                                                                    1.2326468
   [10]
       {aquatic=TRUE}
                          => {catsize=FALSE} 0.2277228 0.6388889
                                                                    1.1320663
   [11] {predator=TRUE}
                          => {catsize=FALSE} 0.2772277 0.5000000
                                                                    0.8859649
                          => {catsize=FALSE} 0.3564356 0.4675325
   [12] {airborne=FALSE}
                                                                    0.8284347
  [13] {hair=TRUE}
                          => {catsize=FALSE} 0.1287129 0.3023256
                                                                    0.5356997
##
  [14] {eggs=FALSE}
                          => {catsize=FALSE} 0.1089109 0.2619048
                                                                    0.4640769
##
        lhs
                                            rhs
                                                            support
                                                                      confidence
```

```
## [1]
        {milk=TRUE,predator=TRUE}
                                        => {catsize=TRUE} 0.1980198 0.9090909
                                        => {catsize=TRUE} 0.1980198 0.9090909
##
  [2]
        {predator=TRUE, type=mammal}
                                        => {catsize=TRUE} 0.1782178 0.9000000
  [3]
        {hair=TRUE, predator=TRUE}
   [4]
        {eggs=FALSE,predator=TRUE}
                                        => {catsize=TRUE} 0.1881188 0.8260870
##
##
   [5]
        {predator=TRUE, toothed=TRUE}
                                        => {catsize=TRUE} 0.2277228 0.6216216
   [6]
        {aquatic=FALSE, predator=TRUE}
                                        => {catsize=TRUE} 0.1584158 0.5925926
##
##
   [7]
        {predator=TRUE, breathes=TRUE}
                                        => {catsize=TRUE} 0.2277228 0.5897436
##
  [8]
        {predator=TRUE,backbone=TRUE}
                                        => {catsize=TRUE} 0.2673267 0.5744681
##
   [9]
        {predator=TRUE,tail=TRUE}
                                        => {catsize=TRUE} 0.2277228 0.5476190
   [10] {predator=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2673267 0.5400000
   [11] {predator=TRUE,legs=TRUE}
                                        => {catsize=TRUE} 0.2079208 0.5384615
       {feathers=FALSE,predator=TRUE} => {catsize=TRUE} 0.2475248 0.5319149
##
   [12]
##
        lift
##
  [1]
        2.086777
  [2]
        2.086777
##
##
   [3]
        2.065909
   [4]
##
        1.896245
   [5]
##
        1.426904
##
   [6]
        1.360269
##
   [7]
        1.353730
##
   [8]
        1.318665
##
  [9]
        1.257035
  [10] 1.239545
##
##
  Γ11 1.236014
##
  [12] 1.220986
##
       lhs
                                           rhs
                                                           support
                                                                     confidence
  [1] {hair=TRUE,airborne=FALSE}
                                        => {catsize=TRUE} 0.2970297 0.8108108
##
   [2] {airborne=FALSE,breathes=TRUE}
                                        => {catsize=TRUE} 0.3564356 0.6428571
   [3] {airborne=FALSE,aquatic=FALSE}
                                        => {catsize=TRUE} 0.2871287 0.6304348
  [4] {airborne=FALSE,legs=TRUE}
                                        => {catsize=TRUE} 0.3366337 0.6296296
  [5] {airborne=FALSE,backbone=TRUE}
                                        => {catsize=TRUE} 0.3960396 0.6153846
   [6] {airborne=FALSE,tail=TRUE}
                                        => {catsize=TRUE} 0.3465347 0.6140351
   [7] {airborne=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3960396 0.5633803
                                        => {catsize=TRUE} 0.3267327 0.5500000
   [8] {airborne=FALSE,fins=FALSE}
##
       lift
##
## [1] 1.861179
  [2] 1.475649
  [3] 1.447134
##
##
   [4] 1.445286
##
  [5] 1.412587
  [6] 1.409490
   [7] 1.293214
##
##
   [8] 1.262500
##
       lhs
                                      rhs
                                                      support
                                                                confidence
## [1] {hair=TRUE,predator=TRUE}
                                   => {catsize=TRUE} 0.1782178 0.9000000
   [2] {hair=TRUE,airborne=FALSE} => {catsize=TRUE} 0.2970297 0.8108108
##
   [3] {hair=TRUE,backbone=TRUE}
                                   => {catsize=TRUE} 0.2970297 0.7692308
  [4] {hair=TRUE,tail=TRUE}
                                   => {catsize=TRUE} 0.2475248 0.7575758
   [5] {hair=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2970297 0.7317073
##
   [6] {hair=TRUE,domestic=FALSE} => {catsize=TRUE} 0.2376238 0.7058824
##
       lift
## [1] 2.065909
## [2] 1.861179
## [3] 1.765734
```

```
[4] 1.738981
   [5] 1.679601
##
   [6] 1.620321
##
       lhs
                                       rhs
                                                      support
                                                                 confidence
##
   [1] {eggs=FALSE,predator=TRUE}
                                   => {catsize=TRUE} 0.1881188 0.8260870
   [2] {eggs=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3069307 0.7750000
##
   [3] {eggs=FALSE,backbone=TRUE} => {catsize=TRUE} 0.3069307 0.7560976
##
       lift.
##
   [1] 1.896245
##
   [2] 1.778977
   [3] 1.735588
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                         support
                                                                   confidence
        {milk=TRUE,toothed=TRUE}
##
   [1]
                                           {eggs=FALSE} 0.3960396 1.0000000
   [2]
                                           {eggs=FALSE} 0.3465347 1.0000000
##
        {milk=TRUE, aquatic=FALSE}
##
   [3]
        {toothed=TRUE, type=mammal}
                                            {eggs=FALSE} 0.3960396 1.0000000
   [4]
##
        {aquatic=FALSE, type=mammal}
                                         => {eggs=FALSE} 0.3465347 1.0000000
##
   [5]
        {hair=TRUE, toothed=TRUE}
                                           {eggs=FALSE} 0.3762376 1.0000000
   [6]
##
        {milk=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.9756098
##
   [7]
        {type=mammal}
                                           {eggs=FALSE} 0.3960396 0.9756098
##
   [8]
        {hair=TRUE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3762376 0.9743590
  [9]
        {hair=TRUE,airborne=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.9729730
  [10] {hair=TRUE,tail=TRUE}
                                           {eggs=FALSE} 0.3168317 0.9696970
  [11] {hair=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2871287 0.9666667
  [12] {hair=TRUE,predator=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.9500000
  [13] {aquatic=FALSE, toothed=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.9210526
  [14] {toothed=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.8857143
  [15] {toothed=TRUE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.8809524
  [16] {toothed=TRUE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.8510638
## [17] {toothed=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.8409091
  [18] {aquatic=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2574257 0.8387097
  [19]
       {feathers=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.8157895
  [20] {breathes=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.7948718
  [21] {predator=FALSE, toothed=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.7916667
   [22] {legs=TRUE,catsize=TRUE}
                                           {eggs=FALSE} 0.2772277 0.7567568
  [23] {airborne=FALSE,catsize=TRUE}
##
                                         => {eggs=FALSE} 0.3069307 0.7560976
  [24] {predator=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.1188119 0.7500000
  [25] {fins=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2673267 0.7500000
  [26] {airborne=FALSE,aquatic=FALSE}
                                         => {eggs=FALSE} 0.3366337 0.7391304
  [27] {feathers=FALSE,aquatic=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.7058824
  [28] {toothed=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.7017544
  [29] {airborne=FALSE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3861386 0.6964286
  [30] {feathers=FALSE,breathes=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.6833333
  [31] {toothed=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.6730769
## [32] {airborne=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3564356 0.6666667
  [33] {aquatic=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.6603774
  [34] {feathers=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3762376 0.6551724
  [35] {feathers=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3564356 0.6545455
  [36] {feathers=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.6507937
   [37] {aquatic=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.6326531
  [38] {aquatic=FALSE,predator=TRUE}
                                         => {eggs=FALSE} 0.1683168 0.6296296
## [39] {airborne=FALSE,predator=FALSE}
                                        => {eggs=FALSE} 0.1683168 0.6071429
## [40] {airborne=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3861386 0.6000000
## [41] {airborne=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.6000000
```

```
## [42] {airborne=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3366337 0.5964912
  [43] {feathers=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3762376 0.5937500
  [44] {backbone=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.5797101
  [45] {legs=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3267327 0.5789474
  [46] {backbone=TRUE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.5781250
  [47] {aquatic=FALSE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3465347 0.5737705
  [48] {breathes=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.5737705
  [49] {predator=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.2178218 0.5641026
   [50] {backbone=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.5606061
   [51] {fins=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3267327 0.5593220
  [52] {feathers=FALSE,predator=FALSE} => {eggs=FALSE} 0.1881188 0.5588235
   [53] {feathers=FALSE,airborne=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5479452
   [54] {feathers=FALSE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5479452
  [55] {airborne=FALSE, venomous=FALSE}
                                           {eggs=FALSE} 0.3762376 0.5352113
  [56] {breathes=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5333333
        {predator=FALSE,backbone=TRUE}
                                            {eggs=FALSE} 0.1881188 0.5277778
   [58]
       {predator=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.1683168 0.5151515
   [59] {backbone=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5063291
   [60] {venomous=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.5000000
   [61] {backbone=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.4939759
##
   [62]
       {venomous=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.4675325
##
        lift
  [1]
##
        2.404762
   [2]
##
        2.404762
##
  [3]
        2.404762
  [4]
        2.404762
   [5]
##
        2.404762
##
   [6]
        2.346109
   [7]
##
        2.346109
##
  [8]
        2.343101
##
  [9]
        2.339768
##
  [10] 2.331890
  [11] 2.324603
  [12] 2.284524
   [13] 2.214912
##
  [14] 2.129932
  [15] 2.118481
## [16] 2.046606
  [17] 2.022186
  [18] 2.016897
  [19] 1.961779
  [20] 1.911477
  [21] 1.903770
  [22] 1.819820
## [23] 1.818235
## [24] 1.803571
  [25] 1.803571
  [26] 1.777433
  [27] 1.697479
  [28] 1.687552
##
  [29] 1.674745
## [30] 1.643254
## [31] 1.618590
## [32] 1.603175
```

```
## [33] 1.588050
  [34] 1.575534
  [35] 1.574026
  [36] 1.565004
   [37] 1.521380
  [38] 1.514109
  [39] 1.460034
## [40] 1.442857
  [41] 1.442857
  [42] 1.434419
  [43] 1.427827
  [44] 1.394065
  [45] 1.392231
## [46] 1.390253
## [47] 1.379781
  [48] 1.379781
  [49] 1.356532
  [50] 1.348124
  [51] 1.345036
   [52] 1.343838
##
  [53] 1.317678
  [54] 1.317678
##
  [55] 1.287056
##
   [56] 1.282540
  [57] 1.269180
  [58] 1.238817
  [59] 1.217601
   [60] 1.202381
##
   [61] 1.187894
##
   [62] 1.124304
##
        lhs
                                         support
                                                    confidence lift
##
  [1]
        {type=fish}
                          => {eggs=TRUE} 0.1287129 1.0000000
                                                               1.7118644
   [2]
        {type=bird}
                          => {eggs=TRUE} 0.1980198 1.0000000
                                                               1.7118644
   [3]
##
        {feathers=TRUE}
                          => {eggs=TRUE} 0.1980198 1.0000000
                                                               1.7118644
   [4]
        {toothed=FALSE}
                          => {eggs=TRUE} 0.3861386 0.9750000
                                                               1.6690678
##
   [5]
        {breathes=FALSE}
                         => {eggs=TRUE} 0.1980198 0.9523810
                                                               1.6303471
  [6]
        {hair=FALSE}
                          => {eggs=TRUE} 0.5346535 0.9310345
                                                               1.5938048
  [7]
                          => {eggs=TRUE} 0.2178218 0.9166667
##
        {airborne=TRUE}
                                                               1.5692090
        {aquatic=TRUE}
   [8]
                          => {eggs=TRUE} 0.2970297 0.8333333
                                                               1.4265537
                          => {eggs=TRUE} 0.1881188 0.8260870
##
  [9]
        {legs=FALSE}
                                                               1.4141489
                          => {eggs=TRUE} 0.1980198 0.7692308
  [10] {tail=FALSE}
                                                               1.3168188
  [11] {fins=TRUE}
                          => {eggs=TRUE} 0.1287129 0.7647059
                                                               1.3090728
   [12] {predator=TRUE}
                          => {eggs=TRUE} 0.3267327 0.5892857
                                                               1.0087772
##
   [13] {catsize=TRUE}
                          => {eggs=TRUE} 0.1287129 0.2954545
                                                               0.5057781
##
                                         rhs
                                                       support
                                                                 confidence
   [1] {hair=TRUE,predator=TRUE}
                                      => {eggs=FALSE} 0.1881188 0.9500000
   [2] {aquatic=FALSE,predator=TRUE} => {eggs=FALSE} 0.1683168 0.6296296
   [3] {predator=TRUE,breathes=TRUE} => {eggs=FALSE} 0.2178218 0.5641026
##
       lift
##
   [1] 2.284524
   [2] 1.514109
##
   [3] 1.356532
##
       lhs
                                                       support
                                                                 confidence
                                         rhs
## [1] {hair=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2871287 0.9666667
```

```
=> {eggs=FALSE} 0.3069307 0.8857143
## [2] {toothed=TRUE,catsize=TRUE}
## [3] {aquatic=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2574257 0.8387097
## [4] {feathers=FALSE,catsize=TRUE} => {eggs=FALSE} 0.3069307 0.8157895
  [5] {breathes=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.7948718
   [6] {legs=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2772277 0.7567568
  [7] {airborne=FALSE,catsize=TRUE} => {eggs=FALSE} 0.3069307 0.7560976
## [8] {predator=FALSE,catsize=TRUE} => {eggs=FALSE} 0.1188119 0.7500000
  [9] {fins=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2673267 0.7500000
##
       lift
##
  [1] 2.324603
  [2] 2.129932
  [3] 2.016897
   [4] 1.961779
  [5] 1.911477
## [6] 1.819820
  [7]
      1.818235
  [8] 1.803571
   [9] 1.803571
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                           support
##
  [1]
        {type=fish}
                                         => {aquatic=TRUE} 0.1287129
  [2]
##
        {fins=TRUE}
                                           {aquatic=TRUE} 0.1683168
  [3]
##
        {breathes=FALSE,tail=TRUE}
                                           {aquatic=TRUE} 0.1386139
##
   [4]
        {backbone=TRUE, breathes=FALSE}
                                           {aquatic=TRUE} 0.1386139
##
  [5]
        {breathes=FALSE}
                                         => {aquatic=TRUE} 0.1980198
  [6]
        {backbone=TRUE,legs=FALSE}
                                         => {aquatic=TRUE} 0.1683168
   [7]
##
        {hair=FALSE,toothed=TRUE}
                                         => {aquatic=TRUE} 0.1980198
##
   [8]
        {milk=FALSE,toothed=TRUE}
                                         => {aquatic=TRUE} 0.1782178
  [9]
        {eggs=TRUE,toothed=TRUE}
                                         => {aquatic=TRUE} 0.1683168
  [10] {predator=TRUE,legs=FALSE}
                                         => {aquatic=TRUE} 0.1386139
  [11]
       {venomous=FALSE,legs=FALSE}
                                           {aquatic=TRUE} 0.1485149
##
  [12] {legs=FALSE}
                                         => {aquatic=TRUE} 0.1782178
  [13] {eggs=TRUE,predator=TRUE}
                                         => {aquatic=TRUE} 0.2277228
  [14] {hair=FALSE,predator=TRUE}
                                         => {aquatic=TRUE} 0.2475248
   [15] {hair=FALSE, feathers=FALSE}
                                         => {aguatic=TRUE} 0.2574257
## [16] {milk=FALSE,predator=TRUE}
                                         => {aquatic=TRUE} 0.2277228
## [17] {eggs=TRUE,airborne=FALSE}
                                         => {aquatic=TRUE} 0.2475248
## [18] {hair=FALSE,airborne=FALSE}
                                         => {aquatic=TRUE} 0.2673267
## [19] {milk=FALSE,airborne=FALSE}
                                         => {aquatic=TRUE} 0.2475248
## [20] {feathers=FALSE,eggs=TRUE}
                                         => {aquatic=TRUE} 0.2376238
## [21] {predator=TRUE,catsize=FALSE}
                                         => {aquatic=TRUE} 0.1683168
## [22] {feathers=FALSE,milk=FALSE}
                                         => {aquatic=TRUE} 0.2376238
## [23] {hair=FALSE,backbone=TRUE}
                                         => {aquatic=TRUE} 0.2574257
## [24] {predator=TRUE,toothed=FALSE}
                                         => {aquatic=TRUE} 0.1089109
## [25] {hair=FALSE,domestic=FALSE}
                                         => {aquatic=TRUE} 0.3069307
## [26] {eggs=TRUE,backbone=TRUE}
                                           {aquatic=TRUE} 0.2376238
## [27] {milk=FALSE,backbone=TRUE}
                                         => {aquatic=TRUE} 0.2376238
## [28] {toothed=TRUE,catsize=FALSE}
                                         => {aquatic=TRUE} 0.1386139
## [29] {eggs=TRUE,tail=TRUE}
                                         => {aquatic=TRUE} 0.2079208
  [30] {predator=TRUE,domestic=FALSE}
                                         => {aquatic=TRUE} 0.2871287
  [31] {eggs=TRUE,domestic=FALSE}
                                         => {aquatic=TRUE} 0.2871287
## [32] {airborne=FALSE, catsize=FALSE}
                                         => {aquatic=TRUE} 0.1881188
## [33] {milk=FALSE,domestic=FALSE}
                                         => {aquatic=TRUE} 0.2871287
## [34] {milk=FALSE,tail=TRUE}
                                         => {aquatic=TRUE} 0.2079208
```

```
## [35] {backbone=TRUE,catsize=FALSE}
                                          => {aquatic=TRUE} 0.1782178
   [36]
       {feathers=FALSE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1881188
       {airborne=FALSE,domestic=FALSE} =>
                                            {aquatic=TRUE} 0.2970297
   [38] {domestic=FALSE,catsize=FALSE}
                                            {aquatic=TRUE} 0.2178218
   [39]
       {toothed=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2178218
   [40] {feathers=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2871287
   [41] {backbone=TRUE,domestic=FALSE}
                                          => {aquatic=TRUE} 0.2871287
   [42]
       {tail=TRUE, catsize=FALSE}
                                            {aquatic=TRUE} 0.1485149
   Γ437
       {feathers=FALSE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2376238
   [44]
       {backbone=TRUE}
                                          => {aquatic=TRUE} 0.2970297
   [45]
       {tail=TRUE}
                                          => {aquatic=TRUE} 0.2574257
   [46]
       {venomous=FALSE}
                                            {aquatic=TRUE} 0.3168317
   [47]
        {toothed=FALSE}
                                         => {aquatic=TRUE} 0.1287129
   [48] {breathes=TRUE}
##
                                         => {aquatic=TRUE} 0.1584158
##
        confidence lift
##
   [1]
        1.0000000
                   2.8055556
   [2]
##
        1.0000000
                   2.8055556
   [3]
        1.0000000
                   2.8055556
   [4]
##
        1.0000000
                   2.8055556
   [5]
        0.9523810
                    2.6719577
##
   [6]
        0.8947368
                   2.5102339
   [7]
        0.8695652
                    2.4396135
   [8]
                   2.4047619
##
        0.8571429
   [9]
        0.8500000
                    2.3847222
   [10] 0.8235294
                    2.3104575
   [11] 0.7894737
                    2.2149123
       0.7826087
   [12]
                    2.1956522
   [13] 0.6969697
                    1.9553872
   [14] 0.6944444
                    1.9483025
   [15] 0.6842105
                    1.9195906
   [16] 0.6764706
                    1.8978758
   [17] 0.6756757
                    1.8956456
   [18] 0.6750000
                    1.8937500
   [19] 0.6578947
                    1.8457602
   [20] 0.6153846
                    1.7264957
##
   [21] 0.6071429
                    1.7033730
   [22] 0.6000000
                    1.6833333
   [23] 0.5909091
                    1.6578283
   [24] 0.5789474
                    1.6242690
   [25] 0.5740741
                    1.6105967
   [26] 0.5714286
                    1.6031746
   [27] 0.5714286
                    1.6031746
   [28] 0.5384615
                    1.5106838
   [29] 0.5384615
                    1.5106838
   [30] 0.5370370
                    1.5066872
   [31] 0.5370370
                    1.5066872
                    1.4807099
##
   [32] 0.5277778
   [33] 0.5272727
                    1.4792929
   [34]
       0.5250000
                    1.4729167
   [35]
        0.4500000
                    1.2625000
   [36]
##
       0.4418605
                    1.2396641
   [37] 0.4411765
                    1.2377451
## [38] 0.4400000
                    1.2344444
## [39] 0.4230769
                   1.1869658
```

```
## [40] 0.4084507
                   1.1459311
  [41] 0.4084507
                   1.1459311
  [42] 0.4054054
                   1.1373874
  [43] 0.3809524
                   1.0687831
   [44] 0.3614458
                   1.0140562
  [45] 0.3466667
                   0.9725926
##
  [46] 0.3440860
                   0.9653524
  [47] 0.3250000
                   0.9118056
##
   [48] 0.2000000
                   0.5611111
##
        lhs
                                             support
                                                        confidence lift
##
  [1]
        {domestic=TRUE}
                         => {aquatic=FALSE} 0.1188119 0.9230769
                                                                   1.4343195
   [2]
##
        {hair=TRUE}
                          => {aquatic=FALSE} 0.3861386 0.9069767
                                                                   1.4093023
##
   [3]
                          => {aquatic=FALSE} 0.3564356 0.8571429
        {eggs=FALSE}
                                                                   1.3318681
                         => {aquatic=FALSE} 0.3465347 0.8536585
##
  [4]
        {milk=TRUE}
                                                                   1.3264540
  [5]
##
        {type=mammal}
                          => {aquatic=FALSE} 0.3465347 0.8536585
                                                                   1.3264540
##
   [6]
        {predator=FALSE}
                         => {aquatic=FALSE} 0.3762376 0.8444444
                                                                   1.3121368
##
   [7]
        {fins=FALSE}
                          => {aquatic=FALSE} 0.6435644 0.7738095
                                                                   1.2023810
##
  [8]
        {toothed=FALSE}
                         => {aquatic=FALSE} 0.2673267 0.6750000
                                                                   1.0488462
##
  [9]
        {toothed=TRUE}
                          => {aquatic=FALSE} 0.3762376 0.6229508
                                                                   0.9679697
   [10] {tail=FALSE}
                          => {aquatic=FALSE} 0.1584158 0.6153846
                                                                   0.9562130
##
  [11] {domestic=FALSE}
                         => {aquatic=FALSE} 0.5247525 0.6022727
                                                                   0.9358392
                          => {aquatic=FALSE} 0.3366337 0.5964912
  [12] {catsize=FALSE}
                                                                   0.9268556
##
  [13] {eggs=TRUE}
                          => {aquatic=FALSE} 0.2871287 0.4915254
                                                                   0.7637549
##
                                         rhs
                                                         support
                                                                   confidence
##
   [1] {predator=TRUE,toothed=FALSE} => {aquatic=TRUE} 0.1089109 0.5789474
##
       lift
##
   [1] 1.624269
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
##
  [1] {hair=FALSE,toothed=TRUE}
                                        {aquatic=TRUE} 0.1980198 0.8695652
  [2] {milk=FALSE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1782178 0.8571429
   [3] {eggs=TRUE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1683168 0.8500000
   [4] {toothed=TRUE,catsize=FALSE}
                                      => {aquatic=TRUE} 0.1386139 0.5384615
##
   [5] {toothed=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2178218 0.4230769
##
       lift
   [1] 2.439614
##
##
   [2] 2.404762
   [3] 2.384722
  [4] 1.510684
##
  [5] 1.186966
##
##
       lhs
                                                           support
                                                                     confidence
                                           rhs
  [1] {hair=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.3069307 0.5740741
   [2] {predator=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
   [3] {eggs=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
   [4] {milk=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5272727
  [5] {airborne=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2970297 0.4411765
  [6] {domestic=FALSE,catsize=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4400000
   [7] {toothed=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4230769
   [8] {feathers=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.4084507
##
   [9] {backbone=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.4084507
##
       lift
## [1] 1.610597
## [2] 1.506687
## [3] 1.506687
## [4] 1.479293
```

```
## [5] 1.237745
  [6] 1.234444
  [7] 1.186966
  [8] 1.145931
##
   [9] 1.145931
##
       lhs
                                          rhs
                                                         support
                                                                    confidence
## [1] {predator=TRUE, catsize=FALSE}
                                       => {aquatic=TRUE} 0.1683168 0.6071429
## [2] {toothed=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1386139 0.5384615
  [3] {airborne=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.5277778
  [4] {backbone=TRUE, catsize=FALSE}
                                       => {aquatic=TRUE} 0.1782178 0.4500000
  [5] {feathers=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.4418605
  [6] {domestic=FALSE, catsize=FALSE} => {aquatic=TRUE} 0.2178218 0.4400000
   [7] {tail=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1485149 0.4054054
##
       lift
## [1] 1.703373
  [2] 1.510684
  [3] 1.480710
  [4] 1.262500
  [5] 1.239664
   [6] 1.234444
##
   [7] 1.137387
##
       lhs
                                                     support
                                                                confidence
  [1] {eggs=TRUE,toothed=TRUE}
                                   => {aquatic=TRUE} 0.1683168 0.8500000
##
   [2] {eggs=TRUE,predator=TRUE}
                                  => {aquatic=TRUE} 0.2277228 0.6969697
  [3] {eggs=TRUE,airborne=FALSE} => {aquatic=TRUE} 0.2475248 0.6756757
  [4] {feathers=FALSE,eggs=TRUE} => {aquatic=TRUE} 0.2376238 0.6153846
   [5] {eggs=TRUE,backbone=TRUE}
                                  => {aquatic=TRUE} 0.2376238 0.5714286
   [6] {eggs=TRUE,tail=TRUE}
                                   => {aquatic=TRUE} 0.2079208 0.5384615
   [7] {eggs=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.5370370
##
##
       lift
## [1] 2.384722
   [2] 1.955387
  [3] 1.895646
  [4] 1.726496
   [5] 1.603175
##
  [6] 1.510684
  [7] 1.506687
## [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                        support
                                                                   confidence
        {hair=TRUE,eggs=FALSE}
##
  [1]
                                         => {milk=TRUE} 0.3762376 1.0000000
        {eggs=FALSE,catsize=TRUE}
                                         => {milk=TRUE} 0.3069307 1.0000000
  [2]
  [3]
        {eggs=FALSE,predator=FALSE}
                                           {milk=TRUE} 0.1881188 1.0000000
##
##
   [4]
        {eggs=FALSE, venomous=FALSE}
                                         => {milk=TRUE} 0.3960396 1.0000000
##
  [5]
                                         => {milk=TRUE} 0.2970297 1.0000000
        {hair=TRUE,catsize=TRUE}
## [6]
        {hair=TRUE, predator=TRUE}
                                         => {milk=TRUE} 0.1980198 1.0000000
## [7]
                                           {milk=TRUE} 0.3762376 1.0000000
        {hair=TRUE, toothed=TRUE}
## [8]
        {hair=TRUE,tail=TRUE}
                                         => {milk=TRUE} 0.3267327 1.0000000
## [9]
        {hair=TRUE,airborne=FALSE}
                                         => {milk=TRUE} 0.3663366 1.0000000
## [10]
       {hair=TRUE,backbone=TRUE}
                                         => {milk=TRUE} 0.3861386 1.0000000
  [11] {eggs=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.9756098
## [12] {eggs=FALSE,backbone=TRUE}
                                         => {milk=TRUE} 0.3960396 0.9756098
## [13] {eggs=FALSE,legs=TRUE}
                                         => {milk=TRUE} 0.3663366 0.9736842
## [14] {hair=TRUE, venomous=FALSE}
                                         => {milk=TRUE} 0.3861386 0.9512195
## [15] {aquatic=FALSE, toothed=TRUE}
                                         => {milk=TRUE} 0.3465347 0.9210526
```

```
## [16] {hair=TRUE,domestic=FALSE}
                                         => {milk=TRUE} 0.3069307 0.9117647
   [17] {toothed=TRUE,catsize=TRUE}
                                           {milk=TRUE} 0.3069307 0.8857143
  [18] {toothed=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3663366 0.8809524
                                           {milk=TRUE} 0.3960396 0.8510638
  [19] {toothed=TRUE,breathes=TRUE}
  [20] {feathers=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.8421053
  [21] {aquatic=FALSE, catsize=TRUE}
                                           {milk=TRUE} 0.2574257 0.8387097
  [22] {breathes=TRUE.catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.8205128
  [23] {toothed=TRUE,fins=FALSE}
                                           {milk=TRUE} 0.3564356 0.8181818
   [24]
       {predator=FALSE, toothed=TRUE}
                                            {milk=TRUE} 0.1881188 0.7916667
   [25] {legs=TRUE,catsize=TRUE}
                                           {milk=TRUE} 0.2871287 0.7837838
   [26] {airborne=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7804878
   [27] {fins=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.2772277 0.7777778
   [28] {predator=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.1188119 0.7500000
  [29] {backbone=TRUE,catsize=TRUE}
                                         => {milk=TRUE} 0.3168317 0.7441860
  [30] {venomous=FALSE,catsize=TRUE}
                                         => {milk=TRUE} 0.3168317 0.7441860
        {airborne=FALSE, aquatic=FALSE}
                                           {milk=TRUE} 0.3267327 0.7173913
   [32]
       {toothed=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.3960396 0.7017544
   [33] {airborne=FALSE,breathes=TRUE}
                                           {milk=TRUE} 0.3861386 0.6964286
   [34] {feathers=FALSE, aquatic=FALSE}
                                           {milk=TRUE} 0.3465347 0.6862745
   [35] {feathers=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.4059406 0.6833333
                                           {milk=TRUE} 0.3564356 0.6666667
##
  [36] {airborne=FALSE,legs=TRUE}
  [37] {aquatic=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.3465347 0.6603774
##
  [38]
       {toothed=TRUE}
                                           {milk=TRUE} 0.3960396 0.6557377
       {feathers=FALSE,legs=TRUE}
   [39]
                                            {milk=TRUE} 0.3762376 0.6551724
   [40] {feathers=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.4059406 0.6507937
  [41] {feathers=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.6363636
   [42] {aquatic=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.2970297 0.6122449
   [43] {airborne=FALSE,predator=FALSE} =>
                                            {milk=TRUE} 0.1683168 0.6071429
  [44] {airborne=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.3861386 0.6000000
  [45] {backbone=TRUE,breathes=TRUE}
                                           {milk=TRUE} 0.4059406 0.5942029
   [46] {backbone=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5937500
   [47]
       {aquatic=FALSE,predator=TRUE}
                                           {milk=TRUE} 0.1584158 0.5925926
   [48] {aquatic=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3465347 0.5833333
   [49] {airborne=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3465347 0.5833333
   [50] {airborne=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 0.5789474
##
   [51] {legs=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
   [52] {feathers=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.5781250
  [53] {aquatic=FALSE, venomous=FALSE}
                                           {milk=TRUE} 0.3465347 0.5737705
       {breathes=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3465347 0.5737705
##
   [54]
       {predator=TRUE,breathes=TRUE}
##
                                           {milk=TRUE} 0.2178218 0.5641026
   [56] {feathers=FALSE, venomous=FALSE} =>
                                           {milk=TRUE} 0.4059406 0.5616438
   [57] {backbone=TRUE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.5606061
   [58] {feathers=FALSE, predator=FALSE} =>
                                           {milk=TRUE} 0.1881188 0.5588235
   [59] {airborne=FALSE, venomous=FALSE}
                                           {milk=TRUE} 0.3861386 0.5492958
  [60] {aquatic=FALSE, breathes=TRUE}
                                         => {milk=TRUE} 0.3465347 0.5468750
       {breathes=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.4059406 0.5466667
   [61]
##
   [62]
       {fins=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3168317 0.5423729
   [63]
       {feathers=FALSE,airborne=FALSE} =>
                                           {milk=TRUE} 0.3861386 0.5342466
       {predator=FALSE,backbone=TRUE}
   [64]
                                           {milk=TRUE} 0.1881188 0.5277778
   [65]
       {breathes=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5205479
##
   [66] {backbone=TRUE, venomous=FALSE}
                                        => {milk=TRUE} 0.4059406 0.5189873
  [67] {predator=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.1683168 0.5151515
## [68] {venomous=FALSE,legs=TRUE}
                                         => {milk=TRUE} 0.3762376 0.5135135
## [69] {feathers=FALSE}
                                           {milk=TRUE} 0.4059406 0.5061728
```

```
## [70] {venomous=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.3465347 0.4929577
## [71] {venomous=FALSE,fins=FALSE}
                                        => {milk=TRUE} 0.3663366 0.4805195
## [72] {predator=FALSE, venomous=FALSE} => {milk=TRUE} 0.1881188 0.4418605
                                         => {milk=TRUE} 0.2178218 0.3928571
  [73] {predator=TRUE}
        lift
## [1]
        2.463415
## [2]
        2.463415
## [3]
        2.463415
## [4]
        2.463415
## [5]
        2.463415
## [6]
        2.463415
## [7]
        2.463415
## [8]
        2.463415
## [9]
        2.463415
## [10] 2.463415
## [11] 2.403331
## [12] 2.403331
## [13] 2.398588
## [14] 2.343248
## [15] 2.268935
## [16] 2.246055
## [17] 2.181882
## [18] 2.170151
## [19] 2.096523
## [20] 2.074454
## [21] 2.066090
## [22] 2.021263
## [23] 2.015521
## [24] 1.950203
## [25] 1.930784
## [26] 1.922665
## [27] 1.915989
## [28] 1.847561
## [29] 1.833239
## [30] 1.833239
## [31] 1.767232
## [32] 1.728712
## [33] 1.715592
## [34] 1.690579
## [35] 1.683333
## [36] 1.642276
## [37] 1.626783
## [38] 1.615354
## [39] 1.613961
## [40] 1.603175
## [41] 1.567627
## [42] 1.508213
## [43] 1.495645
## [44] 1.478049
## [45] 1.463768
## [46] 1.462652
## [47] 1.459801
## [48] 1.436992
## [49] 1.436992
```

```
## [50] 1.426187
   [51] 1.426187
  [52] 1.424162
  [53] 1.413435
   [54] 1.413435
##
  [55] 1.389619
  [56] 1.383562
  [57] 1.381005
  [58] 1.376614
  [59] 1.353143
  [60] 1.347180
  [61] 1.346667
  [62] 1.336089
  [63] 1.316071
## [64] 1.300136
   [65] 1.282325
##
  [66] 1.278481
  [67] 1.269032
  [68] 1.264997
  [69] 1.246914
##
  [70] 1.214359
  [71] 1.183719
## [72] 1.088486
   [73] 0.967770
##
##
        lhs
                             rhs
                                          support
                                                     confidence lift
  [1]
        {type=fish}
                          => {milk=FALSE} 0.1287129 1.0000000
                                                               1.6833333
   [2]
        {backbone=FALSE} => {milk=FALSE} 0.1782178 1.0000000
##
                                                                1.6833333
##
   [3]
        {type=bird}
                          => {milk=FALSE} 0.1980198 1.0000000
                                                                1.6833333
## [4]
                          => {milk=FALSE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                                1.6833333
                                                                1.6833333
## [5]
        {breathes=FALSE} => {milk=FALSE} 0.2079208 1.0000000
                         => {milk=FALSE} 0.5742574 0.9830508
## [6]
        {eggs=TRUE}
                                                                1.6548023
##
  [7]
        {hair=FALSE}
                          => {milk=FALSE} 0.5544554 0.9655172
                                                                1.6252874
  [8]
        {airborne=TRUE}
                         => {milk=FALSE} 0.2178218 0.9166667
                                                                1.5430556
                          => {milk=FALSE} 0.1980198 0.8695652
##
  [9]
        {legs=FALSE}
                                                                1.4637681
   [10]
       {aquatic=TRUE}
                          => {milk=FALSE} 0.2970297 0.8333333
                                                                1,4027778
  [11] {tail=FALSE}
                          => {milk=FALSE} 0.1980198 0.7692308
##
                                                                1.2948718
## [12] {fins=TRUE}
                          => {milk=FALSE} 0.1287129 0.7647059
## [13] {predator=TRUE}
                         => {milk=FALSE} 0.3366337 0.6071429
                                                                1.0220238
  [14] {fins=FALSE}
                             {milk=FALSE} 0.4653465 0.5595238
                                                                0.9418651
                          => {milk=FALSE} 0.3960396 0.5333333
  [15] {tail=TRUE}
                                                                0.8977778
                         => {milk=FALSE} 0.4158416 0.5060241
  [16] {backbone=TRUE}
                                                                0.8518072
   [17] {aquatic=FALSE}
                         => {milk=FALSE} 0.2970297 0.4615385
                                                                0.7769231
##
   [18] {toothed=TRUE}
                          => {milk=FALSE} 0.2079208 0.3442623
                                                                0.5795082
##
       lhs
                                         rhs
                                                      support
                                                                confidence
  [1] {hair=TRUE,predator=TRUE}
                                      => {milk=TRUE} 0.1980198 1.0000000
   [2] {aquatic=FALSE,predator=TRUE} => {milk=TRUE} 0.1584158 0.5925926
##
   [3] {predator=TRUE,breathes=TRUE} => {milk=TRUE} 0.2178218 0.5641026
##
       lift
  [1] 2.463415
##
   [2] 1.459801
##
   [3] 1.389619
##
       lhs
                                       rhs
                                                    support
                                                              confidence
## [1] {toothed=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3564356 0.8181818
## [2] {fins=FALSE,catsize=TRUE}
                                    => {milk=TRUE} 0.2772277 0.7777778
```

```
## [3] {airborne=FALSE,fins=FALSE} => {milk=TRUE} 0.3465347 0.5833333
## [4] {feathers=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5781250
  [5] {backbone=TRUE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5606061
  [6] {fins=FALSE,tail=TRUE}
                                    => {milk=TRUE} 0.3168317 0.5423729
##
   [7] {venomous=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.4805195
##
       lift
## [1] 2.015521
## [2] 1.915989
## [3] 1.436992
  [4] 1.424162
## [5] 1.381005
  [6] 1.336089
##
   [7] 1.183719
##
       lhs
                                      rhs
                                                  support
                                                             confidence
## [1] {hair=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 1.0000000
## [2] {feathers=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.6363636
  [3] {aquatic=FALSE,tail=TRUE}
                                  => {milk=TRUE} 0.2970297 0.6122449
  [4] {airborne=FALSE,tail=TRUE} => {milk=TRUE} 0.3267327 0.5789474
## [5] {legs=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 0.5789474
## [6] {breathes=TRUE,tail=TRUE}
                                  => {milk=TRUE} 0.3465347 0.5737705
## [7] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
## [8] {predator=FALSE,tail=TRUE} => {milk=TRUE} 0.1683168 0.5151515
## [9] {venomous=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.4929577
##
       lift.
## [1] 2.463415
## [2] 1.567627
## [3] 1.508213
## [4] 1.426187
## [5] 1.426187
## [6] 1.413435
## [7] 1.336089
##
  [8] 1.269032
##
  [9] 1.214359
##
        lhs
                                           rhs
                                                       support
                                                                  confidence
##
  [1]
        {hair=TRUE,backbone=TRUE}
                                        => {milk=TRUE} 0.3861386 1.0000000
                                        => {milk=TRUE} 0.3960396 0.9756098
##
  [2]
        {eggs=FALSE,backbone=TRUE}
## [3]
        {backbone=TRUE, catsize=TRUE}
                                        => {milk=TRUE} 0.3168317 0.7441860
## [4]
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
  [5]
        {feathers=FALSE,backbone=TRUE} => {milk=TRUE} 0.4059406 0.6507937
##
  [6]
        {airborne=FALSE,backbone=TRUE} => {milk=TRUE} 0.3861386 0.6000000
##
  [7]
        {backbone=TRUE, breathes=TRUE} => {milk=TRUE} 0.4059406 0.5942029
  [8]
        {backbone=TRUE,legs=TRUE}
                                        => {milk=TRUE} 0.3762376 0.5937500
##
##
   [9]
        {backbone=TRUE, fins=FALSE}
                                        => {milk=TRUE} 0.3663366 0.5606061
   [10] {predator=FALSE,backbone=TRUE} => {milk=TRUE} 0.1881188 0.5277778
##
  [11] {backbone=TRUE, venomous=FALSE} => {milk=TRUE} 0.4059406 0.5189873
##
        lift
## [1]
        2.463415
  [2]
##
        2.403331
  [3]
        1.833239
##
   [4]
        1.626783
   [5]
##
        1.603175
## [6]
        1.478049
## [7]
        1.463768
## [8]
        1.462652
```

```
[9]
        1.381005
   [10] 1.300136
##
   [11] 1.278481
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
   [1]
        {aquatic=FALSE, toothed=TRUE}
                                         => {milk=TRUE} 0.3465347 0.9210526
##
   [2]
        {aquatic=FALSE, catsize=TRUE}
                                         => {milk=TRUE} 0.2574257 0.8387097
##
   [3]
        {airborne=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3267327 0.7173913
##
   [4]
        {feathers=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3465347 0.6862745
##
   [5]
        {aquatic=FALSE,backbone=TRUE}
                                         => {milk=TRUE} 0.3465347 0.6603774
##
   [6]
        {aquatic=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.2970297 0.6122449
   [7]
        {aquatic=FALSE,predator=TRUE}
                                         => {milk=TRUE} 0.1584158 0.5925926
##
   [8]
        {aquatic=FALSE,legs=TRUE}
                                         => {milk=TRUE} 0.3465347 0.5833333
##
   [9]
        {aquatic=FALSE, venomous=FALSE} => {milk=TRUE} 0.3465347 0.5737705
##
   [10]
       {aquatic=FALSE,breathes=TRUE}
                                        => {milk=TRUE} 0.3465347 0.5468750
##
        lift
##
   [1]
        2.268935
   [2]
##
        2.066090
   [3]
        1.767232
##
   [4]
##
        1.690579
##
   [5]
        1.626783
##
   [6]
        1.508213
##
   [7]
        1.459801
   [8]
##
        1.436992
##
   [9]
        1.413435
##
   [10] 1.347180
##
       lhs
                                                      support
                                                                 confidence
                                          rhs
   [1] {hair=TRUE, toothed=TRUE}
                                         {milk=TRUE} 0.3762376 1.0000000
##
##
   [2] {aquatic=FALSE,toothed=TRUE}
                                       => {milk=TRUE} 0.3465347 0.9210526
   [3] {toothed=TRUE,catsize=TRUE}
                                       => {milk=TRUE} 0.3069307 0.8857143
   [4] {toothed=TRUE,legs=TRUE}
                                       => {milk=TRUE} 0.3663366 0.8809524
   [5] {toothed=TRUE,breathes=TRUE}
                                       => {milk=TRUE} 0.3960396 0.8510638
   [6] {toothed=TRUE,fins=FALSE}
                                       => {milk=TRUE} 0.3564356 0.8181818
   [7] {predator=FALSE,toothed=TRUE} => {milk=TRUE} 0.1881188 0.7916667
   [8] {toothed=TRUE, venomous=FALSE} => {milk=TRUE} 0.3960396 0.7017544
##
       lift
##
##
  [1] 2.463415
   [2] 2.268935
   [3] 2.181882
##
   [4] 2.170151
##
   [5] 2.096523
   [6] 2.015521
   [7] 1.950203
##
##
   [8]
      1.728712
       "Número de reglas con consecuente negado"
##
   [1]
##
                                             rhs
                                                             support
   [1]
        {milk=TRUE, predator=TRUE}
                                            {catsize=TRUE} 0.1980198
##
##
   [2]
        {predator=TRUE, type=mammal}
                                             {catsize=TRUE} 0.1980198
##
   [3]
        {hair=TRUE, predator=TRUE}
                                            {catsize=TRUE} 0.1782178
##
   [4]
        {eggs=FALSE,predator=TRUE}
                                            {catsize=TRUE} 0.1881188
##
   [5]
        {hair=TRUE,airborne=FALSE}
                                             {catsize=TRUE} 0.2970297
##
   [6]
        {milk=TRUE,domestic=FALSE}
                                             {catsize=TRUE} 0.2574257
##
   [7]
        {domestic=FALSE, type=mammal}
                                            {catsize=TRUE} 0.2574257
                                            {catsize=TRUE} 0.3168317
##
  [8]
        {milk=TRUE}
## [9]
        {type=mammal}
                                             {catsize=TRUE} 0.3168317
```

```
## [10] {eggs=FALSE,venomous=FALSE}
                                         => {catsize=TRUE} 0.3069307
  [11] {hair=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2970297
                                            {catsize=TRUE} 0.2475248
  [12] {hair=TRUE,tail=TRUE}
  [13] {eggs=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3069307
##
   [14] {eggs=FALSE}
                                            {catsize=TRUE} 0.3069307
  [15] {hair=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.2970297
##
  [16] {hair=TRUE.domestic=FALSE}
                                            {catsize=TRUE} 0.2376238
  [17] {hair=TRUE}
                                            {catsize=TRUE} 0.2970297
##
   [18] {aquatic=FALSE, toothed=TRUE}
                                            {catsize=TRUE} 0.2574257
   [19] {toothed=TRUE,legs=TRUE}
                                           {catsize=TRUE} 0.2772277
   [20] {toothed=TRUE,breathes=TRUE}
                                         => {catsize=TRUE} 0.3069307
   [21] {airborne=FALSE,breathes=TRUE}
                                           {catsize=TRUE} 0.3564356
   [22] {airborne=FALSE, aquatic=FALSE}
                                           {catsize=TRUE} 0.2871287
  [23] {airborne=FALSE,legs=TRUE}
                                         => {catsize=TRUE} 0.3366337
  [24] {predator=TRUE,toothed=TRUE}
                                         => {catsize=TRUE} 0.2277228
        {airborne=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3960396
   [26] {airborne=FALSE,tail=TRUE}
                                         => {catsize=TRUE} 0.3465347
   [27] {toothed=TRUE,fins=FALSE}
                                         => {catsize=TRUE} 0.2673267
   [28] {toothed=TRUE, venomous=FALSE}
                                         => {catsize=TRUE} 0.3366337
   [29] {aquatic=FALSE, predator=TRUE}
                                            {catsize=TRUE} 0.1584158
##
  [30] {predator=TRUE,breathes=TRUE}
                                           {catsize=TRUE} 0.2277228
  [31] {feathers=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3663366
  [32] {aquatic=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3069307
       {feathers=FALSE.tail=TRUE}
                                            {catsize=TRUE} 0.3168317
   [33]
   [34] {toothed=TRUE,tail=TRUE}
                                           {catsize=TRUE} 0.2970297
   [35] {predator=TRUE,backbone=TRUE}
                                           {catsize=TRUE} 0.2673267
   [36] {backbone=TRUE,breathes=TRUE}
                                           {catsize=TRUE} 0.3861386
   [37] {airborne=FALSE, venomous=FALSE}
                                            {catsize=TRUE} 0.3960396
   [38] {backbone=TRUE,legs=TRUE}
                                           {catsize=TRUE} 0.3564356
   [39] {legs=TRUE,tail=TRUE}
                                         => {catsize=TRUE} 0.3168317
   [40] {breathes=TRUE,tail=TRUE}
                                           {catsize=TRUE} 0.3366337
##
   [41]
       {aquatic=FALSE,tail=TRUE}
                                         => {catsize=TRUE} 0.2673267
       {airborne=FALSE,fins=FALSE}
                                         => {catsize=TRUE} 0.3267327
  [43] {feathers=FALSE, breathes=TRUE}
                                         => {catsize=TRUE} 0.3267327
        {predator=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2277228
   [44]
##
  [45] {predator=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.2673267
  [46] {predator=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.2079208
  [47] {feathers=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3069307
       {feathers=FALSE,predator=TRUE}
                                            {catsize=TRUE} 0.2475248
##
   [48]
       {backbone=TRUE, venomous=FALSE}
   [49]
                                            {catsize=TRUE} 0.4158416
   [50] {backbone=TRUE,fins=FALSE}
                                            {catsize=TRUE} 0.3465347
   [51] {feathers=FALSE,aquatic=FALSE}
                                           {catsize=TRUE} 0.2673267
   [52] {fins=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3069307
   [53] {venomous=FALSE,tail=TRUE}
                                           {catsize=TRUE} 0.3663366
##
  [54] {backbone=TRUE,domestic=FALSE}
                                         => {catsize=TRUE} 0.3663366
        {breathes=TRUE, venomous=FALSE}
                                           {catsize=TRUE} 0.3861386
   [55]
##
   [56]
        {aquatic=FALSE, venomous=FALSE}
                                            {catsize=TRUE} 0.3069307
        {feathers=FALSE, venomous=FALSE} =>
                                           {catsize=TRUE} 0.3663366
   [58] {venomous=FALSE,legs=TRUE}
                                         => {catsize=TRUE} 0.3663366
   [59] {aquatic=FALSE}
                                         => {catsize=TRUE} 0.3069307
##
   [60]
       {aquatic=TRUE}
                                         => {catsize=TRUE} 0.1287129
   [61] {hair=FALSE}
                                         => {catsize=TRUE} 0.1386139
##
   [62] {milk=FALSE}
                                         => {catsize=TRUE} 0.1188119
##
        confidence lift
```

```
## [1]
        0.9090909
                   2.0867769
##
   [2]
        0.9090909
                   2.0867769
   [3]
        0.9000000
                    2.0659091
   [4]
        0.8260870
##
                    1.8962451
##
   [5]
        0.8108108
                    1.8611794
##
   [6]
        0.7878788
                    1.8085399
        0.7878788
##
   [7]
                    1.8085399
##
   [8]
        0.7804878
                    1.7915743
##
   [9]
        0.7804878
                    1.7915743
   [10] 0.7750000
                    1.7789773
  [11] 0.7692308
                    1.7657343
   [12] 0.7575758
                    1.7389807
##
   [13] 0.7560976
                    1.7355876
  [14] 0.7380952
                    1.6942641
## [15] 0.7317073
                    1.6796009
   [16] 0.7058824
                    1.6203209
                    1.6014799
   [17] 0.6976744
   [18] 0.6842105
                    1.5705742
   [19] 0.6666667
                    1.5303030
   [20] 0.6595745
                    1.5140232
## [21] 0.6428571
                    1.4756494
  [22] 0.6304348
                    1.4471344
## [23] 0.6296296
                    1.4452862
   [24] 0.6216216
##
                    1.4269042
   [25] 0.6153846
                    1.4125874
   [26] 0.6140351
                    1.4094896
   [27] 0.6136364
                    1.4085744
##
   [28] 0.5964912
                    1.3692185
   [29] 0.5925926
                    1.3602694
  [30] 0.5897436
                    1.3537296
   [31] 0.5873016
                    1.3481241
##
   [32] 0.5849057
                    1.3426244
   [33] 0.5818182
                    1.3355372
   [34] 0.5769231
                    1.3243007
   [35] 0.5744681
                    1.3186654
##
   [36] 0.5652174
                    1.2974308
   [37] 0.5633803
                    1.2932138
  [38] 0.5625000
##
                    1.2911932
   [39] 0.5614035
                    1.2886762
##
   [40] 0.5573770
                    1.2794337
   [41] 0.5510204
                    1.2648423
   [42] 0.5500000
                    1.2625000
   [43] 0.5500000
                    1.2625000
##
  [44] 0.5476190
                    1.2570346
## [45] 0.5400000
                    1.2395455
   [46] 0.5384615
                    1.2360140
##
   [47] 0.5344828
                    1.2268809
   [48] 0.5319149
                    1.2209865
   [49] 0.5316456
                    1.2203682
   [50] 0.5303030
                    1.2172865
##
   [51] 0.5294118
                    1.2152406
## [52] 0.5254237
                    1.2060863
## [53] 0.5211268
                    1.1962228
## [54] 0.5211268 1.1962228
```

```
[55] 0.5200000
                   1.1936364
   [56] 0.5081967
                    1.1665425
   [57] 0.5068493
                    1.1634496
   [58] 0.5000000
                    1.1477273
   [59]
        0.4769231
                    1.0947552
   [60] 0.3611111
                   0.8289141
##
   [61] 0.2413793
                   0.5540752
##
   [62] 0.2000000
                   0.4590909
##
        lhs
                                              support
                                                        confidence lift
                             rhs
##
   [1]
        {backbone=FALSE} => {catsize=FALSE} 0.1683168 0.9444444
                                                                    1.6734893
   [2]
        {airborne=TRUE}
                          => {catsize=FALSE} 0.2079208 0.8750000
                                                                    1.5504386
   [3]
                          => {catsize=FALSE} 0.4752475 0.8000000
##
        {milk=FALSE}
                                                                    1.4175439
##
   [4]
        {eggs=TRUE}
                          => {catsize=FALSE} 0.4554455 0.7796610
                                                                    1.3815046
##
   [5]
        {tail=FALSE}
                          => {catsize=FALSE} 0.1980198 0.7692308
                                                                    1.3630229
   [6]
        {breathes=FALSE} => {catsize=FALSE} 0.1584158 0.7619048
##
                                                                    1.3500418
##
   [7]
        {type=bird}
                          => {catsize=FALSE} 0.1386139 0.7000000
                                                                    1.2403509
   [8]
                          => {catsize=FALSE} 0.1386139 0.7000000
##
        {feathers=TRUE}
                                                                    1.2403509
   [9]
        {legs=FALSE}
                          => {catsize=FALSE} 0.1584158 0.6956522
                                                                    1.2326468
                          => {catsize=FALSE} 0.2277228 0.6388889
   [10] {aquatic=TRUE}
                                                                    1.1320663
   [11] {predator=TRUE}
                          => {catsize=FALSE} 0.2772277 0.5000000
                                                                    0.8859649
##
   [12] {airborne=FALSE}
                          => {catsize=FALSE} 0.3564356 0.4675325
                                                                    0.8284347
   [13] {hair=TRUE}
                          => {catsize=FALSE} 0.1287129 0.3023256
                                                                    0.5356997
                          => {catsize=FALSE} 0.1089109 0.2619048
##
   [14] {eggs=FALSE}
                                                                    0.4640769
##
        lhs
                                            rhs
                                                            support
                                                                      confidence
##
   [1]
        {milk=TRUE, predator=TRUE}
                                         => {catsize=TRUE} 0.1980198 0.9090909
   [2]
        {predator=TRUE, type=mammal}
                                         => {catsize=TRUE} 0.1980198 0.9090909
   [3]
        {hair=TRUE, predator=TRUE}
                                         => {catsize=TRUE} 0.1782178 0.9000000
##
##
   [4]
        {eggs=FALSE,predator=TRUE}
                                         => {catsize=TRUE} 0.1881188 0.8260870
   [5]
        {predator=TRUE, toothed=TRUE}
##
                                         => {catsize=TRUE} 0.2277228 0.6216216
##
   [6]
        {aquatic=FALSE,predator=TRUE}
                                         => {catsize=TRUE} 0.1584158 0.5925926
##
   [7]
        {predator=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.2277228 0.5897436
##
   [8]
        {predator=TRUE, backbone=TRUE}
                                            {catsize=TRUE} 0.2673267 0.5744681
        {predator=TRUE,tail=TRUE}
                                         => {catsize=TRUE} 0.2277228 0.5476190
   [10] {predator=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2673267 0.5400000
   [11] {predator=TRUE,legs=TRUE}
                                         => {catsize=TRUE} 0.2079208 0.5384615
       {feathers=FALSE,predator=TRUE} => {catsize=TRUE} 0.2475248 0.5319149
##
   [12]
##
        lift
##
  Г17
        2.086777
   [2]
        2.086777
##
   [3]
##
        2.065909
   [4]
        1.896245
   [5]
##
        1.426904
##
   [6]
        1.360269
##
   [7]
        1.353730
##
   [8]
        1.318665
   [9]
##
        1.257035
   [10] 1.239545
   [11] 1.236014
##
   [12] 1.220986
##
       lhs
                                            rhs
                                                                      confidence
                                                            support
##
   [1] {hair=TRUE,airborne=FALSE}
                                         => {catsize=TRUE} 0.2970297 0.8108108
   [2] {airborne=FALSE,breathes=TRUE}
                                         => {catsize=TRUE} 0.3564356 0.6428571
  [3] {airborne=FALSE,aquatic=FALSE}
                                         => {catsize=TRUE} 0.2871287 0.6304348
## [4] {airborne=FALSE,legs=TRUE}
                                         => {catsize=TRUE} 0.3366337 0.6296296
```

```
## [5] {airborne=FALSE,backbone=TRUE} => {catsize=TRUE} 0.3960396 0.6153846
  [6] {airborne=FALSE,tail=TRUE}
                                        => {catsize=TRUE} 0.3465347 0.6140351
  [7] {airborne=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3960396 0.5633803
   [8] {airborne=FALSE,fins=FALSE}
                                        => {catsize=TRUE} 0.3267327 0.5500000
       lift.
## [1] 1.861179
## [2] 1.475649
## [3] 1.447134
## [4] 1.445286
  [5] 1.412587
## [6] 1.409490
##
  [7] 1.293214
##
   [8] 1.262500
##
       lhs
                                                     support
                                                               confidence
## [1] {hair=TRUE,predator=TRUE} => {catsize=TRUE} 0.1782178 0.9000000
   [2] {hair=TRUE,airborne=FALSE} => {catsize=TRUE} 0.2970297 0.8108108
  [3] {hair=TRUE,backbone=TRUE} => {catsize=TRUE} 0.2970297 0.7692308
  [4] {hair=TRUE,tail=TRUE}
                                  => {catsize=TRUE} 0.2475248 0.7575758
  [5] {hair=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2970297 0.7317073
   [6] {hair=TRUE,domestic=FALSE} => {catsize=TRUE} 0.2376238 0.7058824
##
       lift
## [1] 2.065909
## [2] 1.861179
## [3] 1.765734
## [4] 1.738981
  [5] 1.679601
  [6] 1.620321
##
##
       lhs
                                       rhs
                                                      support
                                                                confidence
  [1] {eggs=FALSE,predator=TRUE} => {catsize=TRUE} 0.1881188 0.8260870
##
  [2] {eggs=FALSE,venomous=FALSE} => {catsize=TRUE} 0.3069307 0.7750000
##
   [3] {eggs=FALSE,backbone=TRUE} => {catsize=TRUE} 0.3069307 0.7560976
##
       lift
##
  [1] 1.896245
  [2] 1.778977
   [3] 1.735588
##
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                           rhs
                                                            support
## [1]
                                        => {predator=FALSE} 0.1089109
        {domestic=TRUE}
        {hair=TRUE,catsize=FALSE}
  [2]
                                        => {predator=FALSE} 0.1089109
  [3]
##
        {airborne=TRUE, aquatic=FALSE}
                                        => {predator=FALSE} 0.1485149
  [4]
        {airborne=TRUE}
                                        => {predator=FALSE} 0.1683168
        {aquatic=FALSE, toothed=FALSE}
##
  [5]
                                        => {predator=FALSE} 0.1881188
##
   [6]
        {aquatic=FALSE,tail=FALSE}
                                        => {predator=FALSE} 0.1089109
##
  [7]
        {aquatic=FALSE,catsize=FALSE}
                                        => {predator=FALSE} 0.2277228
## [8]
        {eggs=TRUE,aquatic=FALSE}
                                        => {predator=FALSE} 0.1881188
## [9]
        {toothed=FALSE,breathes=TRUE}
                                        => {predator=FALSE} 0.2079208
## [10] {milk=FALSE,aquatic=FALSE}
                                        => {predator=FALSE} 0.1881188
## [11] {breathes=TRUE,tail=FALSE}
                                        => {predator=FALSE} 0.1188119
## [12] {breathes=TRUE,catsize=FALSE}
                                        => {predator=FALSE} 0.2475248
## [13] {aquatic=FALSE, venomous=FALSE}
                                        => {predator=FALSE} 0.3564356
## [14] {eggs=TRUE,breathes=TRUE}
                                        => {predator=FALSE} 0.2178218
## [15] {milk=FALSE,breathes=TRUE}
                                        => {predator=FALSE} 0.2178218
## [16] {legs=TRUE,catsize=FALSE}
                                        => {predator=FALSE} 0.2277228
## [17] {type=bird}
                                        => {predator=FALSE} 0.1089109
```

```
## [18] {feathers=TRUE}
                                        => {predator=FALSE} 0.1089109
   [19] {toothed=FALSE,backbone=TRUE} => {predator=FALSE} 0.1188119
   [20] {venomous=FALSE, catsize=FALSE} => {predator=FALSE} 0.2673267
  [21] {toothed=FALSE, venomous=FALSE} => {predator=FALSE} 0.1881188
   [22] {toothed=FALSE}
                                        => {predator=FALSE} 0.2079208
  [23] {fins=FALSE,catsize=FALSE}
                                        => {predator=FALSE} 0.2475248
  [24] {breathes=TRUE, venomous=FALSE} => {predator=FALSE} 0.3861386
  [25] {catsize=FALSE}
                                        => {predator=FALSE} 0.2871287
   [26] {legs=TRUE,tail=TRUE}
                                        => {predator=FALSE} 0.2871287
   [27] {venomous=FALSE,fins=FALSE}
                                        => {predator=FALSE} 0.3861386
  [28] {fins=FALSE,tail=TRUE}
                                        => {predator=FALSE} 0.2871287
  [29] {milk=TRUE}
                                        => {predator=FALSE} 0.1881188
   [30] {type=mammal}
                                        => {predator=FALSE} 0.1881188
   [31] {tail=FALSE}
                                        => {predator=FALSE} 0.1188119
                                        => {predator=FALSE} 0.1881188
   [32] {eggs=FALSE}
   [33]
       {eggs=TRUE}
                                        => {predator=FALSE} 0.2574257
   [34]
       {milk=FALSE}
                                        => {predator=FALSE} 0.2574257
   [35] {domestic=FALSE}
                                        => {predator=FALSE} 0.3366337
   [36] {hair=FALSE}
                                        => {predator=FALSE} 0.2178218
   [37] {catsize=TRUE}
                                        => {predator=FALSE} 0.1584158
##
        confidence lift
  [1]
        0.8461538
##
                   1.8991453
   [2]
##
        0.8461538
                   1.8991453
   [3]
        0.7894737
                   1.7719298
##
  [4]
        0.7083333
                   1.5898148
   [5]
        0.7037037
                   1.5794239
   [6]
##
        0.6875000
                   1.5430556
##
   [7]
        0.6764706
                   1.5183007
   [8]
##
        0.6551724
                   1.4704981
  [9]
        0.6363636
                   1.4282828
   [10] 0.6333333
                   1.4214815
   [11] 0.6315789
                   1.4175439
   [12] 0.6097561
                   1.3685637
  [13] 0.5901639
                   1.3245902
                   1.2660969
   [14] 0.5641026
  [15] 0.5641026
                   1.2660969
  [16] 0.5609756
                   1.2590786
  [17] 0.5500000
                   1.2344444
   [18] 0.5500000
                   1.2344444
  [19] 0.5454545
                   1.2242424
  [20] 0.5400000
                   1.2120000
  [21] 0.5277778
                   1.1845679
   [22] 0.5250000
                   1.1783333
  [23] 0.5208333
                   1.1689815
  [24] 0.5200000
                   1.1671111
  [25] 0.5087719
                   1.1419103
                   1.1419103
   [26] 0.5087719
   [27] 0.5064935
                   1.1367965
  [28] 0.4915254
                   1.1032015
   [29] 0.4634146
                   1.0401084
  [30] 0.4634146
                   1.0401084
## [31] 0.4615385
                   1.0358974
## [32] 0.4523810
                   1.0153439
## [33] 0.4406780
                  0.9890772
```

```
## [34] 0.4333333 0.9725926
  [35] 0.3863636
                   0.8671717
  [36] 0.3793103
                   0.8513410
  [37] 0.3636364
                   0.8161616
##
                                            support
                                                      confidence lift
## [1] {breathes=FALSE} => {predator=TRUE} 0.1683168 0.8095238
                                                                  1.4600340
  [2] {aquatic=TRUE}
                         => {predator=TRUE} 0.2871287 0.8055556
                                                                  1.4528770
## [3] {fins=TRUE}
                         => {predator=TRUE} 0.1287129 0.7647059
                                                                  1.3792017
## [4] {catsize=TRUE}
                         => {predator=TRUE} 0.2772277 0.6363636
                                                                  1.1477273
  [5] {backbone=TRUE}
                        => {predator=TRUE} 0.4653465 0.5662651
                                                                  1.0212995
  [6] {eggs=FALSE}
                        => {predator=TRUE} 0.2277228 0.5476190
                                                                  0.9876701
                        => {predator=TRUE} 0.3861386 0.5000000
  [7] {legs=TRUE}
                                                                  0.9017857
##
   [8] {hair=TRUE}
                        => {predator=TRUE} 0.1980198 0.4651163
                                                                  0.8388704
##
   [9] {aquatic=FALSE}
                        => {predator=TRUE} 0.2673267 0.4153846
                                                                  0.7491758
##
                                         rhs
                                                                     confidence
                                                           support
##
   [1] {toothed=FALSE,backbone=TRUE} => {predator=FALSE} 0.1188119 0.5454545
##
       lift
##
  [1] 1.224242
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
   [1] {legs=TRUE,catsize=FALSE} => {predator=FALSE} 0.2277228 0.5609756
##
   [2] {legs=TRUE,tail=TRUE}
                                  => {predator=FALSE} 0.2871287 0.5087719
##
       lift.
  [1] 1.259079
##
##
   [2] 1.141910
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
##
   [1] {hair=TRUE,catsize=FALSE} => {predator=FALSE} 0.1089109 0.8461538
##
       lift
##
   [1] 1.899145
##
       lhs
                                          rhs
                                                            support
  [1] {airborne=TRUE, aquatic=FALSE}
                                       => {predator=FALSE} 0.1485149
   [2] {aquatic=FALSE,toothed=FALSE}
                                       => {predator=FALSE} 0.1881188
  [3] {aquatic=FALSE,tail=FALSE}
                                       => {predator=FALSE} 0.1089109
  [4] {aquatic=FALSE, catsize=FALSE}
                                       => {predator=FALSE} 0.2277228
  [5] {eggs=TRUE,aquatic=FALSE}
                                       => {predator=FALSE} 0.1881188
   [6] {milk=FALSE, aquatic=FALSE}
                                       => {predator=FALSE} 0.1881188
   [7] {aquatic=FALSE, venomous=FALSE} => {predator=FALSE} 0.3564356
##
##
       confidence lift
## [1] 0.7894737 1.771930
  [2] 0.7037037
                  1.579424
  [3] 0.6875000
                  1.543056
  [4] 0.6764706
                  1.518301
  [5] 0.6551724
                  1.470498
   [6] 0.6333333
                  1.421481
  [7] 0.5901639 1.324590
##
  [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                            support
## [1]
        {type=fish}
                                         => {toothed=TRUE} 0.1287129
  [2]
##
        {fins=TRUE}
                                         => {toothed=TRUE} 0.1683168
  [3]
        {breathes=FALSE, tail=TRUE}
                                         => {toothed=TRUE} 0.1386139
##
  [4]
        {backbone=TRUE, breathes=FALSE}
                                            {toothed=TRUE} 0.1386139
  [5]
                                            {toothed=TRUE} 0.1782178
##
        {legs=FALSE,tail=TRUE}
## [6]
        {backbone=TRUE,legs=FALSE}
                                            {toothed=TRUE} 0.1881188
## [7]
        {eggs=FALSE,backbone=TRUE}
                                         => {toothed=TRUE} 0.4059406
## [8]
        {eggs=FALSE}
                                            {toothed=TRUE} 0.4059406
```

```
{hair=TRUE,backbone=TRUE}
                                         => {toothed=TRUE} 0.3762376
  [10] {hair=TRUE,airborne=FALSE}
                                            {toothed=TRUE} 0.3564356
  [11] {hair=TRUE,tail=TRUE}
                                            {toothed=TRUE} 0.3168317
   [12] {feathers=FALSE,backbone=TRUE}
                                            {toothed=TRUE} 0.6039604
##
   [13] {hair=TRUE, predator=TRUE}
                                            {toothed=TRUE} 0.1881188
  [14] {feathers=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.5148515
##
  [15] {feathers=FALSE,catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
  [16] {airborne=FALSE,backbone=TRUE}
                                            {toothed=TRUE} 0.5841584
   [17] {airborne=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.4950495
   [18] {airborne=FALSE,catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
   [19] {venomous=FALSE,legs=FALSE}
                                            {toothed=TRUE} 0.1584158
   [20] {legs=FALSE}
                                            {toothed=TRUE} 0.1881188
##
   [21] {backbone=TRUE, catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
       {feathers=FALSE,airborne=FALSE} =>
                                            {toothed=TRUE} 0.5841584
  [23] {airborne=FALSE,breathes=TRUE}
                                            {toothed=TRUE} 0.4455446
   [24]
        {catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
   [25]
       {feathers=FALSE, predator=TRUE}
                                            {toothed=TRUE} 0.3663366
   [26] {predator=TRUE,backbone=TRUE}
                                            {toothed=TRUE} 0.3663366
   [27] {airborne=FALSE,predator=FALSE} =>
                                            {toothed=TRUE} 0.2178218
   [28] {feathers=FALSE,breathes=TRUE}
                                            {toothed=TRUE} 0.4653465
##
  [29] {airborne=FALSE, aquatic=FALSE}
                                            {toothed=TRUE} 0.3564356
  [30] {feathers=FALSE, venomous=FALSE} =>
                                            {toothed=TRUE} 0.5643564
   [31] {airborne=FALSE, venomous=FALSE} =>
                                            {toothed=TRUE} 0.5445545
##
   [32]
       {feathers=FALSE,aquatic=TRUE}
                                            {toothed=TRUE} 0.2277228
##
   [33]
       {aquatic=TRUE,backbone=TRUE}
                                            {toothed=TRUE} 0.2277228
   [34] {feathers=FALSE}
                                            {toothed=TRUE} 0.6039604
   [35] {predator=TRUE,tail=TRUE}
                                            {toothed=TRUE} 0.3069307
##
   [36] {aquatic=TRUE,tail=TRUE}
                                            {toothed=TRUE} 0.1881188
       {aquatic=FALSE, predator=TRUE}
                                            {toothed=TRUE} 0.1881188
  [38]
                                            {toothed=TRUE} 0.5148515
       {tail=TRUE}
   [39]
        {predator=TRUE, breathes=TRUE}
                                            {toothed=TRUE} 0.2673267
##
   [40]
        {breathes=FALSE}
                                            {toothed=TRUE} 0.1386139
   [41]
       {predator=TRUE}
                                            {toothed=TRUE} 0.3663366
   [42]
                                            {toothed=TRUE} 0.2277228
       {aquatic=TRUE}
   [43]
        {domestic=FALSE}
                                            {toothed=TRUE} 0.5148515
##
   [44]
       {breathes=TRUE}
                                            {toothed=TRUE} 0.4653465
  [45] {predator=FALSE}
                                            {toothed=TRUE} 0.2376238
  [46] {catsize=FALSE}
                                            {toothed=TRUE} 0.2574257
##
                                            {toothed=TRUE} 0.2277228
   [47]
       {hair=FALSE}
   [48] {eggs=TRUE}
##
                                         => {toothed=TRUE} 0.1980198
##
        confidence lift
   [1]
        1.0000000
##
                   1.6557377
##
   [2]
        1.0000000
                   1.6557377
##
   [3]
        1.0000000
                   1.6557377
##
  [4]
        1.0000000
                   1.6557377
   [5]
##
        1.0000000
                   1.6557377
##
   [6]
        1.0000000
                   1.6557377
##
   [7]
        1.0000000
                   1.6557377
##
   [8]
        0.9761905
                   1.6163154
##
   [9]
        0.9743590
                   1.6132829
##
   [10]
        0.9729730
                   1.6109880
  [11] 0.9696970
                   1.6055638
## [12] 0.9682540
                   1.6031746
                   1.5729508
## [13] 0.9500000
```

```
## [14] 0.9454545
                   1.5654247
  [15] 0.9210526
                   1.5250216
  [16] 0.9076923
                   1.5029004
  [17] 0.8771930
                   1.4524015
  [18] 0.8536585
                   1.4134346
  [19] 0.8421053
                   1.3943054
  [20] 0.8260870
                   1.3677833
## [21] 0.8139535
                   1.3476935
  [22] 0.8082192
                   1.3381990
  [23] 0.8035714
                   1.3305035
  [24] 0.7954545
                   1.3170641
  [25] 0.7872340
                   1.3034531
                   1.3034531
  [26] 0.7872340
  [27] 0.7857143
                   1.3009368
## [28] 0.7833333
                   1.2969945
  [29] 0.7826087
                   1.2957947
  [30] 0.7808219
                   1.2928363
  [31] 0.7746479
                   1.2826137
                   1.2693989
  [32] 0.7666667
  [33] 0.7666667
                   1.2693989
##
  [34] 0.7530864
                   1.2469136
  [35] 0.7380952
                   1.2220921
  [36] 0.7307692
                   1.2099622
  [37] 0.7037037
                   1.1651488
  [38] 0.6933333
                   1.1479781
  [39] 0.6923077
                   1.1462799
  [40] 0.6666667
                   1.1038251
## [41] 0.6607143
                   1.0939696
## [42] 0.6388889
                   1.0578324
## [43] 0.5909091
                   0.9783905
## [44] 0.5875000
                   0.9727459
  [45] 0.5333333
                   0.8830601
  [46] 0.4561404
                   0.7552488
  [47] 0.3965517
                   0.6565856
##
   [48] 0.3389831
                   0.5612670
##
       lhs
                          rhs
                                           support
                                                     confidence lift
  [1] {type=bird}
                       => {toothed=FALSE} 0.1980198 1.0000000 2.5250000
  [2] {feathers=TRUE} => {toothed=FALSE} 0.1980198 1.0000000
                                                                2.5250000
  [3] {tail=FALSE}
                       => {toothed=FALSE} 0.1683168 0.6538462
                                                                1.6509615
                       => {toothed=FALSE} 0.3861386 0.6500000 1.6412500
  [4] {milk=FALSE}
   [5] {catsize=FALSE} => {toothed=FALSE} 0.3069307 0.5438596 1.3732456
   [6]
       {predator=TRUE} => {toothed=FALSE} 0.1881188 0.3392857 0.8566964
##
##
       lhs
                                          rhs
                                                         support
                                                                   confidence
  [1] {hair=TRUE,predator=TRUE}
                                         {toothed=TRUE} 0.1881188 0.9500000
## [2] {feathers=FALSE,predator=TRUE} => {toothed=TRUE} 0.3663366 0.7872340
                                      => {toothed=TRUE} 0.3663366 0.7872340
## [3] {predator=TRUE,backbone=TRUE}
  [4] {predator=TRUE,tail=TRUE}
                                       => {toothed=TRUE} 0.3069307 0.7380952
   [5] {aquatic=FALSE,predator=TRUE}
                                      => {toothed=TRUE} 0.1881188 0.7037037
##
   [6] {predator=TRUE,breathes=TRUE} => {toothed=TRUE} 0.2673267 0.6923077
##
       lift
## [1] 1.572951
## [2] 1.303453
## [3] 1.303453
## [4] 1.222092
```

```
[5] 1.165149
   [6] 1.146280
   [1] "Número de reglas con consecuente negado"
##
##
                                            rhs
                                                             support
##
   [1]
        {type=bird}
                                            {toothed=FALSE} 0.1980198
   [2]
##
        {feathers=TRUE}
                                            {toothed=FALSE} 0.1980198
   [3]
        {hair=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.1782178
   [4]
##
        {eggs=TRUE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
##
   [5]
        {milk=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
   [6]
##
        {milk=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2673267
   [7]
        {eggs=TRUE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2574257
   [8]
##
        {hair=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2277228
##
   [9]
        {eggs=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
                                            {toothed=FALSE} 0.3465347
   [10]
       {milk=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3069307
   [11]
       {hair=FALSE,legs=TRUE}
        {eggs=TRUE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   [12]
       {milk=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   Γ13]
   [14] {eggs=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
   [15] {milk=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
   [16] {eggs=TRUE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
##
  [17] {milk=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
  [18] {hair=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3465347
  [19] {hair=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1287129
   [20] {eggs=TRUE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
   [21] {milk=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
   [22] {tail=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1584158
   [23] {hair=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.1683168
   [24] {hair=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.2772277
  [25] {tail=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.1584158
   [26] {aquatic=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1089109
   [27]
        {aquatic=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.1287129
   [28]
        {fins=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   [29] {eggs=TRUE, venomous=FALSE}
                                            {toothed=FALSE} 0.3564356
   [30] {milk=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3465347
   [31] {aquatic=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.1188119
##
   [32] {legs=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
   [33] {tail=FALSE}
                                            {toothed=FALSE} 0.1683168
  [34] {milk=FALSE}
                                            {toothed=FALSE} 0.3861386
##
       {aquatic=FALSE, catsize=FALSE}
                                            {toothed=FALSE} 0.2178218
   [35]
##
   [36] {fins=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
   [37]
       {hair=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3267327
   [38] {hair=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
   [39]
       {breathes=TRUE, catsize=FALSE}
                                            {toothed=FALSE} 0.2475248
##
  [40] {predator=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1683168
  [41] {catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
  [42]
        {predator=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.2079208
   [43]
       {predator=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.1683168
       {fins=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.3564356
   [45] {predator=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.1881188
   [46] {legs=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.3168317
       {aquatic=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.2277228
  [48] {breathes=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.2871287
##
  [49] {predator=TRUE}
                                         => {toothed=FALSE} 0.1881188
##
        confidence lift
```

```
## [1]
        1.0000000
                   2.5250000
##
   [2]
        1.0000000
                   2.5250000
   [3]
        1.0000000
                   2.5250000
   [4]
##
        1.0000000
                   2.5250000
##
   [5]
        1.0000000
                    2.5250000
##
   [6]
        0.9000000
                   2.2725000
   [7]
        0.8965517
                    2.2637931
##
   [8]
        0.8846154
                    2.2336538
##
   [9]
        0.8750000
                    2.2093750
   [10] 0.8750000
                    2.2093750
   [11] 0.8611111
                    2.1743056
   [12] 0.8500000
                    2.1462500
   [13] 0.8500000
                    2.1462500
   [14] 0.8478261
                    2.1407609
   [15] 0.8297872
                    2.0952128
   [16] 0.8205128
                    2.0717949
   [17] 0.8205128
                    2.0717949
   [18] 0.8139535
                    2.0552326
   [19] 0.8125000
                    2.0515625
   [20] 0.8076923
                    2.0394231
##
   [21] 0.8076923
                    2.0394231
   [22] 0.8000000
                    2.0200000
   [23] 0.7727273
                    1.9511364
##
   [24] 0.7567568
                    1.9108108
   [25] 0.6956522
                    1.7565217
   [26] 0.6875000
                    1.7359375
   [27] 0.6842105
                    1.7276316
##
   [28] 0.6800000
                    1.7170000
   [29] 0.6792453
                    1.7150943
   [30] 0.6730769
                    1.6995192
   [31] 0.6666667
                    1.6833333
##
   [32] 0.6585366
                    1.6628049
   [33] 0.6538462
                    1.6509615
   [34] 0.6500000
                    1.6412500
   [35] 0.6470588
                    1.6338235
##
   [36] 0.6458333
                    1.6307292
   [37] 0.6346154
                    1.6024038
   [38] 0.6136364
                    1.5494318
   [39] 0.6097561
                    1.5396341
##
   [40] 0.5862069
                    1.4801724
   [41] 0.5438596
                    1.3732456
   [42] 0.5121951
                    1.2932927
   [43] 0.5000000
                    1.2625000
   [44] 0.5000000
                    1.2625000
   [45] 0.4871795
                    1.2301282
   [46] 0.4848485
                    1.2242424
##
   [47] 0.4339623
                    1.0957547
   [48] 0.4264706
                    1.0768382
##
   [49]
        0.3392857
                    0.8566964
##
        lhs
                                             support
                                                        confidence lift
##
   [1]
                             {toothed=TRUE} 0.1287129 1.0000000 1.6557377
        {type=fish}
##
   [2]
        {fins=TRUE}
                          => {toothed=TRUE} 0.1683168 1.0000000
## [3]
        {eggs=FALSE}
                          => {toothed=TRUE} 0.4059406 0.9761905
                                                                   1.6163154
## [4]
        {legs=FALSE}
                          => {toothed=TRUE} 0.1881188 0.8260870 1.3677833
```

```
{catsize=TRUE}
                         => {toothed=TRUE} 0.3465347 0.7954545
                                                                 1.3170641
##
  [6]
        {feathers=FALSE} => {toothed=TRUE} 0.6039604 0.7530864
                                                                 1.2469136
  [7]
        {tail=TRUE}
                         => {toothed=TRUE} 0.5148515 0.6933333
                                                                 1.1479781
  [8]
        {breathes=FALSE} => {toothed=TRUE} 0.1386139 0.6666667
##
                                                                 1.1038251
##
   [9]
        {predator=TRUE}
                         => {toothed=TRUE} 0.3663366 0.6607143
                                                                 1.0939696
  [10] {aquatic=TRUE}
                         => {toothed=TRUE} 0.2277228 0.6388889
                                                                 1.0578324
  [11] {domestic=FALSE} => {toothed=TRUE} 0.5148515 0.5909091
                                                                 0.9783905
## [12] {breathes=TRUE}
                         => {toothed=TRUE} 0.4653465 0.5875000
                                                                 0.9727459
  [13] {predator=FALSE} => {toothed=TRUE} 0.2376238 0.5333333
                                                                 0.8830601
  [14] {catsize=FALSE}
                         => {toothed=TRUE} 0.2574257 0.4561404
                                                                 0.7552488
  [15] {hair=FALSE}
                         => {toothed=TRUE} 0.2277228 0.3965517
                                                                 0.6565856
##
   [16] {eggs=TRUE}
                         => {toothed=TRUE} 0.1980198 0.3389831
                                                                 0.5612670
##
       lhs
                                    rhs
                                                     support
                                                               confidence
   [1] {aquatic=TRUE,fins=FALSE} => {toothed=FALSE} 0.1287129 0.6842105
   [2] {aquatic=TRUE,legs=TRUE} => {toothed=FALSE} 0.1188119 0.6666667
##
       lift
##
  [1] 1.727632
   [2] 1.683333
##
       lhs
                                           rhs
                                                           support
##
  [1] {tail=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.1584158
  [2] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
  [3] {fins=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3564356
  [4] {legs=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3168317
  [5] {aquatic=FALSE,domestic=FALSE}
                                       => {toothed=FALSE} 0.2277228
##
   [6] {breathes=TRUE,domestic=FALSE}
                                       => {toothed=FALSE} 0.2871287
       confidence lift
  [1] 0.6956522 1.756522
##
   [2] 0.5000000
                  1.262500
  [3] 0.5000000
                  1.262500
## [4] 0.4848485
                  1.224242
## [5] 0.4339623
                  1.095755
##
   [6] 0.4264706
                  1.076838
##
       lhs
                                                          support
                                                                    confidence
##
  [1] {eggs=TRUE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
   [2] {milk=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
  [3] {hair=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.2772277 0.7567568
  [4] {breathes=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2475248 0.6097561
  [5] {breathes=TRUE,domestic=FALSE} => {toothed=FALSE} 0.2871287 0.4264706
##
##
       lift
## [1] 2.071795
  [2] 2.071795
  [3] 1.910811
##
   [4] 1.539634
##
   [5] 1.076838
##
       lhs
                                           rhs
                                                           support
  [1] {eggs=TRUE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
   [2] {milk=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [3] {hair=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.1683168
  [4] {predator=FALSE, catsize=FALSE}
                                        => {toothed=FALSE} 0.1683168
  [5] {predator=FALSE,fins=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [6] {predator=FALSE,domestic=FALSE}
                                       => {toothed=FALSE} 0.1683168
  [7] {predator=FALSE,legs=TRUE}
                                        => {toothed=FALSE} 0.1881188
##
       confidence lift
## [1] 0.8076923 2.039423
```

```
## [2] 0.8076923
                  2.039423
   [3] 0.7727273
                  1.951136
  [4] 0.5862069
                  1.480172
  [5] 0.5121951
                  1.293293
   [6] 0.5000000
                  1.262500
##
   [7] 0.4871795
                  1.230128
##
       lhs
                                          rhs
                                                          support
                                                                     confidence
                                       => {toothed=FALSE} 0.1584158 0.8000000
## [1] {tail=FALSE, catsize=FALSE}
   [2] {legs=TRUE,catsize=FALSE}
                                         {toothed=FALSE} 0.2673267 0.6585366
   [3] {aquatic=FALSE, catsize=FALSE}
                                       => {toothed=FALSE} 0.2178218 0.6470588
  [4] {fins=FALSE, catsize=FALSE}
                                       => {toothed=FALSE} 0.3069307 0.6458333
   [5] {hair=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6136364
   [6] {breathes=TRUE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2475248 0.6097561
##
   [7] {predator=FALSE,catsize=FALSE} => {toothed=FALSE} 0.1683168 0.5862069
##
       lift
##
   [1] 2.020000
##
   [2] 1.662805
  [3] 1.633824
  [4] 1.630729
   [5] 1.549432
##
   [6] 1.539634
##
   [7] 1.480172
       lhs
##
                                       rhs
                                                       support
                                                                  confidence
##
  [1] {hair=FALSE,airborne=TRUE}
                                    => {toothed=FALSE} 0.1782178 1.0000000
   [2] {hair=FALSE,aquatic=FALSE}
                                    => {toothed=FALSE} 0.2277228 0.8846154
  [3] {hair=FALSE,legs=TRUE}
                                    => {toothed=FALSE} 0.3069307 0.8611111
  [4] {hair=FALSE,fins=FALSE}
                                    => {toothed=FALSE} 0.3465347 0.8139535
  [5] {hair=FALSE,tail=FALSE}
                                    => {toothed=FALSE} 0.1287129 0.8125000
  [6] {hair=FALSE,predator=FALSE} => {toothed=FALSE} 0.1683168 0.7727273
  [7] {hair=FALSE,breathes=TRUE}
                                    => {toothed=FALSE} 0.2772277 0.7567568
   [8] {hair=FALSE, venomous=FALSE} => {toothed=FALSE} 0.3267327 0.6346154
##
   [9] {hair=FALSE, catsize=FALSE} => {toothed=FALSE} 0.2673267 0.6136364
##
       lift
  [1] 2.525000
##
   [2] 2.233654
   [3] 2.174306
##
  [4] 2.055233
  [5] 2.051563
##
##
   [6] 1.951136
##
  [7] 1.910811
  [8] 1.602404
   [9] 1.549432
##
##
       lhs
                                      rhs
                                                      support
                                                                 confidence
                                      {toothed=FALSE} 0.2178218 1.0000000
##
  [1] {eggs=TRUE,airborne=TRUE}
                                   =>
  [2] {eggs=TRUE,aquatic=FALSE}
                                   => {toothed=FALSE} 0.2574257 0.8965517
  [3] {eggs=TRUE,legs=TRUE}
                                   => {toothed=FALSE} 0.3465347 0.8750000
##
  [4] {eggs=TRUE,tail=FALSE}
                                   => {toothed=FALSE} 0.1683168 0.8500000
   [5] {eggs=TRUE,fins=FALSE}
                                   => {toothed=FALSE} 0.3861386 0.8478261
   [6] {eggs=TRUE,breathes=TRUE}
                                  => {toothed=FALSE} 0.3168317 0.8205128
   [7] {eggs=TRUE,predator=FALSE} => {toothed=FALSE} 0.2079208 0.8076923
##
   [8] {eggs=TRUE,venomous=FALSE} => {toothed=FALSE} 0.3564356 0.6792453
##
       lift
## [1] 2.525000
## [2] 2.263793
```

```
[3] 2.209375
   [4] 2.146250
   [5] 2.140761
   [6] 2.071795
##
   [7] 2.039423
   [8] 1.715094
##
##
       "Número de reglas con consecuente negado"
##
                                                            support
##
   Γ17
        {milk=TRUE,predator=TRUE}
                                            {catsize=TRUE} 0.1980198
##
   [2]
        {predator=TRUE, type=mammal}
                                            {catsize=TRUE} 0.1980198
   [3]
        {hair=TRUE, predator=TRUE}
                                            {catsize=TRUE} 0.1782178
   [4]
##
        {eggs=FALSE,predator=TRUE}
                                            {catsize=TRUE} 0.1881188
##
   [5]
        {hair=TRUE,airborne=FALSE}
                                            {catsize=TRUE} 0.2970297
                                            {catsize=TRUE} 0.2574257
##
   [6]
        {milk=TRUE,domestic=FALSE}
   [7]
##
        {domestic=FALSE, type=mammal}
                                            {catsize=TRUE} 0.2574257
##
   [8]
        {milk=TRUE}
                                            {catsize=TRUE} 0.3168317
##
   [9]
                                            {catsize=TRUE} 0.3168317
        {type=mammal}
   [10] {eggs=FALSE, venomous=FALSE}
                                            {catsize=TRUE} 0.3069307
   [11] {hair=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2970297
   [12] {hair=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2475248
##
  [13] {eggs=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3069307
  [14] {eggs=FALSE}
                                            {catsize=TRUE} 0.3069307
   [15] {hair=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.2970297
   [16] {hair=TRUE.domestic=FALSE}
                                            {catsize=TRUE} 0.2376238
##
  [17] {hair=TRUE}
                                            {catsize=TRUE} 0.2970297
   [18] {aquatic=FALSE, toothed=TRUE}
                                            {catsize=TRUE} 0.2574257
   [19] {toothed=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.2772277
   [20] {toothed=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.3069307
  [21] {airborne=FALSE,breathes=TRUE}
                                            {catsize=TRUE} 0.3564356
  [22] {airborne=FALSE,aquatic=FALSE}
                                            {catsize=TRUE} 0.2871287
   [23] {airborne=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3366337
   [24] {predator=TRUE, toothed=TRUE}
                                            {catsize=TRUE} 0.2277228
   [25] {airborne=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3960396
   [26] {airborne=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3465347
   [27] {toothed=TRUE,fins=FALSE}
                                            {catsize=TRUE} 0.2673267
##
  [28] {toothed=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.3366337
  [29] {aquatic=FALSE, predator=TRUE}
                                            {catsize=TRUE} 0.1584158
  [30] {predator=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.2277228
       {feathers=FALSE, backbone=TRUE}
                                            {catsize=TRUE} 0.3663366
   [31]
##
   [32] {aquatic=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3069307
   [33] {feathers=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3168317
   [34] {toothed=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2970297
   [35] {predator=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2673267
   [36] {backbone=TRUE, breathes=TRUE}
                                            {catsize=TRUE} 0.3861386
   [37] {airborne=FALSE, venomous=FALSE}
                                            {catsize=TRUE} 0.3960396
   [38]
        {backbone=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.3564356
   [39]
##
       {legs=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.3168317
   [40] {breathes=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.3366337
   [41] {aquatic=FALSE,tail=TRUE}
                                         => {catsize=TRUE} 0.2673267
   [42] {airborne=FALSE,fins=FALSE}
                                            {catsize=TRUE} 0.3267327
##
  [43] {feathers=FALSE,breathes=TRUE}
                                            {catsize=TRUE} 0.3267327
## [44] {predator=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2277228
## [45] {predator=TRUE, venomous=FALSE}
                                         =>
                                            {catsize=TRUE} 0.2673267
## [46] {predator=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.2079208
```

```
## [47] {feathers=FALSE,legs=TRUE}
                                          => {catsize=TRUE} 0.3069307
       {feathers=FALSE,predator=TRUE}
   [48]
                                             {catsize=TRUE} 0.2475248
   [49] {backbone=TRUE, venomous=FALSE}
                                             {catsize=TRUE} 0.4158416
   [50] {backbone=TRUE,fins=FALSE}
                                             {catsize=TRUE} 0.3465347
##
   [51]
       {feathers=FALSE, aquatic=FALSE}
                                             {catsize=TRUE} 0.2673267
##
   [52]
       {fins=FALSE,tail=TRUE}
                                             {catsize=TRUE} 0.3069307
       {venomous=FALSE,tail=TRUE}
   ſ531
                                             {catsize=TRUE} 0.3663366
   [54]
        {backbone=TRUE,domestic=FALSE}
                                             {catsize=TRUE} 0.3663366
   [55]
        {breathes=TRUE, venomous=FALSE}
                                             {catsize=TRUE} 0.3861386
        {aquatic=FALSE, venomous=FALSE}
                                             {catsize=TRUE} 0.3069307
   [57]
        {feathers=FALSE, venomous=FALSE} =>
                                             {catsize=TRUE} 0.3663366
   [58]
        {venomous=FALSE,legs=TRUE}
                                             {catsize=TRUE} 0.3663366
##
   [59]
        {aquatic=FALSE}
                                          => {catsize=TRUE} 0.3069307
                                          => {catsize=TRUE} 0.1287129
##
   [60]
        {aquatic=TRUE}
        {hair=FALSE}
##
   [61]
                                          => {catsize=TRUE} 0.1386139
##
   [62]
        {milk=FALSE}
                                          => {catsize=TRUE} 0.1188119
##
        confidence lift
##
   [1]
        0.9090909
                    2.0867769
   [2]
##
        0.9090909
                    2.0867769
##
   [3]
        0.9000000
                    2.0659091
##
   [4]
        0.8260870
                    1.8962451
   [5]
##
        0.8108108
                    1.8611794
##
   [6]
        0.7878788
                    1.8085399
##
   [7]
        0.7878788
                    1.8085399
##
   [8]
        0.7804878
                    1.7915743
   [9]
        0.7804878
                    1.7915743
        0.7750000
   [10]
                    1.7789773
##
   [11] 0.7692308
                    1.7657343
   [12] 0.7575758
                    1.7389807
   [13] 0.7560976
                    1.7355876
   [14] 0.7380952
                    1.6942641
##
   [15] 0.7317073
                    1.6796009
   [16] 0.7058824
                    1.6203209
   [17] 0.6976744
                    1.6014799
   [18]
        0.6842105
                    1.5705742
##
   [19] 0.6666667
                    1.5303030
   [20] 0.6595745
                    1.5140232
   [21] 0.6428571
                    1.4756494
   [22] 0.6304348
                    1.4471344
   [23] 0.6296296
                    1.4452862
   [24] 0.6216216
                    1.4269042
   [25] 0.6153846
                    1.4125874
   [26] 0.6140351
                    1.4094896
   [27] 0.6136364
                    1.4085744
                    1.3692185
   [28] 0.5964912
   [29] 0.5925926
                    1.3602694
                    1.3537296
##
   [30] 0.5897436
   [31] 0.5873016
                    1.3481241
   [32]
        0.5849057
                    1.3426244
   [33]
        0.5818182
                    1.3355372
   [34]
                    1.3243007
##
        0.5769231
  [35] 0.5744681
                    1.3186654
  [36] 0.5652174
                    1.2974308
## [37] 0.5633803
                   1.2932138
```

```
[38] 0.5625000
                    1.2911932
   [39] 0.5614035
                    1.2886762
   [40] 0.5573770
                    1.2794337
   [41] 0.5510204
                    1.2648423
   [42] 0.5500000
                    1.2625000
   [43] 0.5500000
                    1.2625000
##
   [44] 0.5476190
                    1.2570346
   [45] 0.5400000
                    1.2395455
   [46] 0.5384615
                    1.2360140
   [47] 0.5344828
                    1.2268809
   [48] 0.5319149
                    1.2209865
   [49] 0.5316456
                    1.2203682
##
   [50] 0.5303030
                    1.2172865
   [51] 0.5294118
                    1.2152406
   [52] 0.5254237
                    1.2060863
   [53] 0.5211268
                    1.1962228
   [54] 0.5211268
                    1.1962228
   [55] 0.5200000
                    1.1936364
   [56] 0.5081967
                    1.1665425
   [57] 0.5068493
                    1.1634496
##
   [58] 0.5000000
                    1.1477273
   [59] 0.4769231
                    1.0947552
   [60] 0.3611111
                    0.8289141
##
##
   [61] 0.2413793
                    0.5540752
##
   [62] 0.2000000
                   0.4590909
##
        lhs
                                              support
                                                         confidence lift
##
   [1]
                             {catsize=FALSE} 0.1683168 0.9444444
        {backbone=FALSE} =>
                                                                    1.6734893
##
   [2]
        {airborne=TRUE}
                          => {catsize=FALSE} 0.2079208 0.8750000
                                                                    1.5504386
##
   [3]
        {milk=FALSE}
                          => {catsize=FALSE} 0.4752475 0.8000000
                                                                    1.4175439
##
   [4]
                          => {catsize=FALSE} 0.4554455 0.7796610
        {eggs=TRUE}
                                                                    1.3815046
##
   [5]
        {tail=FALSE}
                             {catsize=FALSE} 0.1980198 0.7692308
                                                                    1.3630229
##
   [6]
        {breathes=FALSE}
                         =>
                             {catsize=FALSE} 0.1584158 0.7619048
                                                                    1.3500418
##
   [7]
        {type=bird}
                          => {catsize=FALSE} 0.1386139 0.7000000
                                                                    1.2403509
   [8]
##
        {feathers=TRUE}
                          => {catsize=FALSE} 0.1386139 0.7000000
                                                                    1.2403509
   [9]
        {legs=FALSE}
                             {catsize=FALSE} 0.1584158 0.6956522
##
                                                                    1.2326468
##
   [10]
       {aquatic=TRUE}
                          => {catsize=FALSE} 0.2277228 0.6388889
                                                                    1.1320663
   [11] {predator=TRUE}
                          => {catsize=FALSE} 0.2772277 0.5000000
                                                                    0.8859649
   [12] {airborne=FALSE} => {catsize=FALSE} 0.3564356 0.4675325
                                                                    0.8284347
        {hair=TRUE}
                             {catsize=FALSE} 0.1287129 0.3023256
   [13]
                                                                    0.5356997
                          => {catsize=FALSE} 0.1089109 0.2619048
##
   [14] {eggs=FALSE}
                                                                    0.4640769
##
                                            rhs
                                                            support
                                                                      confidence
                                         => {catsize=TRUE} 0.1980198 0.9090909
##
   [1]
        {milk=TRUE,predator=TRUE}
##
   [2]
        {predator=TRUE, type=mammal}
                                         => {catsize=TRUE} 0.1980198 0.9090909
##
   [3]
        {hair=TRUE, predator=TRUE}
                                         => {catsize=TRUE} 0.1782178 0.9000000
##
   [4]
        {eggs=FALSE,predator=TRUE}
                                         => {catsize=TRUE} 0.1881188 0.8260870
   [5]
##
        {predator=TRUE, toothed=TRUE}
                                         => {catsize=TRUE} 0.2277228 0.6216216
##
   [6]
        {aquatic=FALSE, predator=TRUE}
                                            {catsize=TRUE} 0.1584158 0.5925926
##
   [7]
        {predator=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.2277228 0.5897436
##
   [8]
        {predator=TRUE,backbone=TRUE}
                                         => {catsize=TRUE} 0.2673267 0.5744681
##
   [9]
        {predator=TRUE,tail=TRUE}
                                         => {catsize=TRUE} 0.2277228 0.5476190
   [10] {predator=TRUE,venomous=FALSE} => {catsize=TRUE} 0.2673267 0.5400000
##
   [11] {predator=TRUE,legs=TRUE}
                                         => {catsize=TRUE} 0.2079208 0.5384615
##
   [12] {feathers=FALSE,predator=TRUE} => {catsize=TRUE} 0.2475248 0.5319149
##
        lift
```

```
## [1]
        2.086777
##
  [2]
        2.086777
  [3]
        2.065909
  [4]
##
        1.896245
##
   [5]
        1.426904
##
  [6]
        1.360269
  [7]
        1.353730
##
  [8]
        1.318665
##
  [9]
        1.257035
##
  [10] 1.239545
## [11] 1.236014
##
  [12] 1.220986
##
       lhs
                                           rhs
                                                                     confidence
                                                           support
## [1] {hair=TRUE,airborne=FALSE}
                                        => {catsize=TRUE} 0.2970297 0.8108108
## [2] {airborne=FALSE,breathes=TRUE}
                                        => {catsize=TRUE} 0.3564356 0.6428571
## [3] {airborne=FALSE,aquatic=FALSE}
                                        => {catsize=TRUE} 0.2871287 0.6304348
## [4] {airborne=FALSE,legs=TRUE}
                                        => {catsize=TRUE} 0.3366337 0.6296296
## [5] {airborne=FALSE,backbone=TRUE}
                                        => {catsize=TRUE} 0.3960396 0.6153846
                                        => {catsize=TRUE} 0.3465347 0.6140351
## [6] {airborne=FALSE,tail=TRUE}
  [7] {airborne=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3960396 0.5633803
##
  [8] {airborne=FALSE,fins=FALSE}
                                        => {catsize=TRUE} 0.3267327 0.5500000
##
       lift.
## [1] 1.861179
  [2] 1.475649
##
## [3] 1.447134
## [4] 1.445286
## [5] 1.412587
  [6] 1.409490
## [7] 1.293214
## [8] 1.262500
##
       lhs
                                      rhs
                                                     support
                                                                confidence
## [1] {hair=TRUE,predator=TRUE} => {catsize=TRUE} 0.1782178 0.9000000
  [2] {hair=TRUE,airborne=FALSE} => {catsize=TRUE} 0.2970297 0.8108108
## [3] {hair=TRUE,backbone=TRUE} => {catsize=TRUE} 0.2970297 0.7692308
   [4] {hair=TRUE,tail=TRUE}
                                   => {catsize=TRUE} 0.2475248 0.7575758
  [5] {hair=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2970297 0.7317073
   [6] {hair=TRUE,domestic=FALSE} => {catsize=TRUE} 0.2376238 0.7058824
##
       lift
## [1] 2.065909
  [2] 1.861179
##
  [3] 1.765734
  [4] 1.738981
##
  [5] 1.679601
##
  [6] 1.620321
##
       lhs
                                       rhs
                                                                 confidence
                                                      support
   [1] {eggs=FALSE,predator=TRUE} => {catsize=TRUE} 0.1881188 0.8260870
   [2] {eggs=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3069307 0.7750000
   [3] {eggs=FALSE,backbone=TRUE} => {catsize=TRUE} 0.3069307 0.7560976
##
       lift
##
  [1] 1.896245
##
  [2] 1.778977
## [3] 1.735588
## [1] "Número de reglas con consecuente negado"
##
        lhs
                                                                   confidence
                                                         support
```

```
{milk=TRUE, predator=FALSE}
                                            {hair=TRUE} 0.1881188 1.0000000
##
   [2]
        {milk=TRUE, aquatic=FALSE}
                                            {hair=TRUE} 0.3465347 1.0000000
   [3]
        {milk=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3762376 1.0000000
                                            {hair=TRUE} 0.3663366 1.0000000
   [4]
        {milk=TRUE,fins=FALSE}
##
##
   [5]
        {predator=FALSE, type=mammal}
                                            {hair=TRUE} 0.1881188 1.0000000
##
        {aquatic=FALSE, type=mammal}
   [6]
                                            {hair=TRUE} 0.3465347 1.0000000
##
   [7]
        {legs=TRUE, type=mammal}
                                            {hair=TRUE} 0.3762376 1.0000000
##
  [8]
        {fins=FALSE, type=mammal}
                                            {hair=TRUE} 0.3663366 1.0000000
##
   [9]
        {eggs=FALSE,predator=FALSE}
                                            {hair=TRUE} 0.1881188 1.0000000
   [10] {eggs=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3663366 0.9736842
   [11] {eggs=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3465347 0.9722222
   [12] {milk=TRUE}
                                            {hair=TRUE} 0.3861386 0.9512195
##
   [13] {type=mammal}
                                            {hair=TRUE} 0.3861386 0.9512195
   [14] {eggs=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.9500000
                                            {hair=TRUE} 0.3564356 0.9473684
  [15] {eggs=FALSE,fins=FALSE}
       {eggs=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.9268293
       {aquatic=FALSE, toothed=TRUE}
                                            {hair=TRUE} 0.3465347 0.9210526
   [17]
                                            {hair=TRUE} 0.3762376 0.9047619
   [18] {eggs=FALSE}
   [19] {toothed=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3663366 0.8809524
   [20] {aquatic=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2574257 0.8387097
##
  [21] {toothed=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2871287 0.8285714
  [22] {toothed=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.3564356 0.8181818
  [23] {toothed=TRUE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.8085106
   [24]
       {predator=FALSE, toothed=TRUE}
                                            {hair=TRUE} 0.1881188 0.7916667
   [25] {feathers=FALSE, catsize=TRUE}
                                            {hair=TRUE} 0.2970297 0.7894737
   [26] {legs=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2871287 0.7837838
                                            {hair=TRUE} 0.2772277 0.7777778
   [27] {fins=FALSE,catsize=TRUE}
   [28] {breathes=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2970297 0.7692308
  [29] {feathers=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3861386 0.7647059
  [30] {predator=FALSE,catsize=TRUE}
                                           {hair=TRUE} 0.1188119 0.7500000
   [31] {feathers=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.7241379
##
   [32] {airborne=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3267327 0.7173913
   [33] {feathers=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.4257426 0.7166667
   [34] {feathers=FALSE,predator=FALSE} =>
                                            {hair=TRUE} 0.2277228 0.6764706
   [35] {toothed=TRUE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.6666667
##
   [36] {airborne=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3564356 0.6666667
  [37] {airborne=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3663366 0.6607143
  [38] {aquatic=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3465347 0.6603774
       {aquatic=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3861386 0.6500000
##
   [39]
  [40] {feathers=FALSE,fins=FALSE}
##
                                            {hair=TRUE} 0.4059406 0.6406250
  [41] {toothed=TRUE}
                                            {hair=TRUE} 0.3762376 0.6229508
  [42] {feathers=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3861386 0.6190476
  [43] {aquatic=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.2970297 0.6122449
  [44] {aquatic=FALSE, breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.6093750
  [45] {airborne=FALSE,predator=FALSE}
                                            {hair=TRUE} 0.1683168 0.6071429
       {aquatic=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3663366 0.6065574
  [47]
       {feathers=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.6000000
  [48]
       {backbone=TRUE,legs=TRUE}
                                           {hair=TRUE} 0.3762376 0.5937500
  [49] {predator=FALSE,legs=TRUE}
                                         => {hair=TRUE} 0.2277228 0.5897436
   [50] {airborne=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.3465347 0.5833333
##
  [51] {legs=TRUE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.5789474
  [52] {breathes=TRUE,legs=TRUE}
                                           {hair=TRUE} 0.4158416 0.5753425
## [53] {airborne=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3663366 0.5692308
## [54] {backbone=TRUE,breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.5652174
```

```
## [55] {feathers=FALSE,venomous=FALSE} => {hair=TRUE} 0.4059406 0.5616438
  [56] {predator=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.2277228 0.5609756
  [57] {predator=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.2277228 0.5609756
  [58] {backbone=TRUE,fins=FALSE}
                                         => {hair=TRUE} 0.3663366 0.5606061
  [59] {breathes=TRUE, venomous=FALSE}
                                           {hair=TRUE} 0.4059406 0.5466667
  [60] {airborne=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.3069307 0.5438596
  [61] {fins=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.3168317 0.5423729
  [62] {breathes=TRUE,tail=TRUE}
                                           {hair=TRUE} 0.3267327 0.5409836
   [63]
       {venomous=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3960396 0.5405405
  [64]
       {breathes=TRUE,fins=FALSE}
                                           {hair=TRUE} 0.4059406 0.5394737
  [65] {predator=FALSE,backbone=TRUE}
                                           {hair=TRUE} 0.1881188 0.5277778
                                           {hair=TRUE} 0.3663366 0.5211268
   [66] {airborne=FALSE, venomous=FALSE} =>
   [67] {predator=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.1683168 0.5151515
   [68] {predator=FALSE}
                                         => {hair=TRUE} 0.2277228 0.5111111
                                         => {hair=TRUE} 0.3861386 0.5064935
  [69] {venomous=FALSE,fins=FALSE}
       {backbone=TRUE, venomous=FALSE}
                                         => {hair=TRUE} 0.3861386 0.4936709
                                         => {hair=TRUE} 0.3861386 0.4698795
  [71] {backbone=TRUE}
  [72] {venomous=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.3267327 0.4647887
                                         => {hair=TRUE} 0.3366337 0.3863636
##
   [73] {domestic=FALSE}
##
        lift
##
  [1]
       2.3488372
  [2]
        2.3488372
## [3]
        2.3488372
  [4]
##
        2.3488372
##
  [5]
       2.3488372
  [6]
        2.3488372
   [7]
##
        2.3488372
##
   [8]
        2.3488372
  [9]
##
       2.3488372
## [10] 2.2870257
## [11] 2.2835917
  [12] 2.2342598
  [13] 2.2342598
## [14] 2.2313953
   [15] 2.2252142
## [16] 2.1769711
## [17] 2.1634027
## [18] 2.1251384
  [19] 2.0692137
## [20] 1.9699925
  [21] 1.9461794
  [22] 1.9217759
## [23] 1.8990599
## [24] 1.8594961
## [25] 1.8543452
## [26] 1.8409805
  [27] 1.8268734
## [28] 1.8067979
## [29] 1.7961696
## [30] 1.7616279
## [31] 1.7008821
## [32] 1.6850354
## [33] 1.6833333
## [34] 1.5889193
```

```
## [35] 1.5658915
   [36] 1.5658915
   [37] 1.5519103
   [38] 1.5511189
   [39] 1.5267442
##
  [40] 1.5047238
   [41] 1.4632101
## [42] 1.4540421
   [43] 1.4380636
   [44] 1.4313227
   [45] 1.4260797
   [46] 1.4247045
   [47] 1.4093023
  [48] 1.3946221
   [49] 1.3852117
   [50] 1.3701550
   [51] 1.3598531
   [52] 1.3513858
   [53] 1.3370304
   [54] 1.3276036
##
   [55] 1.3192099
   [56] 1.3176404
   [57] 1.3176404
##
   [58] 1.3167724
##
   [59] 1.2840310
   [60] 1.2774378
   [61] 1.2739456
##
   [62] 1.2706824
   [63] 1.2696417
   [64] 1.2671359
   [65] 1.2396641
##
   [66] 1.2240419
   [67] 1.2100070
   [68] 1.2005168
   [69] 1.1896708
##
   [70] 1.1595525
   [71] 1.1036705
##
  [72] 1.0917131
##
   [73] 0.9075053
##
        lhs
                                           support
                                                     confidence lift
                             rhs
   [1]
                          => {hair=FALSE} 0.1287129 1.0000000
        {type=fish}
                                                                1.7413793
##
   [2]
        {breathes=FALSE} => {hair=FALSE} 0.2079208 1.0000000
                                                                 1.7413793
##
   [3]
        {legs=FALSE}
                          => {hair=FALSE} 0.2178218 0.9565217
                                                                 1.6656672
##
   [4]
                          => {hair=FALSE} 0.3168317 0.8888889
        {aquatic=TRUE}
                                                                 1.5478927
   [5]
        {toothed=FALSE}
                          => {hair=FALSE} 0.3465347 0.8750000
                                                                 1.5237069
   [6]
                             {hair=FALSE} 0.1386139 0.7777778
##
        {backbone=FALSE} =>
                                                                 1.3544061
##
   [7]
        {catsize=FALSE}
                             {hair=FALSE} 0.4356436 0.7719298
                                                                 1.3442226
   [8]
        {airborne=TRUE}
                             {hair=FALSE} 0.1782178 0.7500000
                                                                 1.3060345
   [9]
        {predator=TRUE}
                          => {hair=FALSE} 0.3564356 0.6428571
                                                                 1.1194581
   [10]
       {tail=FALSE}
                          => {hair=FALSE} 0.1584158 0.6153846
                                                                 1.0716180
                          => {hair=FALSE} 0.4356436 0.5301205
   [11]
       {backbone=TRUE}
                                                                 0.9231408
## [12] {breathes=TRUE}
                          => {hair=FALSE} 0.3663366 0.4625000
                                                                 0.8053879
## [13] {legs=TRUE}
                          => {hair=FALSE} 0.3564356 0.4615385
                                                                 0.8037135
                                                                0.6965517
## [14] {aquatic=FALSE}
                          => {hair=FALSE} 0.2574257 0.4000000
```

```
##
                                                       support
                                                                 confidence
##
  [1] {aquatic=FALSE,backbone=TRUE} => {hair=TRUE} 0.3465347 0.6603774
   [2] {feathers=FALSE,backbone=TRUE} => {hair=TRUE} 0.3861386 0.6190476
  [3] {backbone=TRUE,legs=TRUE}
                                       => {hair=TRUE} 0.3762376 0.5937500
   [4] {airborne=FALSE,backbone=TRUE} => {hair=TRUE} 0.3663366 0.5692308
   [5] {backbone=TRUE, breathes=TRUE} => {hair=TRUE} 0.3861386 0.5652174
   [6] {backbone=TRUE.fins=FALSE}
                                       => {hair=TRUE} 0.3663366 0.5606061
   [7] {predator=FALSE,backbone=TRUE} => {hair=TRUE} 0.1881188 0.5277778
##
   [8] {backbone=TRUE, venomous=FALSE} => {hair=TRUE} 0.3861386 0.4936709
##
       lift
##
  [1] 1.551119
   [2] 1.454042
##
   [3] 1.394622
  [4] 1.337030
##
  [5] 1.327604
##
   [6] 1.316772
##
   [7] 1.239664
##
   [8] 1.159553
##
        lhs
                                           rhs
                                                        support
                                                                  confidence
##
   [1]
        {eggs=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3762376 0.9268293
##
  [2]
        {toothed=TRUE,breathes=TRUE}
                                        => {hair=TRUE} 0.3762376 0.8085106
  [3]
        {breathes=TRUE, catsize=TRUE}
                                        => {hair=TRUE} 0.2970297 0.7692308
  [4]
        {feathers=FALSE,breathes=TRUE} => {hair=TRUE} 0.4257426 0.7166667
##
##
   [5]
        {airborne=FALSE.breathes=TRUE} => {hair=TRUE} 0.3663366 0.6607143
##
  [6]
        {aquatic=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6093750
  [7]
        {breathes=TRUE,legs=TRUE}
                                        => {hair=TRUE} 0.4158416 0.5753425
   [8]
        {backbone=TRUE, breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.5652174
##
##
   [9]
        {predator=FALSE,breathes=TRUE} => {hair=TRUE} 0.2277228 0.5609756
  [10] {breathes=TRUE, venomous=FALSE} => {hair=TRUE} 0.4059406 0.5466667
  [11] {breathes=TRUE,tail=TRUE}
                                        => {hair=TRUE} 0.3267327 0.5409836
##
   [12] {breathes=TRUE,fins=FALSE}
                                        => {hair=TRUE} 0.4059406 0.5394737
##
        lift
##
  [1]
        2.176971
   [2]
##
        1.899060
   [3]
        1.806798
##
   [4]
##
        1.683333
##
   [5]
        1.551910
  [6]
        1.431323
##
   [7]
##
        1.351386
  [8]
##
        1.327604
   [9]
        1.317640
   [10] 1.284031
##
##
   [11] 1.270682
##
   [12] 1.267136
##
        lhs
                                       rhs
                                                              confidence
                                                    support
  [1]
##
        {milk=TRUE,legs=TRUE}
                                       {hair=TRUE} 0.3762376 1.0000000
        {legs=TRUE,type=mammal}
##
   [2]
                                       {hair=TRUE} 0.3762376 1.0000000
##
   [3]
        {eggs=FALSE,legs=TRUE}
                                    => {hair=TRUE} 0.3663366 0.9736842
##
   [4]
        {toothed=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.3663366 0.8809524
##
   [5]
        {legs=TRUE,catsize=TRUE}
                                    => {hair=TRUE} 0.2871287 0.7837838
##
   [6]
        {feathers=FALSE,legs=TRUE} => {hair=TRUE} 0.4158416 0.7241379
##
  [7]
        {airborne=FALSE,legs=TRUE} => {hair=TRUE} 0.3564356 0.6666667
##
  [8]
        {aquatic=FALSE,legs=TRUE}
                                    => {hair=TRUE} 0.3861386 0.6500000
## [9]
        {backbone=TRUE,legs=TRUE}
                                   => {hair=TRUE} 0.3762376 0.5937500
```

```
## [10] {predator=FALSE,legs=TRUE} => {hair=TRUE} 0.2277228 0.5897436
   [11] {legs=TRUE,tail=TRUE}
                                    => {hair=TRUE} 0.3267327 0.5789474
   [12] {breathes=TRUE,legs=TRUE} => {hair=TRUE} 0.4158416 0.5753425
   [13] {venomous=FALSE,legs=TRUE} => {hair=TRUE} 0.3960396 0.5405405
        lift.
##
  [1]
        2.348837
   [2]
        2.348837
  [3]
        2.287026
##
##
   [4]
        2.069214
##
   [5]
        1.840981
   [6]
        1.700882
   [7]
##
        1.565891
##
   [8]
        1.526744
##
   [9]
        1.394622
  [10] 1.385212
   [11] 1.359853
   [12] 1.351386
   [13] 1.269642
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
##
   [1]
        {milk=TRUE, aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 1.0000000
                                        => {hair=TRUE} 0.3465347 1.0000000
##
   [2]
        {aquatic=FALSE, type=mammal}
   [3]
        {eggs=FALSE,aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 0.9722222
  [4]
                                         => {hair=TRUE} 0.3465347 0.9210526
##
        {aquatic=FALSE, toothed=TRUE}
        {aquatic=FALSE, catsize=TRUE}
##
   [5]
                                         => {hair=TRUE} 0.2574257 0.8387097
##
   [6]
        {feathers=FALSE,aquatic=FALSE} => {hair=TRUE} 0.3861386 0.7647059
   [7]
        {airborne=FALSE,aquatic=FALSE} => {hair=TRUE} 0.3267327 0.7173913
   [8]
        {aquatic=FALSE,backbone=TRUE}
                                        => {hair=TRUE} 0.3465347 0.6603774
##
   [9]
        {aquatic=FALSE,legs=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6500000
   [10] {aquatic=FALSE,tail=TRUE}
                                        => {hair=TRUE} 0.2970297 0.6122449
   [11] {aquatic=FALSE,breathes=TRUE} => {hair=TRUE} 0.3861386 0.6093750
##
   [12] {aquatic=FALSE, venomous=FALSE} => {hair=TRUE} 0.3663366 0.6065574
##
        lift
##
   [1]
        2.348837
   [2]
        2.348837
##
   [3]
        2.283592
   [4]
##
        2.163403
   [5]
        1.969992
##
  [6]
        1.796170
   [7]
        1.685035
   [8]
##
        1.551119
   [9]
        1.526744
   [10] 1.438064
   [11] 1.431323
   [12] 1.424705
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                             rhs
                                                            support
##
  [1]
        {milk=TRUE,predator=TRUE}
                                         => {catsize=TRUE} 0.1980198
   [2]
        {predator=TRUE, type=mammal}
                                            {catsize=TRUE} 0.1980198
   [3]
        {hair=TRUE,predator=TRUE}
                                         => {catsize=TRUE} 0.1782178
##
   [4]
        {eggs=FALSE,predator=TRUE}
                                            {catsize=TRUE} 0.1881188
   [5]
                                            {catsize=TRUE} 0.2970297
##
        {hair=TRUE,airborne=FALSE}
  [6]
        {milk=TRUE,domestic=FALSE}
                                          => {catsize=TRUE} 0.2574257
                                         => {catsize=TRUE} 0.2574257
## [7]
        {domestic=FALSE, type=mammal}
## [8]
        {milk=TRUE}
                                            {catsize=TRUE} 0.3168317
```

```
## [9]
        {type=mammal}
                                         => {catsize=TRUE} 0.3168317
   [10] {eggs=FALSE, venomous=FALSE}
                                            {catsize=TRUE} 0.3069307
  [11] {hair=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2970297
   [12] {hair=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2475248
   [13] {eggs=FALSE,backbone=TRUE}
##
                                            {catsize=TRUE} 0.3069307
  [14] {eggs=FALSE}
                                            {catsize=TRUE} 0.3069307
##
  [15] {hair=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.2970297
   [16] {hair=TRUE,domestic=FALSE}
                                            {catsize=TRUE} 0.2376238
   [17] {hair=TRUE}
                                            {catsize=TRUE} 0.2970297
   [18] {aquatic=FALSE, toothed=TRUE}
                                           {catsize=TRUE} 0.2574257
   [19] {toothed=TRUE,legs=TRUE}
                                           {catsize=TRUE} 0.2772277
   [20] {toothed=TRUE,breathes=TRUE}
                                           {catsize=TRUE} 0.3069307
   [21] {airborne=FALSE,breathes=TRUE}
                                           {catsize=TRUE} 0.3564356
                                           {catsize=TRUE} 0.2871287
  [22] {airborne=FALSE,aquatic=FALSE}
                                           {catsize=TRUE} 0.3366337
  [23] {airborne=FALSE,legs=TRUE}
   [24] {predator=TRUE, toothed=TRUE}
                                            {catsize=TRUE} 0.2277228
   [25] {airborne=FALSE,backbone=TRUE}
                                           {catsize=TRUE} 0.3960396
   [26] {airborne=FALSE,tail=TRUE}
                                           {catsize=TRUE} 0.3465347
   [27] {toothed=TRUE,fins=FALSE}
                                           {catsize=TRUE} 0.2673267
   [28] {toothed=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.3366337
##
  [29] {aquatic=FALSE,predator=TRUE}
                                           {catsize=TRUE} 0.1584158
  [30] {predator=TRUE, breathes=TRUE}
                                           {catsize=TRUE} 0.2277228
  [31] {feathers=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3663366
##
   [32] {aquatic=FALSE,backbone=TRUE}
##
                                            {catsize=TRUE} 0.3069307
##
   [33]
       {feathers=FALSE,tail=TRUE}
                                           {catsize=TRUE} 0.3168317
   [34] {toothed=TRUE,tail=TRUE}
                                           {catsize=TRUE} 0.2970297
   [35] {predator=TRUE,backbone=TRUE}
                                           {catsize=TRUE} 0.2673267
   [36] {backbone=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.3861386
   [37] {airborne=FALSE, venomous=FALSE}
                                           {catsize=TRUE} 0.3960396
   [38] {backbone=TRUE,legs=TRUE}
                                           {catsize=TRUE} 0.3564356
   [39]
       {legs=TRUE,tail=TRUE}
                                           {catsize=TRUE} 0.3168317
##
   [40]
       {breathes=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.3366337
   [41] {aquatic=FALSE,tail=TRUE}
                                           {catsize=TRUE} 0.2673267
   [42] {airborne=FALSE,fins=FALSE}
                                         => {catsize=TRUE} 0.3267327
       {feathers=FALSE, breathes=TRUE}
                                            {catsize=TRUE} 0.3267327
   [43]
##
  [44] {predator=TRUE,tail=TRUE}
                                           {catsize=TRUE} 0.2277228
  [45] {predator=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.2673267
  [46] {predator=TRUE,legs=TRUE}
                                           {catsize=TRUE} 0.2079208
   [47] {feathers=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3069307
##
##
   [48] {feathers=FALSE,predator=TRUE}
                                            {catsize=TRUE} 0.2475248
   [49] {backbone=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.4158416
   [50] {backbone=TRUE,fins=FALSE}
                                           {catsize=TRUE} 0.3465347
   [51] {feathers=FALSE,aquatic=FALSE}
                                            {catsize=TRUE} 0.2673267
   [52] {fins=FALSE,tail=TRUE}
                                           {catsize=TRUE} 0.3069307
  [53] {venomous=FALSE,tail=TRUE}
                                         => {catsize=TRUE} 0.3663366
  [54]
       {backbone=TRUE,domestic=FALSE}
                                           {catsize=TRUE} 0.3663366
   [55]
##
        {breathes=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.3861386
   [56]
       {aquatic=FALSE, venomous=FALSE}
                                           {catsize=TRUE} 0.3069307
   [57] {feathers=FALSE, venomous=FALSE} =>
                                           {catsize=TRUE} 0.3663366
   [58] {venomous=FALSE,legs=TRUE}
                                           {catsize=TRUE} 0.3663366
                                           {catsize=TRUE} 0.3069307
##
   [59]
       {aquatic=FALSE}
  [60] {aquatic=TRUE}
                                         => {catsize=TRUE} 0.1287129
                                         => {catsize=TRUE} 0.1386139
## [61] {hair=FALSE}
## [62] {milk=FALSE}
                                           {catsize=TRUE} 0.1188119
```

```
##
        confidence lift
## [1]
        0.9090909
                   2.0867769
   [2]
        0.9090909
                   2.0867769
   [3]
        0.900000
                   2.0659091
##
##
   [4]
        0.8260870
                    1.8962451
        0.8108108
##
   [5]
                   1.8611794
##
   [6]
        0.7878788
                   1.8085399
##
   [7]
        0.7878788
                   1.8085399
##
   [8]
        0.7804878
                   1.7915743
##
   [9]
        0.7804878
                    1.7915743
  [10] 0.7750000
                   1.7789773
   [11] 0.7692308
                   1.7657343
##
   [12] 0.7575758
                   1.7389807
  [13] 0.7560976
                    1.7355876
## [14] 0.7380952
                   1.6942641
   [15] 0.7317073
                    1.6796009
   [16] 0.7058824
                    1.6203209
   [17] 0.6976744
                   1.6014799
   [18] 0.6842105
                    1.5705742
  [19] 0.6666667
                    1.5303030
## [20] 0.6595745
                    1.5140232
  [21] 0.6428571
                    1.4756494
## [22] 0.6304348
                    1.4471344
   [23] 0.6296296
##
                    1.4452862
   [24] 0.6216216
                    1.4269042
   [25] 0.6153846
                    1.4125874
   [26] 0.6140351
                    1.4094896
##
   [27] 0.6136364
                    1.4085744
  [28] 0.5964912
                   1.3692185
                   1.3602694
## [29] 0.5925926
   [30] 0.5897436
                    1.3537296
##
   [31] 0.5873016
                    1.3481241
   [32] 0.5849057
                    1.3426244
   [33] 0.5818182
                   1.3355372
   [34] 0.5769231
                    1.3243007
  [35] 0.5744681
##
                   1.3186654
  [36] 0.5652174
                    1.2974308
  [37] 0.5633803
                   1.2932138
   [38] 0.5625000
                   1.2911932
   [39] 0.5614035
##
                   1.2886762
   [40] 0.5573770
                   1.2794337
   [41] 0.5510204
                   1.2648423
   [42] 0.5500000
                   1.2625000
  [43] 0.5500000
                   1.2625000
## [44] 0.5476190
                   1.2570346
## [45] 0.5400000
                   1.2395455
##
   [46] 0.5384615
                    1.2360140
   [47] 0.5344828
                    1.2268809
  [48] 0.5319149
                    1.2209865
   [49] 0.5316456
                    1.2203682
## [50] 0.5303030
                   1.2172865
## [51] 0.5294118
                   1.2152406
## [52] 0.5254237
                   1.2060863
## [53] 0.5211268 1.1962228
```

```
[54] 0.5211268
                   1.1962228
   [55] 0.5200000
                   1.1936364
   [56] 0.5081967
                    1.1665425
   [57] 0.5068493
                    1.1634496
   [58]
        0.5000000
                    1.1477273
   [59] 0.4769231
                    1.0947552
   [60] 0.3611111
                    0.8289141
   [61] 0.2413793
                   0.5540752
##
   [62] 0.2000000
                   0.4590909
##
        lhs
                                              support
                                                        confidence lift
##
   [1]
        {backbone=FALSE} => {catsize=FALSE} 0.1683168 0.9444444
                                                                    1.6734893
   [2]
##
        {airborne=TRUE}
                          => {catsize=FALSE} 0.2079208 0.8750000
                                                                    1.5504386
##
   [3]
        {milk=FALSE}
                          => {catsize=FALSE} 0.4752475 0.8000000
                                                                    1.4175439
   [4]
##
        {eggs=TRUE}
                          => {catsize=FALSE} 0.4554455 0.7796610
                                                                    1.3815046
   [5]
                          => {catsize=FALSE} 0.1980198 0.7692308
##
        {tail=FALSE}
                                                                    1.3630229
##
   [6]
        {breathes=FALSE} => {catsize=FALSE} 0.1584158 0.7619048
                                                                    1.3500418
   [7]
                          => {catsize=FALSE} 0.1386139 0.7000000
##
        {type=bird}
                                                                    1.2403509
   [8]
        {feathers=TRUE}
                          => {catsize=FALSE} 0.1386139 0.7000000
                                                                    1.2403509
                          => {catsize=FALSE} 0.1584158 0.6956522
##
   [9]
        {legs=FALSE}
                                                                    1.2326468
   [10]
       {aquatic=TRUE}
                          => {catsize=FALSE} 0.2277228 0.6388889
                                                                    1.1320663
##
   [11] {predator=TRUE}
                          => {catsize=FALSE} 0.2772277 0.5000000
                                                                    0.8859649
                          => {catsize=FALSE} 0.3564356 0.4675325
   [12] {airborne=FALSE}
                                                                    0.8284347
                          => {catsize=FALSE} 0.1287129 0.3023256
   [13] {hair=TRUE}
                                                                    0.5356997
                          => {catsize=FALSE} 0.1089109 0.2619048
##
   [14] {eggs=FALSE}
                                                                    0.4640769
##
        lhs
                                            rhs
                                                            support
                                                                      confidence
   [1]
        {milk=TRUE,predator=TRUE}
                                         => {catsize=TRUE} 0.1980198 0.9090909
   [2]
        {predator=TRUE, type=mammal}
                                         => {catsize=TRUE} 0.1980198 0.9090909
##
        {hair=TRUE, predator=TRUE}
##
   [3]
                                         => {catsize=TRUE} 0.1782178 0.9000000
##
   [4]
        {eggs=FALSE,predator=TRUE}
                                         => {catsize=TRUE} 0.1881188 0.8260870
##
   [5]
        {predator=TRUE, toothed=TRUE}
                                         => {catsize=TRUE} 0.2277228 0.6216216
##
   [6]
        {aquatic=FALSE, predator=TRUE}
                                            {catsize=TRUE} 0.1584158 0.5925926
##
   [7]
        {predator=TRUE, breathes=TRUE}
                                            {catsize=TRUE} 0.2277228 0.5897436
   [8]
        {predator=TRUE, backbone=TRUE}
                                           {catsize=TRUE} 0.2673267 0.5744681
##
   [9]
        {predator=TRUE,tail=TRUE}
                                         => {catsize=TRUE} 0.2277228 0.5476190
   [10] {predator=TRUE,venomous=FALSE} => {catsize=TRUE} 0.2673267 0.5400000
   [11] {predator=TRUE,legs=TRUE}
                                         => {catsize=TRUE} 0.2079208 0.5384615
##
##
   [12] {feathers=FALSE,predator=TRUE} => {catsize=TRUE} 0.2475248 0.5319149
##
        lift
##
   [1]
        2.086777
##
   [2]
        2.086777
   [3]
        2.065909
   [4]
##
        1.896245
##
   [5]
        1.426904
##
   [6]
        1.360269
   [7]
        1.353730
   [8]
##
        1.318665
##
   [9]
        1.257035
   [10] 1.239545
   [11] 1.236014
##
   [12] 1.220986
##
       lhs
                                            rhs
                                                            support
                                                                      confidence
## [1] {hair=TRUE,airborne=FALSE}
                                         => {catsize=TRUE} 0.2970297 0.8108108
  [2] {airborne=FALSE,breathes=TRUE}
                                        => {catsize=TRUE} 0.3564356 0.6428571
## [3] {airborne=FALSE,aquatic=FALSE}
                                         => {catsize=TRUE} 0.2871287 0.6304348
```

```
## [4] {airborne=FALSE,legs=TRUE}
                                        => {catsize=TRUE} 0.3366337 0.6296296
## [5] {airborne=FALSE,backbone=TRUE} => {catsize=TRUE} 0.3960396 0.6153846
## [6] {airborne=FALSE,tail=TRUE}
                                        => {catsize=TRUE} 0.3465347 0.6140351
## [7] {airborne=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3960396 0.5633803
   [8] {airborne=FALSE,fins=FALSE}
                                        => {catsize=TRUE} 0.3267327 0.5500000
##
       lift
## [1] 1.861179
## [2] 1.475649
## [3] 1.447134
## [4] 1.445286
## [5] 1.412587
## [6] 1.409490
  [7] 1.293214
## [8] 1.262500
##
       lhs
                                      rhs
                                                     support
                                                               confidence
  [1] {hair=TRUE,predator=TRUE} => {catsize=TRUE} 0.1782178 0.9000000
  [2] {hair=TRUE,airborne=FALSE} => {catsize=TRUE} 0.2970297 0.8108108
## [3] {hair=TRUE,backbone=TRUE} => {catsize=TRUE} 0.2970297 0.7692308
                                  => {catsize=TRUE} 0.2475248 0.7575758
## [4] {hair=TRUE,tail=TRUE}
  [5] {hair=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2970297 0.7317073
##
   [6] {hair=TRUE,domestic=FALSE} => {catsize=TRUE} 0.2376238 0.7058824
##
       lift.
## [1] 2.065909
## [2] 1.861179
## [3] 1.765734
## [4] 1.738981
## [5] 1.679601
##
   [6] 1.620321
##
       lhs
                                       rhs
                                                      support
  [1] {eggs=FALSE,predator=TRUE} => {catsize=TRUE} 0.1881188 0.8260870
   [2] {eggs=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3069307 0.7750000
##
   [3] {eggs=FALSE,backbone=TRUE} => {catsize=TRUE} 0.3069307 0.7560976
##
       lift
## [1] 1.896245
   [2] 1.778977
##
##
  [3] 1.735588
   [1] "Número de reglas con consecuente negado"
##
                                                                   confidence
                                            rhs
                                                         support
        {backbone=FALSE, venomous=FALSE} => {tail=FALSE} 0.1386139 1.0000000
##
  [1]
  [2]
                                         => {tail=FALSE} 0.1683168 0.9444444
##
        {backbone=FALSE}
        {feathers=FALSE, toothed=FALSE}
  [3]
                                        => {tail=FALSE} 0.1683168 0.8500000
  [4]
        {airborne=FALSE, toothed=FALSE}
                                        => {tail=FALSE} 0.1089109 0.6111111
##
  [5]
        {feathers=FALSE,eggs=TRUE}
                                         => {tail=FALSE} 0.1980198 0.5128205
##
  [6]
        {feathers=FALSE,milk=FALSE}
                                         => {tail=FALSE} 0.1980198 0.5000000
## [7]
        {feathers=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4651163
## [8]
        {eggs=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4347826
## [9]
        {milk=FALSE,fins=FALSE}
                                        => {tail=FALSE} 0.1980198 0.4255319
## [10] {hair=FALSE,feathers=FALSE}
                                        => {tail=FALSE} 0.1584158 0.4210526
## [11] {fins=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4166667
## [12] {eggs=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
                                         => {tail=FALSE} 0.1584158 0.4000000
## [13] {milk=FALSE,legs=TRUE}
## [14] {feathers=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.3906250
## [15] {legs=TRUE,catsize=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3902439
## [16] {airborne=FALSE,catsize=FALSE}
                                        => {tail=FALSE} 0.1386139 0.3888889
```

```
## [17] {eggs=TRUE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3793103
                                         => {tail=FALSE} 0.1386139 0.3783784
  [18] {eggs=TRUE,airborne=FALSE}
  [19] {hair=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.1584158 0.3720930
  [20] {milk=FALSE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3684211
  [21] {milk=FALSE,aquatic=FALSE}
                                            {tail=FALSE} 0.1089109 0.3666667
                                           {tail=FALSE} 0.2079208 0.3620690
  [22] {feathers=FALSE,legs=TRUE}
  [23] {domestic=FALSE,catsize=FALSE}
                                           {tail=FALSE} 0.1782178 0.3600000
## [24] {feathers=FALSE,predator=FALSE} =>
                                            {tail=FALSE} 0.1188119 0.3529412
  [25] {aquatic=FALSE, catsize=FALSE}
                                            {tail=FALSE} 0.1188119 0.3529412
  [26] {hair=FALSE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3500000
  [27] {hair=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1188119 0.3333333
## [28] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
## [29] {airborne=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1881188 0.3166667
## [30] {fins=FALSE,domestic=FALSE}
                                         => {tail=FALSE} 0.2178218 0.3055556
## [31] {predator=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1287129 0.3023256
## [32] {fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.2976190
  [33] {predator=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1089109 0.2820513
   [34] {airborne=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1485149 0.2777778
  [35] {legs=TRUE,domestic=FALSE}
                                         => {tail=FALSE} 0.1782178 0.2727273
   [36] {domestic=FALSE}
                                         => {tail=FALSE} 0.2277228 0.2613636
##
  [37] {predator=TRUE}
                                         => {tail=FALSE} 0.1386139 0.2500000
  [38] {venomous=FALSE}
                                         => {tail=FALSE} 0.2178218 0.2365591
##
        lift
## [1]
        3.8846154
##
  [2]
        3.6688034
  [3]
        3.3019231
  [4]
##
        2.3739316
##
   [5]
        1.9921105
##
  [6]
        1.9423077
## [7]
        1.8067979
## [8]
        1.6889632
##
  [9]
        1.6530278
  [10] 1.6356275
## [11] 1.6185897
  [12]
       1.5538462
## [13] 1.5538462
## [14] 1.5174279
## [15] 1.5159475
  [16] 1.5106838
  [17] 1.4734748
  [18] 1.4698545
## [19] 1.4454383
## [20] 1.4311741
## [21] 1.4243590
## [22] 1.4064987
## [23] 1.3984615
## [24] 1.3710407
## [25] 1.3710407
## [26] 1.3596154
## [27] 1.2948718
## [28] 1.2583965
## [29] 1.2301282
## [30] 1.1869658
## [31] 1.1744186
```

```
## [32] 1.1561355
  [33] 1.0956607
## [34] 1.0790598
## [35] 1.0594406
  [36] 1.0152972
  [37] 0.9711538
##
##
  [38] 0.9189413
##
        lhs
                             rhs
                                         support
                                                   confidence lift
## [1]
        {type=fish}
                         => {tail=TRUE} 0.1287129 1.0000000
                                                              1.3466667
##
  [2]
        {type=bird}
                         => {tail=TRUE} 0.1980198 1.0000000
                                                              1.3466667
  [3]
        {feathers=TRUE}
                         => {tail=TRUE} 0.1980198 1.0000000
                                                              1.3466667
## [4]
                         => {tail=TRUE} 0.1584158 0.9411765
        {fins=TRUE}
                                                               1.2674510
##
  [5]
        {catsize=TRUE}
                         => {tail=TRUE} 0.3762376 0.8636364
                                                               1.1630303
## [6]
        {eggs=FALSE}
                         => {tail=TRUE} 0.3564356 0.8571429
                                                               1.1542857
## [7]
                         => {tail=TRUE} 0.3465347 0.8536585
        {milk=TRUE}
                                                              1.1495935
## [8]
        {type=mammal}
                         => {tail=TRUE} 0.3465347 0.8536585
                                                               1.1495935
## [9]
        {legs=FALSE}
                         => {tail=TRUE} 0.1782178 0.7826087
                                                               1.0539130
## [10] {hair=TRUE}
                         => {tail=TRUE} 0.3267327 0.7674419
                                                               1.0334884
## [11] {aquatic=FALSE}
                         => {tail=TRUE} 0.4851485 0.7538462
                                                              1.0151795
## [12] {airborne=TRUE}
                         => {tail=TRUE} 0.1782178 0.7500000
                                                               1.0100000
## [13] {predator=TRUE}
                         => {tail=TRUE} 0.4158416 0.7500000
                                                              1.0100000
## [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
                                                              0.9946970
## [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                                                              0.9875556
## [16] {hair=FALSE}
                         => {tail=TRUE} 0.4158416 0.7241379
                                                              0.9751724
## [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
                                                              0.9144033
## [18] {eggs=TRUE}
                         => {tail=TRUE} 0.3861386 0.6610169
                                                              0.8901695
                         => {tail=TRUE} 0.3663366 0.6491228
  [19] {catsize=FALSE}
                                                              0.8741520
##
   [20] {toothed=FALSE} => {tail=TRUE} 0.2277228 0.5750000
                                                              0.7743333
##
       lhs
                                         rhs
                                                                 confidence
                                                      support
  [1] {eggs=TRUE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3793103
   [2] {milk=FALSE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3666667
##
   [3] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.473475
   [2] 1.424359
##
   [3] 1.371041
##
##
                                      rhs
                                                   support
                                                             confidence
## [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
   [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
##
       lift.
  [1] 1.174419
##
  [2] 1.095661
       lhs
                                           rhs
                                                        support
                                                                   confidence
## [1] {domestic=FALSE,catsize=FALSE}
                                        => {tail=FALSE} 0.1782178 0.3600000
## [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
## [3] {fins=FALSE,domestic=FALSE}
                                        => {tail=FALSE} 0.2178218 0.3055556
##
  [4] {legs=TRUE,domestic=FALSE}
                                        => {tail=FALSE} 0.1782178 0.2727273
##
       lift
## [1] 1.398462
## [2] 1.258397
## [3] 1.186966
## [4] 1.059441
##
       lhs
                                                        support
                                                                   confidence
                                           rhs
## [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
```

```
##
       lift
## [1] 1.371041
##
       lhs
                                                    support
                                                              confidence
## [1] {hair=FALSE,feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
  [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
  [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
  [4] {hair=FALSE,legs=TRUE}
                                   => {tail=FALSE} 0.1188119 0.3333333
##
       lift
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {tail=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE}
                                       => {tail=FALSE} 0.1980198 0.5128205
## [3] {feathers=FALSE,milk=FALSE}
                                        => {tail=FALSE} 0.1980198 0.5000000
                                       => {tail=FALSE} 0.1980198 0.4651163
## [4] {feathers=FALSE,catsize=FALSE}
## [5] {hair=FALSE,feathers=FALSE}
                                       => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                       => {tail=FALSE} 0.2475248 0.3906250
## [7] {feathers=FALSE,legs=TRUE}
                                       => {tail=FALSE} 0.2079208 0.3620690
## [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
## [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
##
       lift
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
## [7] 1.406499
## [8] 1.371041
## [9] 1.258397
##
       lhs
                                     rhs
                                                   support
                                                             confidence
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
  [2] {eggs=TRUE,fins=FALSE}
                                  => {tail=FALSE} 0.1980198 0.4347826
                                  => {tail=FALSE} 0.1584158 0.4000000
## [3] {eggs=TRUE,legs=TRUE}
## [4] {eggs=TRUE,aquatic=FALSE} => {tail=FALSE} 0.1089109 0.3793103
## [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
       lift
## [1] 1.992110
## [2] 1.688963
## [3] 1.553846
## [4] 1.473475
##
  [5] 1.469854
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
  [2] {fins=FALSE,catsize=FALSE}
                                      => {tail=FALSE} 0.1980198 0.4166667
## [3] {legs=TRUE,catsize=FALSE}
                                      => {tail=FALSE} 0.1584158 0.3902439
## [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
  [5] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
   [6] {aquatic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
##
       lift
## [1] 1.806798
## [2] 1.618590
```

```
## [3] 1.515947
  [4] 1.510684
   [5] 1.398462
##
  [6] 1.371041
                                          rhs
                                                       support
                                                                 confidence
##
  [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
   [2] {airborne=FALSE.toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
       lift
##
  [1] 3.301923
##
   [2] 2.373932
   [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                         support
                                                                   confidence
##
  [1]
        {backbone=FALSE, venomous=FALSE} =>
                                           {tail=FALSE} 0.1386139 1.0000000
   [2]
##
        {backbone=FALSE}
                                         => {tail=FALSE} 0.1683168 0.9444444
##
  [3]
                                        => {tail=FALSE} 0.1683168 0.8500000
        {feathers=FALSE, toothed=FALSE}
## [4]
        {airborne=FALSE, toothed=FALSE}
                                           {tail=FALSE} 0.1089109 0.6111111
  [5]
##
        {feathers=FALSE,eggs=TRUE}
                                         => {tail=FALSE} 0.1980198 0.5128205
  [6]
        {feathers=FALSE,milk=FALSE}
                                         => {tail=FALSE} 0.1980198 0.5000000
        {feathers=FALSE, catsize=FALSE}
                                        => {tail=FALSE} 0.1980198 0.4651163
##
  [7]
   [8]
        {eggs=TRUE,fins=FALSE}
                                            {tail=FALSE} 0.1980198 0.4347826
##
  [9]
        {milk=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.1980198 0.4255319
## [10] {hair=FALSE, feathers=FALSE}
                                           {tail=FALSE} 0.1584158 0.4210526
## [11] {fins=FALSE,catsize=FALSE}
                                           {tail=FALSE} 0.1980198 0.4166667
## [12] {eggs=TRUE,legs=TRUE}
                                            {tail=FALSE} 0.1584158 0.4000000
  [13] {milk=FALSE,legs=TRUE}
                                           {tail=FALSE} 0.1584158 0.4000000
## [14] {feathers=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.2475248 0.3906250
## [15] {legs=TRUE,catsize=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3902439
## [16] {airborne=FALSE, catsize=FALSE}
                                        => {tail=FALSE} 0.1386139 0.3888889
## [17] {eggs=TRUE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3793103
## [18] {eggs=TRUE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3783784
## [19] {hair=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3720930
  [20] {milk=FALSE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3684211
  [21] {milk=FALSE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3666667
                                         => {tail=FALSE} 0.2079208 0.3620690
  [22] {feathers=FALSE,legs=TRUE}
  [23] {domestic=FALSE,catsize=FALSE}
                                           {tail=FALSE} 0.1782178 0.3600000
## [24] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
## [25] {aquatic=FALSE, catsize=FALSE}
                                           {tail=FALSE} 0.1188119 0.3529412
## [26] {hair=FALSE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3500000
## [27] {hair=FALSE,legs=TRUE}
                                            {tail=FALSE} 0.1188119 0.3333333
                                           {tail=FALSE} 0.2277228 0.3239437
## [28] {feathers=FALSE,domestic=FALSE} =>
## [29] {airborne=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.1881188 0.3166667
## [30] {fins=FALSE,domestic=FALSE}
                                           {tail=FALSE} 0.2178218 0.3055556
## [31] {predator=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1287129 0.3023256
## [32] {fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.2976190
## [33] {predator=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1089109 0.2820513
  [34] {airborne=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1485149 0.2777778
  [35] {legs=TRUE,domestic=FALSE}
                                        => {tail=FALSE} 0.1782178 0.2727273
  [36] {domestic=FALSE}
                                        => {tail=FALSE} 0.2277228 0.2613636
   [37] {predator=TRUE}
                                        => {tail=FALSE} 0.1386139 0.2500000
##
   [38] {venomous=FALSE}
                                         => {tail=FALSE} 0.2178218 0.2365591
##
        lift
## [1]
       3.8846154
## [2]
       3.6688034
## [3]
       3.3019231
```

```
## [4]
        2.3739316
##
   [5]
        1.9921105
   [6]
        1.9423077
   [7]
        1.8067979
##
##
   [8]
        1.6889632
##
   [9]
        1.6530278
   [10] 1.6356275
## [11] 1.6185897
   [12] 1.5538462
   [13] 1.5538462
   [14] 1.5174279
   [15] 1.5159475
   [16] 1.5106838
   [17] 1.4734748
  [18] 1.4698545
   [19] 1.4454383
   [20] 1.4311741
   [21] 1.4243590
   [22] 1.4064987
  [23] 1.3984615
##
  [24] 1.3710407
  [25] 1.3710407
## [26] 1.3596154
   [27] 1.2948718
  [28] 1.2583965
   [29] 1.2301282
   [30] 1.1869658
   [31] 1.1744186
   [32] 1.1561355
   [33] 1.0956607
   [34] 1.0790598
   [35] 1.0594406
   [36] 1.0152972
   [37] 0.9711538
##
   [38]
        0.9189413
##
        lhs
                             rhs
                                          support
                                                    confidence lift
##
   [1]
        {type=fish}
                          => {tail=TRUE} 0.1287129 1.0000000
##
   [2]
        {type=bird}
                          => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
##
   [3]
        {feathers=TRUE}
                          => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
##
   [4]
                          => {tail=TRUE} 0.1584158 0.9411765
        {fins=TRUE}
                                                               1.2674510
   [5]
                          => {tail=TRUE} 0.3762376 0.8636364
        {catsize=TRUE}
                                                               1.1630303
   [6]
        {eggs=FALSE}
                          => {tail=TRUE} 0.3564356 0.8571429
##
                                                               1.1542857
##
   [7]
        {milk=TRUE}
                          => {tail=TRUE} 0.3465347 0.8536585
                                                               1.1495935
##
   [8]
        {type=mammal}
                          => {tail=TRUE} 0.3465347 0.8536585
                                                               1.1495935
                                                               1.0539130
  [9]
        {legs=FALSE}
                          => {tail=TRUE} 0.1782178 0.7826087
## [10] {hair=TRUE}
                          => {tail=TRUE} 0.3267327 0.7674419
                                                               1.0334884
   [11] {aquatic=FALSE}
                          => {tail=TRUE} 0.4851485 0.7538462
                                                               1.0151795
       {airborne=TRUE}
   [12]
                          => {tail=TRUE} 0.1782178 0.7500000
                                                               1.0100000
   [13] {predator=TRUE}
                          => {tail=TRUE} 0.4158416 0.7500000
                                                               1.0100000
   [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
                                                               0.9946970
  [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                                                               0.9875556
## [16] {hair=FALSE}
                          => {tail=TRUE} 0.4158416 0.7241379
                                                               0.9751724
## [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
                                                               0.9144033
                                                               0.8901695
## [18] {eggs=TRUE}
                          => {tail=TRUE} 0.3861386 0.6610169
```

```
## [19] {catsize=FALSE} => {tail=TRUE} 0.3663366 0.6491228 0.8741520
  [20] {toothed=FALSE} => {tail=TRUE} 0.2277228 0.5750000 0.7743333
##
       lhs
                                        rhs
                                                      support
                                                                confidence
                                     => {tail=FALSE} 0.1089109 0.3793103
## [1] {eggs=TRUE,aquatic=FALSE}
  [2] {milk=FALSE,aquatic=FALSE}
                                     => {tail=FALSE} 0.1089109 0.3666667
   [3] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
       lift.
## [1] 1.473475
## [2] 1.424359
## [3] 1.371041
##
       lhs
                                     rhs
                                                   support
                                                             confidence
  [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
   [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
##
       lift
## [1] 1.174419
## [2] 1.095661
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
## [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
## [3] {fins=FALSE,domestic=FALSE}
                                       => {tail=FALSE} 0.2178218 0.3055556
##
  [4] {legs=TRUE,domestic=FALSE}
                                       => {tail=FALSE} 0.1782178 0.2727273
##
       lift.
## [1] 1.398462
## [2] 1.258397
## [3] 1.186966
  [4] 1.059441
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
  [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
##
       lift
## [1] 1.371041
##
       lhs
                                      rhs
                                                    support
                                                              confidence
## [1] {hair=FALSE,feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
  [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
## [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
   [4] {hair=FALSE,legs=TRUE}
                                   => {tail=FALSE} 0.1188119 0.3333333
##
       lift
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
##
       lhs
                                          rhs
                                                        support
                                                                  confidence
## [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE}
                                       => {tail=FALSE} 0.1980198 0.5128205
## [3] {feathers=FALSE,milk=FALSE}
                                       => {tail=FALSE} 0.1980198 0.5000000
## [4] {feathers=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4651163
## [5] {hair=FALSE,feathers=FALSE}
                                       => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                       => {tail=FALSE} 0.2475248 0.3906250
## [7] {feathers=FALSE,legs=TRUE}
                                       => {tail=FALSE} 0.2079208 0.3620690
## [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
## [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
##
       lift.
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
```

```
## [4] 1.806798
## [5] 1.635628
  [6] 1.517428
  [7] 1.406499
  [8] 1.371041
  [9] 1.258397
##
##
       lhs
                                      rhs
                                                   support
                                                             confidence
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
## [2] {eggs=TRUE,fins=FALSE}
                                   => {tail=FALSE} 0.1980198 0.4347826
  [3] {eggs=TRUE,legs=TRUE}
                                   => {tail=FALSE} 0.1584158 0.4000000
  [4] {eggs=TRUE,aquatic=FALSE}
                                  => {tail=FALSE} 0.1089109 0.3793103
  [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
##
       lift
## [1] 1.992110
## [2] 1.688963
## [3] 1.553846
##
  [4] 1.473475
##
  [5] 1.469854
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {feathers=FALSE, catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
## [2] {fins=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4166667
## [3] {legs=TRUE,catsize=FALSE}
                                       => {tail=FALSE} 0.1584158 0.3902439
## [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
## [5] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
##
  [6] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
       lift
## [1] 1.806798
## [2] 1.618590
## [3] 1.515947
## [4] 1.510684
## [5] 1.398462
##
  [6] 1.371041
##
                                                       support
  [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
##
   [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
##
       lift.
## [1] 3.301923
## [2] 2.373932
  [1] "Número de reglas con consecuente negado"
##
##
                                                                    confidence
                                            rhs
                                                         support
##
  [1]
        {backbone=FALSE, venomous=FALSE} => {tail=FALSE} 0.1386139 1.0000000
  [2]
        {backbone=FALSE}
                                         => {tail=FALSE} 0.1683168 0.9444444
##
  [3]
        {feathers=FALSE, toothed=FALSE}
                                         => {tail=FALSE} 0.1683168 0.8500000
## [4]
        {airborne=FALSE, toothed=FALSE}
                                         => {tail=FALSE} 0.1089109 0.6111111
## [5]
        {feathers=FALSE,eggs=TRUE}
                                         => {tail=FALSE} 0.1980198 0.5128205
## [6]
                                         => {tail=FALSE} 0.1980198 0.5000000
        {feathers=FALSE,milk=FALSE}
## [7]
        {feathers=FALSE, catsize=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4651163
## [8]
        {eggs=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4347826
## [9]
        {milk=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4255319
## [10] {hair=FALSE, feathers=FALSE}
                                         => {tail=FALSE} 0.1584158 0.4210526
                                         => {tail=FALSE} 0.1980198 0.4166667
## [11] {fins=FALSE,catsize=FALSE}
## [12] {eggs=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
## [13] {milk=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
## [14] {feathers=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.3906250
```

```
## [15] {legs=TRUE,catsize=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3902439
## [16] {airborne=FALSE,catsize=FALSE}
                                        => {tail=FALSE} 0.1386139 0.3888889
  [17] {eggs=TRUE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3793103
## [18] {eggs=TRUE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3783784
## [19] {hair=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.1584158 0.3720930
                                         => {tail=FALSE} 0.1386139 0.3684211
## [20] {milk=FALSE,airborne=FALSE}
## [21] {milk=FALSE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3666667
## [22] {feathers=FALSE,legs=TRUE}
                                           {tail=FALSE} 0.2079208 0.3620690
## [23] {domestic=FALSE,catsize=FALSE}
                                            {tail=FALSE} 0.1782178 0.3600000
  [24] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
  [25] {aquatic=FALSE, catsize=FALSE}
                                         => {tail=FALSE} 0.1188119 0.3529412
## [26] {hair=FALSE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3500000
## [27] {hair=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1188119 0.3333333
## [28] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
                                         => {tail=FALSE} 0.1881188 0.3166667
## [29] {airborne=FALSE,fins=FALSE}
## [30] {fins=FALSE,domestic=FALSE}
                                         => {tail=FALSE} 0.2178218 0.3055556
                                         => {tail=FALSE} 0.1287129 0.3023256
## [31] {predator=TRUE,fins=FALSE}
  [32] {fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.2976190
                                         => {tail=FALSE} 0.1089109 0.2820513
  [33] {predator=TRUE,legs=TRUE}
## [34] {airborne=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1485149 0.2777778
## [35] {legs=TRUE,domestic=FALSE}
                                         => {tail=FALSE} 0.1782178 0.2727273
## [36] {domestic=FALSE}
                                         => {tail=FALSE} 0.2277228 0.2613636
                                         => {tail=FALSE} 0.1386139 0.2500000
## [37] {predator=TRUE}
                                         => {tail=FALSE} 0.2178218 0.2365591
##
   [38] {venomous=FALSE}
##
        lift
## [1]
        3.8846154
##
  [2]
       3.6688034
   [3]
        3.3019231
## [4]
        2.3739316
## [5]
        1.9921105
## [6]
        1.9423077
##
  [7]
        1.8067979
## [8]
        1.6889632
## [9]
        1.6530278
  [10]
       1.6356275
## [11] 1.6185897
## [12] 1.5538462
## [13] 1.5538462
## [14] 1.5174279
## [15] 1.5159475
## [16] 1.5106838
## [17] 1.4734748
## [18] 1.4698545
## [19] 1.4454383
## [20] 1.4311741
## [21] 1.4243590
## [22] 1.4064987
## [23] 1.3984615
## [24] 1.3710407
## [25] 1.3710407
## [26] 1.3596154
## [27] 1.2948718
## [28] 1.2583965
## [29] 1.2301282
```

```
## [30] 1.1869658
  [31] 1.1744186
  [32] 1.1561355
  [33] 1.0956607
   [34] 1.0790598
  [35] 1.0594406
##
  [36] 1.0152972
##
  [37] 0.9711538
##
   [38] 0.9189413
##
        lhs
                             rhs
                                         support
                                                   confidence lift
##
  [1]
        {type=fish}
                          => {tail=TRUE} 0.1287129 1.0000000
                                                               1.3466667
   [2]
##
        {type=bird}
                          => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
##
   [3]
        {feathers=TRUE}
                         => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
## [4]
        {fins=TRUE}
                          => {tail=TRUE} 0.1584158 0.9411765
                                                               1.2674510
## [5]
                          => {tail=TRUE} 0.3762376 0.8636364
        {catsize=TRUE}
                                                               1.1630303
##
  [6]
        {eggs=FALSE}
                          => {tail=TRUE} 0.3564356 0.8571429
                                                               1.1542857
##
  [7]
        {milk=TRUE}
                          => {tail=TRUE} 0.3465347 0.8536585
                                                               1.1495935
  [8]
                          => {tail=TRUE} 0.3465347 0.8536585
        {type=mammal}
                                                               1.1495935
##
  [9]
        {legs=FALSE}
                          => {tail=TRUE} 0.1782178 0.7826087
                                                               1.0539130
  [10] {hair=TRUE}
                          => {tail=TRUE} 0.3267327 0.7674419
                                                               1.0334884
## [11] {aquatic=FALSE}
                         => {tail=TRUE} 0.4851485 0.7538462
                                                               1.0151795
## [12] {airborne=TRUE}
                          => {tail=TRUE} 0.1782178 0.7500000
                                                               1.0100000
## [13] {predator=TRUE}
                         => {tail=TRUE} 0.4158416 0.7500000
                                                               1.0100000
  [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
                                                               0.9946970
  [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                                                               0.9875556
  [16] {hair=FALSE}
                          => {tail=TRUE} 0.4158416 0.7241379
                                                               0.9751724
  [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
                                                               0.9144033
  [18] {eggs=TRUE}
                          => {tail=TRUE} 0.3861386 0.6610169
                                                               0.8901695
  [19] {catsize=FALSE}
                         => {tail=TRUE} 0.3663366 0.6491228
                                                               0.8741520
##
  [20] {toothed=FALSE}
                         => {tail=TRUE} 0.2277228 0.5750000
                                                               0.7743333
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
##
  [1] {eggs=TRUE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3793103
   [2] {milk=FALSE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3666667
   [3] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.473475
## [2] 1.424359
  [3] 1.371041
##
##
                                      rhs
                                                   support
                                                              confidence
  [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
   [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
##
       lift.
##
  [1] 1.174419
##
   [2] 1.095661
##
                                           rhs
                                                                   confidence
                                                         support
  [1] {domestic=FALSE, catsize=FALSE}
                                        => {tail=FALSE} 0.1782178 0.3600000
   [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
   [3] {fins=FALSE,domestic=FALSE}
                                        => {tail=FALSE} 0.2178218 0.3055556
##
   [4] {legs=TRUE,domestic=FALSE}
                                        => {tail=FALSE} 0.1782178 0.2727273
##
       lift
## [1] 1.398462
## [2] 1.258397
## [3] 1.186966
## [4] 1.059441
```

```
##
                                          rhs
                                                        support
                                                                  confidence
  [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.371041
##
                                      rhs
                                                    support
                                                              confidence
## [1] {hair=FALSE,feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
## [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
## [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
## [4] {hair=FALSE,legs=TRUE}
                                   => {tail=FALSE} 0.1188119 0.3333333
##
       lift
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
##
       lhs
                                          rhs
                                                        support
                                                                  confidence
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {tail=FALSE} 0.1683168 0.8500000
                                       => {tail=FALSE} 0.1980198 0.5128205
## [2] {feathers=FALSE,eggs=TRUE}
## [3] {feathers=FALSE,milk=FALSE}
                                       => {tail=FALSE} 0.1980198 0.5000000
## [4] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
## [5] {hair=FALSE, feathers=FALSE}
                                       => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                       => {tail=FALSE} 0.2475248 0.3906250
## [7] {feathers=FALSE,legs=TRUE}
                                       => {tail=FALSE} 0.2079208 0.3620690
## [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
## [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
##
       lift.
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
## [7] 1.406499
## [8] 1.371041
## [9] 1.258397
##
                                     rhs
                                                  support
                                                             confidence
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
## [2] {eggs=TRUE,fins=FALSE}
                                  => {tail=FALSE} 0.1980198 0.4347826
## [3] {eggs=TRUE,legs=TRUE}
                                  => {tail=FALSE} 0.1584158 0.4000000
## [4] {eggs=TRUE,aquatic=FALSE} => {tail=FALSE} 0.1089109 0.3793103
## [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
       lift.
## [1] 1.992110
## [2] 1.688963
## [3] 1.553846
## [4] 1.473475
## [5] 1.469854
##
                                         rhs
                                                       support
                                                                 confidence
## [1] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
## [2] {fins=FALSE,catsize=FALSE}
                                      => {tail=FALSE} 0.1980198 0.4166667
## [3] {legs=TRUE,catsize=FALSE}
                                      => {tail=FALSE} 0.1584158 0.3902439
## [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
## [5] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
## [6] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
```

```
[1] 1.806798
  [2] 1.618590
   [3] 1.515947
   [4] 1.510684
   [5] 1.398462
##
   [6] 1.371041
##
       lhs
                                          rhs
                                                       support
                                                                  confidence
##
  [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
   [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
       lift
##
  [1] 3.301923
   [2] 2.373932
##
##
   [1] "Número de reglas con consecuente negado"
##
                                                        support
                                                                   confidence
##
  [1]
        {milk=TRUE, predator=FALSE}
                                           {hair=TRUE} 0.1881188 1.0000000
##
   [2]
        {milk=TRUE,aquatic=FALSE}
                                            {hair=TRUE} 0.3465347 1.0000000
   [3]
##
                                            {hair=TRUE} 0.3762376 1.0000000
        {milk=TRUE,legs=TRUE}
   [4]
        {milk=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.3663366 1.0000000
##
   [5]
        {predator=FALSE, type=mammal}
                                           {hair=TRUE} 0.1881188 1.0000000
   [6]
        {aquatic=FALSE, type=mammal}
                                            {hair=TRUE} 0.3465347 1.0000000
##
   [7]
        {legs=TRUE, type=mammal}
                                            {hair=TRUE} 0.3762376 1.0000000
                                            {hair=TRUE} 0.3663366 1.0000000
##
  [8]
        {fins=FALSE, type=mammal}
  [9]
        {eggs=FALSE,predator=FALSE}
                                            {hair=TRUE} 0.1881188 1.0000000
##
##
  [10] {eggs=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3663366 0.9736842
  [11] {eggs=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3465347 0.9722222
  [12] {milk=TRUE}
                                            {hair=TRUE} 0.3861386 0.9512195
                                            {hair=TRUE} 0.3861386 0.9512195
  [13] {type=mammal}
  [14] {eggs=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.9500000
   [15] {eggs=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3564356 0.9473684
  [16] {eggs=FALSE,breathes=TRUE}
                                           {hair=TRUE} 0.3762376 0.9268293
   [17] {aquatic=FALSE,toothed=TRUE}
                                            {hair=TRUE} 0.3465347 0.9210526
##
  [18] {eggs=FALSE}
                                            {hair=TRUE} 0.3762376 0.9047619
  [19] {toothed=TRUE,legs=TRUE}
                                           {hair=TRUE} 0.3663366 0.8809524
  [20] {aquatic=FALSE,catsize=TRUE}
                                           {hair=TRUE} 0.2574257 0.8387097
   [21] {toothed=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2871287 0.8285714
  [22] {toothed=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.3564356 0.8181818
  [23] {toothed=TRUE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.8085106
  [24] {predator=FALSE,toothed=TRUE}
                                            {hair=TRUE} 0.1881188 0.7916667
       {feathers=FALSE, catsize=TRUE}
                                            {hair=TRUE} 0.2970297 0.7894737
  [25]
  [26] {legs=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2871287 0.7837838
  [27] {fins=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2772277 0.7777778
  [28] {breathes=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2970297 0.7692308
  [29] {feathers=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3861386 0.7647059
  [30] {predator=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.1188119 0.7500000
## [31] {feathers=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.4158416 0.7241379
  [32] {airborne=FALSE,aquatic=FALSE}
                                           {hair=TRUE} 0.3267327 0.7173913
  [33] {feathers=FALSE, breathes=TRUE}
                                            {hair=TRUE} 0.4257426 0.7166667
  [34] {feathers=FALSE,predator=FALSE}
                                            {hair=TRUE} 0.2277228 0.6764706
  [35] {toothed=TRUE, venomous=FALSE}
                                         => {hair=TRUE} 0.3762376 0.6666667
  [36] {airborne=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.3564356 0.6666667
  [37] {airborne=FALSE,breathes=TRUE}
                                           {hair=TRUE} 0.3663366 0.6607143
  [38] {aquatic=FALSE,backbone=TRUE}
                                           {hair=TRUE} 0.3465347 0.6603774
## [39] {aquatic=FALSE,legs=TRUE}
                                         => {hair=TRUE} 0.3861386 0.6500000
## [40] {feathers=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.4059406 0.6406250
```

```
## [41] {toothed=TRUE}
                                         => {hair=TRUE} 0.3762376 0.6229508
  [42] {feathers=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3861386 0.6190476
                                            {hair=TRUE} 0.2970297 0.6122449
  [43] {aquatic=FALSE,tail=TRUE}
  [44] {aquatic=FALSE, breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.6093750
  [45] {airborne=FALSE,predator=FALSE}
                                            {hair=TRUE} 0.1683168 0.6071429
  [46] {aquatic=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3663366 0.6065574
  [47] {feathers=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.6000000
  [48] {backbone=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3762376 0.5937500
   [49] {predator=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.2277228 0.5897436
   [50] {airborne=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.3465347 0.5833333
   [51] {legs=TRUE,tail=TRUE}
                                         => {hair=TRUE} 0.3267327 0.5789474
   [52] {breathes=TRUE,legs=TRUE}
                                           {hair=TRUE} 0.4158416 0.5753425
   [53] {airborne=FALSE,backbone=TRUE}
                                         => {hair=TRUE} 0.3663366 0.5692308
                                         => {hair=TRUE} 0.3861386 0.5652174
  [54] {backbone=TRUE,breathes=TRUE}
  [55] {feathers=FALSE, venomous=FALSE} =>
                                           {hair=TRUE} 0.4059406 0.5616438
        {predator=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.2277228 0.5609756
       {predator=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.2277228 0.5609756
   [57]
   [58] {backbone=TRUE,fins=FALSE}
                                           {hair=TRUE} 0.3663366 0.5606061
   [59] {breathes=TRUE, venomous=FALSE}
                                           {hair=TRUE} 0.4059406 0.5466667
   [60] {airborne=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.3069307 0.5438596
##
  [61] {fins=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.3168317 0.5423729
  [62] {breathes=TRUE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.5409836
  [63]
       {venomous=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3960396 0.5405405
       {breathes=TRUE.fins=FALSE}
   Γ641
                                            {hair=TRUE} 0.4059406 0.5394737
   [65] {predator=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.1881188 0.5277778
   [66] {airborne=FALSE, venomous=FALSE} =>
                                           {hair=TRUE} 0.3663366 0.5211268
   [67] {predator=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.1683168 0.5151515
##
   [68] {predator=FALSE}
                                            {hair=TRUE} 0.2277228 0.5111111
   [69] {venomous=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.3861386 0.5064935
  [70] {backbone=TRUE, venomous=FALSE}
                                         => {hair=TRUE} 0.3861386 0.4936709
  [71] {backbone=TRUE}
                                         => {hair=TRUE} 0.3861386 0.4698795
   [72]
       {venomous=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.3267327 0.4647887
##
   [73]
       {domestic=FALSE}
                                         => {hair=TRUE} 0.3366337 0.3863636
##
        lift
##
   [1]
        2.3488372
   [2]
##
       2.3488372
   [3]
        2.3488372
##
  [4]
        2.3488372
   [5]
##
        2.3488372
##
   [6]
        2.3488372
   [7]
        2.3488372
   [8]
##
        2.3488372
##
   [9]
        2.3488372
##
   [10] 2.2870257
  [11] 2.2835917
## [12] 2.2342598
##
  [13] 2.2342598
  [14] 2.2313953
  [15] 2.2252142
  [16] 2.1769711
##
  [17] 2.1634027
## [18] 2.1251384
## [19] 2.0692137
## [20] 1.9699925
```

```
## [21] 1.9461794
## [22] 1.9217759
## [23] 1.8990599
## [24] 1.8594961
## [25] 1.8543452
## [26] 1.8409805
## [27] 1.8268734
## [28] 1.8067979
## [29] 1.7961696
## [30] 1.7616279
## [31] 1.7008821
## [32] 1.6850354
## [33] 1.6833333
## [34] 1.5889193
## [35] 1.5658915
## [36] 1.5658915
  [37] 1.5519103
  [38] 1.5511189
## [39] 1.5267442
## [40] 1.5047238
## [41] 1.4632101
## [42] 1.4540421
## [43] 1.4380636
## [44] 1.4313227
## [45] 1.4260797
## [46] 1.4247045
## [47] 1.4093023
## [48] 1.3946221
## [49] 1.3852117
## [50] 1.3701550
## [51] 1.3598531
## [52] 1.3513858
## [53] 1.3370304
## [54] 1.3276036
## [55] 1.3192099
## [56] 1.3176404
## [57] 1.3176404
## [58] 1.3167724
## [59] 1.2840310
## [60] 1.2774378
## [61] 1.2739456
## [62] 1.2706824
## [63] 1.2696417
## [64] 1.2671359
## [65] 1.2396641
## [66] 1.2240419
## [67] 1.2100070
## [68] 1.2005168
## [69] 1.1896708
## [70] 1.1595525
## [71] 1.1036705
## [72] 1.0917131
## [73] 0.9075053
##
        lhs
                             rhs
                                          support
                                                     confidence lift
```

```
[1]
        {type=fish}
                          => {hair=FALSE} 0.1287129 1.0000000
                                                                1.7413793
##
   [2]
        {breathes=FALSE} => {hair=FALSE} 0.2079208 1.0000000
                                                                1.7413793
##
  [3]
        {legs=FALSE}
                          => {hair=FALSE} 0.2178218 0.9565217
                          => {hair=FALSE} 0.3168317 0.8888889
  [4]
##
        {aquatic=TRUE}
                                                                1.5478927
##
   [5]
        {toothed=FALSE}
                         => {hair=FALSE} 0.3465347 0.8750000
                                                                1.5237069
##
   [6]
        {backbone=FALSE} => {hair=FALSE} 0.1386139 0.7777778
                                                                1.3544061
  [7]
        {catsize=FALSE}
                          => {hair=FALSE} 0.4356436 0.7719298
                                                                1.3442226
##
  [8]
        {airborne=TRUE}
                         => {hair=FALSE} 0.1782178 0.7500000
                                                                1.3060345
##
   [9]
        {predator=TRUE}
                          => {hair=FALSE} 0.3564356 0.6428571
                                                                1.1194581
##
  [10] {tail=FALSE}
                          => {hair=FALSE} 0.1584158 0.6153846
                                                                1.0716180
  [11] {backbone=TRUE}
                          => {hair=FALSE} 0.4356436 0.5301205
                                                                0.9231408
   [12] {breathes=TRUE}
                         => {hair=FALSE} 0.3663366 0.4625000
                                                                0.8053879
   [13] {legs=TRUE}
##
                         => {hair=FALSE} 0.3564356 0.4615385
                                                                0.8037135
##
   [14] {aquatic=FALSE}
                         => {hair=FALSE} 0.2574257 0.4000000
                                                                0.6965517
##
       lhs
                                          rhs
                                                                 confidence
                                                       support
##
   [1] {aquatic=FALSE,backbone=TRUE}
                                       => {hair=TRUE} 0.3465347 0.6603774
   [2] {feathers=FALSE,backbone=TRUE} => {hair=TRUE} 0.3861386 0.6190476
   [3] {backbone=TRUE,legs=TRUE}
                                       => {hair=TRUE} 0.3762376 0.5937500
  [4] {airborne=FALSE,backbone=TRUE} => {hair=TRUE} 0.3663366 0.5692308
   [5] {backbone=TRUE, breathes=TRUE} => {hair=TRUE} 0.3861386 0.5652174
   [6] {backbone=TRUE,fins=FALSE}
                                       => {hair=TRUE} 0.3663366 0.5606061
  [7] {predator=FALSE,backbone=TRUE} => {hair=TRUE} 0.1881188 0.5277778
  [8] {backbone=TRUE, venomous=FALSE} => {hair=TRUE} 0.3861386 0.4936709
##
##
       lift.
## [1] 1.551119
  [2] 1.454042
   [3] 1.394622
   [4] 1.337030
  [5] 1.327604
  [6] 1.316772
##
   [7] 1.239664
##
   [8] 1.159553
##
        lhs
                                                                  confidence
                                                        support
                                        => {hair=TRUE} 0.3762376 0.9268293
##
  [1]
        {eggs=FALSE,breathes=TRUE}
##
   [2]
        {toothed=TRUE,breathes=TRUE}
                                        => {hair=TRUE} 0.3762376 0.8085106
   [3]
        {breathes=TRUE,catsize=TRUE}
##
                                        => {hair=TRUE} 0.2970297 0.7692308
  [4]
        {feathers=FALSE,breathes=TRUE} => {hair=TRUE} 0.4257426 0.7166667
  [5]
        {airborne=FALSE,breathes=TRUE} => {hair=TRUE} 0.3663366 0.6607143
##
   [6]
        {aquatic=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6093750
##
                                        => {hair=TRUE} 0.4158416 0.5753425
##
  [7]
        {breathes=TRUE,legs=TRUE}
  [8]
        {backbone=TRUE, breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.5652174
   [9]
        {predator=FALSE,breathes=TRUE} => {hair=TRUE} 0.2277228 0.5609756
##
   Γ10]
       {breathes=TRUE, venomous=FALSE} => {hair=TRUE} 0.4059406 0.5466667
##
   [11] {breathes=TRUE,tail=TRUE}
                                        => {hair=TRUE} 0.3267327 0.5409836
                                        => {hair=TRUE} 0.4059406 0.5394737
##
   [12] {breathes=TRUE,fins=FALSE}
##
        lift
##
  [1]
        2.176971
   [2]
##
        1.899060
##
   [3]
        1.806798
##
   [4]
        1.683333
   [5]
##
        1.551910
##
  [6]
        1.431323
## [7]
        1.351386
## [8]
        1.327604
```

```
[9]
        1.317640
   [10] 1.284031
   [11] 1.270682
   [12] 1.267136
##
##
        lhs
                                        rhs
                                                    support
                                                               confidence
##
   [1]
        {milk=TRUE,legs=TRUE}
                                       {hair=TRUE} 0.3762376 1.0000000
##
   [2]
        {legs=TRUE, type=mammal}
                                     => {hair=TRUE} 0.3762376 1.0000000
##
   [3]
        {eggs=FALSE,legs=TRUE}
                                       {hair=TRUE} 0.3663366 0.9736842
##
   [4]
        {toothed=TRUE,legs=TRUE}
                                        {hair=TRUE} 0.3663366 0.8809524
##
   [5]
        {legs=TRUE,catsize=TRUE}
                                        {hair=TRUE} 0.2871287 0.7837838
   [6]
        {feathers=FALSE,legs=TRUE} =>
                                        {hair=TRUE} 0.4158416 0.7241379
   [7]
##
        {airborne=FALSE,legs=TRUE} =>
                                        {hair=TRUE} 0.3564356 0.6666667
##
   [8]
        {aquatic=FALSE,legs=TRUE}
                                       {hair=TRUE} 0.3861386 0.6500000
                                    =>
##
   [9]
        {backbone=TRUE,legs=TRUE}
                                       {hair=TRUE} 0.3762376 0.5937500
   [10] {predator=FALSE,legs=TRUE} => {hair=TRUE} 0.2277228 0.5897436
   [11]
       {legs=TRUE,tail=TRUE}
                                     => {hair=TRUE} 0.3267327 0.5789474
       {breathes=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.4158416 0.5753425
##
   [12]
   [13] {venomous=FALSE,legs=TRUE} => {hair=TRUE} 0.3960396 0.5405405
##
        lift
##
   [1]
        2.348837
##
   [2]
        2.348837
   [3]
        2.287026
##
   [4]
        2.069214
##
   [5]
##
        1.840981
##
   [6]
        1.700882
   [7]
        1.565891
   [8]
##
        1.526744
##
   [9]
        1.394622
##
   [10] 1.385212
   [11] 1.359853
##
   [12] 1.351386
##
   [13] 1.269642
                                                                   confidence
##
        lhs
                                                         support
                                         => {hair=TRUE} 0.3465347 1.0000000
##
   [1]
        {milk=TRUE,aquatic=FALSE}
##
   [2]
        {aquatic=FALSE, type=mammal}
                                         => {hair=TRUE} 0.3465347 1.0000000
##
   [3]
        {eggs=FALSE,aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 0.9722222
##
   [4]
        {aquatic=FALSE, toothed=TRUE}
                                         => {hair=TRUE} 0.3465347 0.9210526
   [5]
        {aquatic=FALSE,catsize=TRUE}
                                         => {hair=TRUE} 0.2574257 0.8387097
##
   [6]
        {feathers=FALSE,aquatic=FALSE} =>
                                            {hair=TRUE} 0.3861386 0.7647059
##
##
   [7]
        {airborne=FALSE,aquatic=FALSE} => {hair=TRUE} 0.3267327 0.7173913
        {aquatic=FALSE,backbone=TRUE}
   [8]
                                         => {hair=TRUE} 0.3465347 0.6603774
   [9]
        {aquatic=FALSE,legs=TRUE}
                                         => {hair=TRUE} 0.3861386 0.6500000
##
##
   [10] {aquatic=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.2970297 0.6122449
       {aquatic=FALSE, breathes=TRUE}
                                         => {hair=TRUE} 0.3861386 0.6093750
##
##
   [12] {aquatic=FALSE, venomous=FALSE} => {hair=TRUE} 0.3663366 0.6065574
##
        lift
##
   [1]
        2.348837
   [2]
##
        2.348837
##
   [3]
        2.283592
##
   [4]
        2.163403
   [5]
##
        1.969992
##
   [6]
        1.796170
##
  [7]
        1.685035
## [8]
        1.551119
```

```
[9]
        1.526744
  [10] 1.438064
  [11] 1.431323
   [12] 1.424705
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                           rhs
                                                       support
                                                                  confidence
##
  [1]
        {type=bird}
                                        => {legs=TRUE} 0.1980198 1.0000000
  [2]
##
        {feathers=TRUE}
                                        => {legs=TRUE} 0.1980198 1.0000000
##
   [3]
        {airborne=TRUE}
                                        => {legs=TRUE} 0.2376238 1.0000000
##
   [4]
        {breathes=TRUE,domestic=TRUE}
                                        => {legs=TRUE} 0.1188119 1.0000000
   [5]
        {fins=FALSE,domestic=TRUE}
                                        => {legs=TRUE} 0.1188119 1.0000000
##
   [6]
        {toothed=FALSE,tail=TRUE}
                                        => {legs=TRUE} 0.2277228 1.0000000
##
   [7]
        {toothed=FALSE,backbone=TRUE}
                                        => {legs=TRUE} 0.2178218 1.0000000
                                        => {legs=TRUE} 0.1881188 1.0000000
##
   [8]
        {milk=TRUE, predator=FALSE}
##
  [9]
        {milk=TRUE,fins=FALSE}
                                        => {legs=TRUE} 0.3663366 1.0000000
   [10] {predator=FALSE,type=mammal}
                                        => {legs=TRUE} 0.1881188 1.0000000
   [11] {fins=FALSE,type=mammal}
                                        => {legs=TRUE} 0.3663366 1.0000000
   [12] {eggs=FALSE,predator=FALSE}
                                        => {legs=TRUE} 0.1881188 1.0000000
  [13] {hair=TRUE,catsize=FALSE}
                                        => {legs=TRUE} 0.1287129 1.0000000
   [14] {hair=TRUE,fins=FALSE}
                                        => {legs=TRUE} 0.4059406 1.0000000
  [15] {predator=FALSE,catsize=TRUE}
                                        => {legs=TRUE} 0.1584158 1.0000000
##
  [16] {fins=FALSE,catsize=TRUE}
                                        => {legs=TRUE} 0.3564356 1.0000000
  [17] {hair=TRUE}
                                        => {legs=TRUE} 0.4158416 0.9767442
##
  [18] {eggs=FALSE,fins=FALSE}
                                        => {legs=TRUE} 0.3663366 0.9736842
  [19] {aquatic=FALSE,backbone=TRUE}
                                        => {legs=TRUE} 0.5049505 0.9622642
                                        => {legs=TRUE} 0.6237624 0.9545455
  [20] {backbone=TRUE,fins=FALSE}
  [21] {predator=FALSE,fins=FALSE}
                                        => {legs=TRUE} 0.3861386 0.9512195
  [22] {fins=FALSE,tail=TRUE}
                                        => {legs=TRUE} 0.5544554 0.9491525
## [23] {venomous=FALSE,fins=FALSE}
                                        => {legs=TRUE} 0.7227723 0.9480519
## [24] {breathes=TRUE,fins=FALSE}
                                        => {legs=TRUE} 0.7128713 0.9473684
       {toothed=FALSE,breathes=TRUE}
                                        => {legs=TRUE} 0.3069307 0.9393939
   [26]
       {aquatic=FALSE, venomous=FALSE}
                                        => {legs=TRUE} 0.5643564 0.9344262
       {toothed=TRUE,fins=FALSE}
                                        => {legs=TRUE} 0.4059406 0.9318182
  [27]
  [28] {milk=TRUE}
                                        => {legs=TRUE} 0.3762376 0.9268293
                                        => {legs=TRUE} 0.3762376 0.9268293
   [29]
       {type=mammal}
##
  [30] {domestic=TRUE}
                                        => {legs=TRUE} 0.1188119 0.9230769
  [31] {aquatic=FALSE}
                                        => {legs=TRUE} 0.5940594 0.9230769
  [32] {breathes=TRUE, venomous=FALSE} => {legs=TRUE} 0.6831683 0.9200000
        {toothed=FALSE, venomous=FALSE} => {legs=TRUE} 0.3267327 0.9166667
##
  [33]
       {eggs=FALSE}
                                        => {legs=TRUE} 0.3762376 0.9047619
##
  [34]
  [35] {toothed=FALSE}
                                        => {legs=TRUE} 0.3564356 0.9000000
   [36] {predator=FALSE,backbone=TRUE} => {legs=TRUE} 0.3168317 0.8888889
   [37] {predator=FALSE}
                                        => {legs=TRUE} 0.3861386 0.8666667
  [38] {catsize=TRUE}
                                        => {legs=TRUE} 0.3663366 0.8409091
                                        => {legs=TRUE} 0.1782178 0.8181818
  [39] {venomous=FALSE,tail=FALSE}
  [40] {tail=FALSE}
                                        => {legs=TRUE} 0.2079208 0.8076923
##
  [41] {backbone=FALSE}
                                        => {legs=TRUE} 0.1386139 0.7777778
  [42] {tail=TRUE}
                                        => {legs=TRUE} 0.5643564 0.7600000
  [43] {catsize=FALSE}
                                        => {legs=TRUE} 0.4059406 0.7192982
  [44] {airborne=FALSE}
                                        => {legs=TRUE} 0.5346535 0.7012987
## [45] {toothed=TRUE}
                                        => {legs=TRUE} 0.4158416 0.6885246
## [46] {eggs=TRUE}
                                        => {legs=TRUE} 0.3960396 0.6779661
## [47] {milk=FALSE}
                                        => {legs=TRUE} 0.3960396 0.6666667
## [48] {aquatic=TRUE}
                                        => {legs=TRUE} 0.1782178 0.5000000
```

```
##
        lift
  [1]
##
        1.2948718
   [2]
        1.2948718
  [3]
##
        1.2948718
##
   [4]
        1.2948718
##
   [5]
        1.2948718
  [6]
        1.2948718
## [7]
        1.2948718
        1.2948718
##
  [8]
  [9]
        1.2948718
## [10] 1.2948718
## [11] 1.2948718
  [12] 1.2948718
## [13] 1.2948718
## [14] 1.2948718
## [15] 1.2948718
  [16] 1.2948718
  [17] 1.2647585
## [18] 1.2607962
## [19] 1.2460087
## [20] 1.2360140
## [21] 1.2317073
## [22] 1.2290309
## [23] 1.2276057
## [24] 1.2267206
  [25] 1.2163947
## [26] 1.2099622
## [27] 1.2065851
## [28] 1.2001251
## [29] 1.2001251
## [30] 1.1952663
  [31] 1.1952663
  [32] 1.1912821
## [33] 1.1869658
  [34] 1.1715507
## [35] 1.1653846
## [36] 1.1509972
## [37] 1.1222222
  [38] 1.0888695
  [39] 1.0594406
  [40] 1.0458580
## [41] 1.0071225
## [42] 0.9841026
## [43] 0.9313990
## [44] 0.9080919
## [45] 0.8915511
  [46] 0.8778792
  [47] 0.8632479
  [48] 0.6474359
##
       lhs
                                         support
                                                   confidence lift
                        => {legs=FALSE} 0.1287129 1.0000000 4.391304
## [1] {type=fish}
                        => {legs=FALSE} 0.1584158 0.9411765 4.132992
## [2] {fins=TRUE}
## [3] {breathes=FALSE} => {legs=FALSE} 0.1584158 0.7619048 3.345756
## [4] {predator=TRUE} => {legs=FALSE} 0.1683168 0.3035714 1.333075
```

```
[1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                           support
##
  [1]
        {type=fish}
                                           {aquatic=TRUE} 0.1287129
   [2]
##
        {fins=TRUE}
                                            {aquatic=TRUE} 0.1683168
##
   [3]
        {breathes=FALSE,tail=TRUE}
                                            {aquatic=TRUE} 0.1386139
##
   [4]
        {backbone=TRUE, breathes=FALSE}
                                           {aquatic=TRUE} 0.1386139
##
   [5]
        {breathes=FALSE}
                                           {aquatic=TRUE} 0.1980198
##
   [6]
        {backbone=TRUE,legs=FALSE}
                                            {aquatic=TRUE} 0.1683168
##
   [7]
        {hair=FALSE,toothed=TRUE}
                                            {aquatic=TRUE} 0.1980198
##
   [8]
        {milk=FALSE,toothed=TRUE}
                                            {aquatic=TRUE} 0.1782178
   [9]
        {eggs=TRUE,toothed=TRUE}
                                         => {aquatic=TRUE} 0.1683168
   [10] {predator=TRUE,legs=FALSE}
                                           {aquatic=TRUE} 0.1386139
##
   [11] {venomous=FALSE,legs=FALSE}
                                           {aquatic=TRUE} 0.1485149
  [12]
       {legs=FALSE}
                                            {aquatic=TRUE} 0.1782178
  [13]
       {eggs=TRUE,predator=TRUE}
                                            {aquatic=TRUE} 0.2277228
       {hair=FALSE, predator=TRUE}
                                            {aquatic=TRUE} 0.2475248
   [14]
   [15]
       {hair=FALSE,feathers=FALSE}
                                            {aquatic=TRUE} 0.2574257
   [16] {milk=FALSE,predator=TRUE}
                                           {aquatic=TRUE} 0.2277228
   [17] {eggs=TRUE,airborne=FALSE}
                                           {aquatic=TRUE} 0.2475248
   [18] {hair=FALSE,airborne=FALSE}
                                           {aquatic=TRUE} 0.2673267
##
  [19] {milk=FALSE,airborne=FALSE}
                                           {aquatic=TRUE} 0.2475248
  [20] {feathers=FALSE,eggs=TRUE}
                                           {aquatic=TRUE} 0.2376238
   [21] {predator=TRUE, catsize=FALSE}
                                            {aquatic=TRUE} 0.1683168
##
   [22] {feathers=FALSE,milk=FALSE}
                                            {aquatic=TRUE} 0.2376238
  [23]
       {hair=FALSE,backbone=TRUE}
                                           {aquatic=TRUE} 0.2574257
   [24] {predator=TRUE,toothed=FALSE}
                                           {aquatic=TRUE} 0.1089109
   [25] {hair=FALSE,domestic=FALSE}
                                           {aquatic=TRUE} 0.3069307
##
   [26] {eggs=TRUE,backbone=TRUE}
                                           {aquatic=TRUE} 0.2376238
  [27] {milk=FALSE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2376238
  [28] {toothed=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1386139
       {eggs=TRUE,tail=TRUE}
                                            {aquatic=TRUE} 0.2079208
##
   [30]
       {predator=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
   [31] {eggs=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
   [32] {airborne=FALSE,catsize=FALSE}
                                           {aquatic=TRUE} 0.1881188
   [33]
       {milk=FALSE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
##
  [34] {milk=FALSE,tail=TRUE}
                                           {aquatic=TRUE} 0.2079208
  [35] {backbone=TRUE,catsize=FALSE}
                                           {aquatic=TRUE} 0.1782178
  [36] {feathers=FALSE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1881188
   [37] {airborne=FALSE,domestic=FALSE}
##
                                            {aquatic=TRUE} 0.2970297
       {domestic=FALSE,catsize=FALSE}
                                           {aquatic=TRUE} 0.2178218
   [38]
   [39]
       {toothed=TRUE,domestic=FALSE}
                                           {aquatic=TRUE} 0.2178218
   [40] {feathers=FALSE,domestic=FALSE} =>
                                           {aquatic=TRUE} 0.2871287
   [41] {backbone=TRUE,domestic=FALSE}
                                         => {aquatic=TRUE} 0.2871287
  [42]
       {tail=TRUE,catsize=FALSE}
                                           {aquatic=TRUE} 0.1485149
  [43] {feathers=FALSE,backbone=TRUE}
                                           {aquatic=TRUE} 0.2376238
  [44] {backbone=TRUE}
                                            {aquatic=TRUE} 0.2970297
##
   [45]
       {tail=TRUE}
                                            {aquatic=TRUE} 0.2574257
   [46]
       {venomous=FALSE}
                                            {aquatic=TRUE} 0.3168317
   [47]
       {toothed=FALSE}
                                           {aquatic=TRUE} 0.1287129
##
   [48]
        {breathes=TRUE}
                                         => {aquatic=TRUE} 0.1584158
##
        confidence lift
## [1]
        1.0000000 2.8055556
  [2]
        1.0000000
                   2.8055556
## [3]
        1.0000000 2.8055556
```

```
[4]
        1.0000000
                    2.8055556
##
   [5]
        0.9523810
                    2.6719577
        0.8947368
   [6]
                    2.5102339
   [7]
##
        0.8695652
                    2.4396135
##
   [8]
        0.8571429
                    2.4047619
                    2.3847222
##
   [9]
        0.8500000
   [10] 0.8235294
                    2.3104575
   [11] 0.7894737
                    2.2149123
   [12] 0.7826087
                    2.1956522
   [13] 0.6969697
                    1.9553872
   [14] 0.6944444
                    1.9483025
   [15] 0.6842105
                    1.9195906
   [16] 0.6764706
                    1.8978758
   [17] 0.6756757
                    1.8956456
   [18] 0.6750000
                    1.8937500
   [19] 0.6578947
                    1.8457602
   [20] 0.6153846
                    1.7264957
   [21] 0.6071429
                    1.7033730
   [22] 0.6000000
                    1.6833333
   [23] 0.5909091
                    1.6578283
##
   [24] 0.5789474
                    1.6242690
   [25] 0.5740741
                    1.6105967
   [26] 0.5714286
                    1.6031746
   [27] 0.5714286
                    1.6031746
   [28] 0.5384615
                    1.5106838
   [29] 0.5384615
                    1.5106838
   [30] 0.5370370
                    1.5066872
##
   [31] 0.5370370
                    1.5066872
   [32] 0.5277778
                    1.4807099
   [33] 0.5272727
                    1.4792929
   [34] 0.5250000
                    1.4729167
##
   [35] 0.4500000
                    1.2625000
   [36] 0.4418605
                    1.2396641
   [37] 0.4411765
                    1.2377451
   [38]
        0.4400000
                    1.2344444
##
   [39] 0.4230769
                    1.1869658
   [40] 0.4084507
                    1.1459311
   [41] 0.4084507
                    1.1459311
   [42] 0.4054054
                    1.1373874
   [43] 0.3809524
                    1.0687831
   [44] 0.3614458
                    1.0140562
   [45] 0.3466667
                    0.9725926
   [46] 0.3440860
                    0.9653524
##
   [47] 0.3250000
                    0.9118056
##
   [48] 0.2000000
                    0.5611111
##
        lhs
                              rhs
                                               support
                                                         confidence lift
##
   [1]
        {domestic=TRUE}
                          => {aquatic=FALSE} 0.1188119 0.9230769
                                                                     1.4343195
   [2]
##
        {hair=TRUE}
                          => {aquatic=FALSE} 0.3861386 0.9069767
                                                                     1.4093023
##
   [3]
        {eggs=FALSE}
                          => {aquatic=FALSE} 0.3564356 0.8571429
                                                                     1.3318681
##
   [4]
        {milk=TRUE}
                          => {aquatic=FALSE} 0.3465347 0.8536585
                                                                     1.3264540
##
   [5]
        {type=mammal}
                          => {aquatic=FALSE} 0.3465347 0.8536585
                                                                     1.3264540
##
   [6]
        {predator=FALSE}
                          => {aquatic=FALSE} 0.3762376 0.8444444
                                                                     1.3121368
##
  [7]
        {fins=FALSE}
                          => {aquatic=FALSE} 0.6435644 0.7738095
                                                                     1.2023810
## [8]
        {toothed=FALSE}
                          => {aquatic=FALSE} 0.2673267 0.6750000
```

```
{toothed=TRUE}
                         => {aquatic=FALSE} 0.3762376 0.6229508
                                                                  0.9679697
                                                                  0.9562130
  [10] {tail=FALSE}
                         => {aquatic=FALSE} 0.1584158 0.6153846
  [11] {domestic=FALSE} => {aquatic=FALSE} 0.5247525 0.6022727
                         => {aquatic=FALSE} 0.3366337 0.5964912
  [12] {catsize=FALSE}
                                                                  0.9268556
##
   [13] {eggs=TRUE}
                         => {aquatic=FALSE} 0.2871287 0.4915254
                                                                  0.7637549
##
       lhs
                                        rhs
                                                        support
                                                                  confidence
   [1] {predator=TRUE, toothed=FALSE} => {aquatic=TRUE} 0.1089109 0.5789474
##
##
       lift.
##
  [1] 1.624269
##
       lhs
                                         rhs
                                                        support
                                                                  confidence
  [1] {hair=FALSE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1980198 0.8695652
   [2] {milk=FALSE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1782178 0.8571429
   [3] {eggs=TRUE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1683168 0.8500000
  [4] {toothed=TRUE,catsize=FALSE}
                                      => {aquatic=TRUE} 0.1386139 0.5384615
   [5] {toothed=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2178218 0.4230769
##
##
       lift
## [1] 2.439614
  [2] 2.404762
  [3] 2.384722
  [4] 1.510684
##
   [5] 1.186966
##
       lhs
                                           rhs
                                                          support
                                                                    confidence
## [1] {hair=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.3069307 0.5740741
  [2] {predator=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
  [3] {eggs=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
## [4] {milk=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5272727
  [5] {airborne=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2970297 0.4411765
  [6] {domestic=FALSE,catsize=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4400000
  [7] {toothed=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4230769
## [8] {feathers=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.4084507
##
  [9] {backbone=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.4084507
##
       lift
## [1] 1.610597
## [2] 1.506687
   [3] 1.506687
## [4] 1.479293
## [5] 1.237745
## [6] 1.234444
  [7] 1.186966
## [8] 1.145931
  [9] 1.145931
##
       lhs
                                          rhs
                                                         support
                                                                   confidence
## [1] {predator=TRUE,catsize=FALSE}
                                      => {aquatic=TRUE} 0.1683168 0.6071429
  [2] {toothed=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1386139 0.5384615
## [3] {airborne=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.5277778
## [4] {backbone=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1782178 0.4500000
## [5] {feathers=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.4418605
  [6] {domestic=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.2178218 0.4400000
##
   [7] {tail=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1485149 0.4054054
##
       lift
## [1] 1.703373
## [2] 1.510684
## [3] 1.480710
## [4] 1.262500
```

```
[5] 1.239664
   [6] 1.234444
   [7] 1.137387
##
       lhs
                                      rhs
                                                     support
                                                                confidence
##
  [1] {eggs=TRUE,toothed=TRUE}
                                   => {aquatic=TRUE} 0.1683168 0.8500000
   [2] {eggs=TRUE,predator=TRUE}
                                   => {aquatic=TRUE} 0.2277228 0.6969697
  [3] {eggs=TRUE,airborne=FALSE} => {aquatic=TRUE} 0.2475248 0.6756757
   [4] {feathers=FALSE,eggs=TRUE} => {aquatic=TRUE} 0.2376238 0.6153846
   [5] {eggs=TRUE,backbone=TRUE}
                                   => {aquatic=TRUE} 0.2376238 0.5714286
   [6] {eggs=TRUE,tail=TRUE}
                                   => {aquatic=TRUE} 0.2079208 0.5384615
   [7] {eggs=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.5370370
##
       lift
##
  [1] 2.384722
##
  [2] 1.955387
  [3] 1.895646
   [4] 1.726496
##
  [5] 1.603175
  [6] 1.510684
   [7] 1.506687
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                           support
##
  [1]
        {type=fish}
                                         => {aquatic=TRUE} 0.1287129
  [2]
##
        {fins=TRUE}
                                           {aquatic=TRUE} 0.1683168
##
   [3]
        {breathes=FALSE,tail=TRUE}
                                           {aquatic=TRUE} 0.1386139
##
  [4]
        {backbone=TRUE, breathes=FALSE}
                                           {aquatic=TRUE} 0.1386139
  [5]
        {breathes=FALSE}
                                         => {aquatic=TRUE} 0.1980198
   [6]
##
        {backbone=TRUE,legs=FALSE}
                                           {aquatic=TRUE} 0.1683168
##
   [7]
        {hair=FALSE,toothed=TRUE}
                                         => {aquatic=TRUE} 0.1980198
##
  [8]
        {milk=FALSE,toothed=TRUE}
                                         => {aquatic=TRUE} 0.1782178
        {eggs=TRUE, toothed=TRUE}
  [9]
                                           {aquatic=TRUE} 0.1683168
  [10] {predator=TRUE,legs=FALSE}
                                            {aquatic=TRUE} 0.1386139
       {venomous=FALSE,legs=FALSE}
                                         => {aquatic=TRUE} 0.1485149
  [11]
  [12] {legs=FALSE}
                                         => {aquatic=TRUE} 0.1782178
  [13] {eggs=TRUE,predator=TRUE}
                                         => {aquatic=TRUE} 0.2277228
   [14] {hair=FALSE,predator=TRUE}
                                         => {aguatic=TRUE} 0.2475248
## [15] {hair=FALSE,feathers=FALSE}
                                         => {aquatic=TRUE} 0.2574257
  [16] {milk=FALSE,predator=TRUE}
                                           {aquatic=TRUE} 0.2277228
## [17] {eggs=TRUE,airborne=FALSE}
                                         => {aquatic=TRUE} 0.2475248
## [18] {hair=FALSE,airborne=FALSE}
                                           {aquatic=TRUE} 0.2673267
  [19] {milk=FALSE,airborne=FALSE}
                                           {aquatic=TRUE} 0.2475248
  [20] {feathers=FALSE,eggs=TRUE}
                                         => {aquatic=TRUE} 0.2376238
  [21] {predator=TRUE,catsize=FALSE}
                                           {aquatic=TRUE} 0.1683168
## [22] {feathers=FALSE,milk=FALSE}
                                         => {aquatic=TRUE} 0.2376238
## [23] {hair=FALSE,backbone=TRUE}
                                         => {aquatic=TRUE} 0.2574257
## [24] {predator=TRUE,toothed=FALSE}
                                         => {aquatic=TRUE} 0.1089109
## [25]
       {hair=FALSE,domestic=FALSE}
                                           {aquatic=TRUE} 0.3069307
                                           {aquatic=TRUE} 0.2376238
## [26] {eggs=TRUE,backbone=TRUE}
       {milk=FALSE,backbone=TRUE}
                                         => {aquatic=TRUE} 0.2376238
  [28] {toothed=TRUE,catsize=FALSE}
                                         => {aquatic=TRUE} 0.1386139
  [29] {eggs=TRUE,tail=TRUE}
                                         => {aquatic=TRUE} 0.2079208
  [30] {predator=TRUE,domestic=FALSE}
                                         => {aquatic=TRUE} 0.2871287
## [31] {eggs=TRUE,domestic=FALSE}
                                         => {aquatic=TRUE} 0.2871287
## [32] {airborne=FALSE,catsize=FALSE}
                                         => {aquatic=TRUE} 0.1881188
## [33] {milk=FALSE,domestic=FALSE}
                                         => {aquatic=TRUE} 0.2871287
```

```
## [34] {milk=FALSE,tail=TRUE}
                                          => {aquatic=TRUE} 0.2079208
   [35] {backbone=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1782178
   [36] {feathers=FALSE, catsize=FALSE}
                                            {aquatic=TRUE} 0.1881188
   [37] {airborne=FALSE,domestic=FALSE} =>
                                            {aquatic=TRUE} 0.2970297
       {domestic=FALSE,catsize=FALSE}
   [38]
                                            {aquatic=TRUE} 0.2178218
       {toothed=TRUE,domestic=FALSE}
   [39]
                                          => {aquatic=TRUE} 0.2178218
   [40] {feathers=FALSE,domestic=FALSE} =>
                                            {aquatic=TRUE} 0.2871287
   [41] {backbone=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
   [42]
        {tail=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1485149
   [43]
       {feathers=FALSE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2376238
   [44]
       {backbone=TRUE}
                                            {aquatic=TRUE} 0.2970297
   [45]
        {tail=TRUE}
                                            {aquatic=TRUE} 0.2574257
   [46]
       {venomous=FALSE}
                                         => {aquatic=TRUE} 0.3168317
   [47]
        {toothed=FALSE}
                                            {aquatic=TRUE} 0.1287129
   [48] {breathes=TRUE}
                                          => {aquatic=TRUE} 0.1584158
##
##
        confidence lift
                   2.8055556
##
   [1]
        1.0000000
   [2]
        1.0000000
                   2.8055556
   [3]
##
        1.0000000
                   2.8055556
##
   [4]
        1.0000000
                    2.8055556
##
   [5]
        0.9523810
                   2.6719577
   [6]
        0.8947368
                    2.5102339
   [7]
                    2.4396135
##
        0.8695652
##
   [8]
        0.8571429
                    2.4047619
                   2.3847222
##
   [9]
        0.8500000
   [10] 0.8235294
                    2.3104575
   [11] 0.7894737
                    2.2149123
                    2.1956522
   [12] 0.7826087
   [13] 0.6969697
                    1.9553872
   [14] 0.6944444
                    1.9483025
   [15] 0.6842105
                    1.9195906
   [16] 0.6764706
                    1.8978758
   [17] 0.6756757
                    1.8956456
   [18] 0.6750000
                    1.8937500
   [19] 0.6578947
                    1.8457602
                   1.7264957
##
   [20] 0.6153846
   [21] 0.6071429
                    1.7033730
   [22] 0.6000000
                    1.6833333
   [23] 0.5909091
                    1.6578283
                    1.6242690
   [24] 0.5789474
   [25] 0.5740741
                    1.6105967
   [26] 0.5714286
                    1.6031746
   [27] 0.5714286
                    1.6031746
   [28] 0.5384615
                    1.5106838
                    1.5106838
   [29] 0.5384615
   [30] 0.5370370
                    1.5066872
                    1.5066872
##
   [31] 0.5370370
   [32] 0.5277778
                    1.4807099
       0.5272727
   [33]
                    1.4792929
   [34]
        0.5250000
                    1.4729167
##
   [35]
       0.4500000
                    1.2625000
   [36] 0.4418605
                    1.2396641
  [37] 0.4411765
                   1.2377451
## [38] 0.4400000
                   1.2344444
```

```
## [39] 0.4230769
                   1.1869658
   [40] 0.4084507
                   1.1459311
  [41] 0.4084507
                   1.1459311
  [42] 0.4054054
                   1.1373874
   [43] 0.3809524
                   1.0687831
  [44] 0.3614458
                   1.0140562
##
  [45] 0.3466667
                   0.9725926
  [46] 0.3440860
                   0.9653524
   [47] 0.3250000
                   0.9118056
##
   [48] 0.2000000
                   0.5611111
##
        lhs
                                                        confidence lift
                                             support
        {domestic=TRUE}
##
   [1]
                         => {aquatic=FALSE} 0.1188119 0.9230769
                                                                   1.4343195
##
   [2]
        {hair=TRUE}
                          => {aquatic=FALSE} 0.3861386 0.9069767
                                                                   1.4093023
##
  [3]
        {eggs=FALSE}
                         => {aquatic=FALSE} 0.3564356 0.8571429
                                                                   1.3318681
  [4]
##
        {milk=TRUE}
                          => {aquatic=FALSE} 0.3465347 0.8536585
                                                                   1.3264540
##
  [5]
        {type=mammal}
                          => {aquatic=FALSE} 0.3465347 0.8536585
                                                                   1.3264540
##
   [6]
        {predator=FALSE}
                         => {aquatic=FALSE} 0.3762376 0.8444444
                                                                   1.3121368
  [7]
                          => {aguatic=FALSE} 0.6435644 0.7738095
##
        {fins=FALSE}
                                                                   1.2023810
##
  [8]
                         => {aquatic=FALSE} 0.2673267 0.6750000
        {toothed=FALSE}
                                                                   1.0488462
   [9]
        {toothed=TRUE}
                          => {aquatic=FALSE} 0.3762376 0.6229508
                                                                   0.9679697
##
  [10] {tail=FALSE}
                          => {aquatic=FALSE} 0.1584158 0.6153846
                                                                   0.9562130
  [11] {domestic=FALSE} => {aquatic=FALSE} 0.5247525 0.6022727
                                                                   0.9358392
   [12] {catsize=FALSE}
                         => {aquatic=FALSE} 0.3366337 0.5964912
                                                                   0.9268556
##
   [13] {eggs=TRUE}
                          => {aquatic=FALSE} 0.2871287 0.4915254
                                                                   0.7637549
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
##
   [1] {predator=TRUE,toothed=FALSE} => {aquatic=TRUE} 0.1089109 0.5789474
##
       lift
##
   [1] 1.624269
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
  [1] {hair=FALSE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1980198 0.8695652
   [2] {milk=FALSE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1782178 0.8571429
   [3] {eggs=TRUE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1683168 0.8500000
   [4] {toothed=TRUE,catsize=FALSE}
                                      => {aquatic=TRUE} 0.1386139 0.5384615
   [5] {toothed=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2178218 0.4230769
##
##
       lift
## [1] 2.439614
  [2] 2.404762
  [3] 2.384722
   [4] 1.510684
##
  [5] 1.186966
##
       lhs
                                                           support
                                                                     confidence
  [1] {hair=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.3069307 0.5740741
   [2] {predator=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
   [3] {eggs=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
  [4] {milk=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5272727
  [5] {airborne=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2970297 0.4411765
   [6] {domestic=FALSE,catsize=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4400000
   [7] {toothed=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4230769
   [8] {feathers=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.4084507
##
   [9] {backbone=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.4084507
##
       lift
## [1] 1.610597
## [2] 1.506687
## [3] 1.506687
```

```
## [4] 1.479293
  [5] 1.237745
  [6] 1.234444
  [7] 1.186966
##
   [8] 1.145931
   [9] 1.145931
##
##
       lhs
                                          rhs
                                                          support
                                                                    confidence
## [1] {predator=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1683168 0.6071429
   [2] {toothed=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1386139 0.5384615
  [3] {airborne=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.5277778
  [4] {backbone=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1782178 0.4500000
   [5] {feathers=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.4418605
   [6] {domestic=FALSE, catsize=FALSE} => {aquatic=TRUE} 0.2178218 0.4400000
##
   [7] {tail=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1485149 0.4054054
##
       lift
  [1] 1.703373
##
##
   [2] 1.510684
  [3] 1.480710
  [4] 1.262500
   [5] 1.239664
##
  [6] 1.234444
##
  [7] 1.137387
##
       lhs
                                      rhs
                                                      support
                                                                confidence
## [1] {eggs=TRUE, toothed=TRUE}
                                   => {aquatic=TRUE} 0.1683168 0.8500000
   [2] {eggs=TRUE,predator=TRUE}
                                   => {aquatic=TRUE} 0.2277228 0.6969697
  [3] {eggs=TRUE,airborne=FALSE} => {aquatic=TRUE} 0.2475248 0.6756757
   [4] {feathers=FALSE,eggs=TRUE} => {aquatic=TRUE} 0.2376238 0.6153846
  [5] {eggs=TRUE,backbone=TRUE}
                                   => {aquatic=TRUE} 0.2376238 0.5714286
   [6] {eggs=TRUE,tail=TRUE}
                                   => {aquatic=TRUE} 0.2079208 0.5384615
   [7] {eggs=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.5370370
##
##
       lift
##
  [1] 2.384722
  [2] 1.955387
  [3] 1.895646
   Γ41
      1.726496
  [5] 1.603175
##
  [6] 1.510684
  [7] 1.506687
##
       "Número de reglas con consecuente negado"
##
        lhs
##
                                            rhs
                                                            support
##
  [1]
        {type=fish}
                                         => {aquatic=TRUE} 0.1287129
  [2]
        {fins=TRUE}
##
                                           {aquatic=TRUE} 0.1683168
   [3]
        {breathes=FALSE,tail=TRUE}
                                         => {aquatic=TRUE} 0.1386139
##
  [4]
        {backbone=TRUE, breathes=FALSE}
                                         => {aquatic=TRUE} 0.1386139
## [5]
        {breathes=FALSE}
                                         => {aquatic=TRUE} 0.1980198
## [6]
        {backbone=TRUE,legs=FALSE}
                                            {aquatic=TRUE} 0.1683168
##
  [7]
        {hair=FALSE,toothed=TRUE}
                                         => {aquatic=TRUE} 0.1980198
  [8]
        {milk=FALSE,toothed=TRUE}
                                         => {aquatic=TRUE} 0.1782178
  [9]
        {eggs=TRUE,toothed=TRUE}
                                         => {aquatic=TRUE} 0.1683168
  [10] {predator=TRUE,legs=FALSE}
                                         => {aquatic=TRUE} 0.1386139
## [11] {venomous=FALSE,legs=FALSE}
                                         => {aquatic=TRUE} 0.1485149
## [12] {legs=FALSE}
                                         => {aquatic=TRUE} 0.1782178
## [13] {eggs=TRUE,predator=TRUE}
                                         => {aquatic=TRUE} 0.2277228
## [14] {hair=FALSE,predator=TRUE}
                                         => {aquatic=TRUE} 0.2475248
```

```
## [15] {hair=FALSE,feathers=FALSE}
                                         => {aquatic=TRUE} 0.2574257
  [16] {milk=FALSE,predator=TRUE}
                                            {aquatic=TRUE} 0.2277228
  [17] {eggs=TRUE,airborne=FALSE}
                                            {aquatic=TRUE} 0.2475248
   [18] {hair=FALSE,airborne=FALSE}
                                            {aquatic=TRUE} 0.2673267
##
   [19] {milk=FALSE,airborne=FALSE}
                                            {aquatic=TRUE} 0.2475248
  [20] {feathers=FALSE,eggs=TRUE}
                                            {aquatic=TRUE} 0.2376238
##
  [21] {predator=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1683168
  [22] {feathers=FALSE,milk=FALSE}
                                            {aquatic=TRUE} 0.2376238
   [23]
       {hair=FALSE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2574257
   [24] {predator=TRUE, toothed=FALSE}
                                            {aquatic=TRUE} 0.1089109
   [25] {hair=FALSE,domestic=FALSE}
                                            {aquatic=TRUE} 0.3069307
   [26] {eggs=TRUE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2376238
                                            {aquatic=TRUE} 0.2376238
   [27] {milk=FALSE,backbone=TRUE}
  [28] {toothed=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1386139
  [29] {eggs=TRUE,tail=TRUE}
                                            {aquatic=TRUE} 0.2079208
   [30] {predator=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
   [31]
       {eggs=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
       {airborne=FALSE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1881188
   [33] {milk=FALSE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
   [34] {milk=FALSE,tail=TRUE}
                                            {aquatic=TRUE} 0.2079208
##
   [35]
       {backbone=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1782178
  [36] {feathers=FALSE, catsize=FALSE}
                                            {aquatic=TRUE} 0.1881188
   [37] {airborne=FALSE,domestic=FALSE}
                                         =>
                                            {aquatic=TRUE} 0.2970297
       {domestic=FALSE,catsize=FALSE}
##
   [38]
                                            {aquatic=TRUE} 0.2178218
   [39]
       {toothed=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2178218
   [40] {feathers=FALSE,domestic=FALSE} =>
                                            {aquatic=TRUE} 0.2871287
       {backbone=TRUE,domestic=FALSE}
   [41]
                                            {aquatic=TRUE} 0.2871287
   [42]
       {tail=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1485149
  [43]
       {feathers=FALSE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2376238
  [44] {backbone=TRUE}
                                            {aquatic=TRUE} 0.2970297
   [45]
        {tail=TRUE}
                                            {aquatic=TRUE} 0.2574257
##
   [46]
        {venomous=FALSE}
                                            {aquatic=TRUE} 0.3168317
   [47]
        {toothed=FALSE}
                                            {aquatic=TRUE} 0.1287129
##
   [48]
                                         => {aquatic=TRUE} 0.1584158
        {breathes=TRUE}
##
        confidence lift
##
        1.0000000
  [1]
                   2.8055556
   [2]
        1.0000000
                   2.8055556
  [3]
##
        1.0000000
                   2.8055556
   [4]
##
        1.0000000
                   2.8055556
##
   [5]
        0.9523810
                   2.6719577
   [6]
        0.8947368
                   2.5102339
   [7]
##
        0.8695652
                   2.4396135
##
   [8]
        0.8571429
                   2.4047619
##
   [9]
        0.8500000
                   2.3847222
                   2.3104575
  [10] 0.8235294
   [11] 0.7894737
                   2.2149123
##
   [12] 0.7826087
                   2.1956522
   [13] 0.6969697
                   1.9553872
   [14] 0.6944444
                   1.9483025
                   1.9195906
   [15]
        0.6842105
##
   [16] 0.6764706
                   1.8978758
  [17] 0.6756757
                   1.8956456
## [18] 0.6750000
                   1.8937500
## [19] 0.6578947
                   1.8457602
```

```
## [20] 0.6153846
                    1.7264957
   [21] 0.6071429
                    1.7033730
   [22] 0.6000000
                    1.6833333
   [23] 0.5909091
                    1.6578283
   [24] 0.5789474
                    1.6242690
   [25] 0.5740741
                    1.6105967
   [26] 0.5714286
                    1.6031746
   [27] 0.5714286
                    1.6031746
   [28] 0.5384615
                    1.5106838
   [29] 0.5384615
                    1.5106838
   [30] 0.5370370
                    1.5066872
   [31] 0.5370370
                    1.5066872
                    1.4807099
   [32] 0.5277778
                    1.4792929
   [33] 0.5272727
   [34] 0.5250000
                    1.4729167
   [35] 0.4500000
                    1.2625000
   [36] 0.4418605
                    1.2396641
   [37] 0.4411765
                    1.2377451
                    1.2344444
   [38] 0.4400000
   [39] 0.4230769
                    1.1869658
##
   [40] 0.4084507
                    1.1459311
   [41] 0.4084507
                    1.1459311
   [42] 0.4054054
                    1.1373874
   [43] 0.3809524
                    1.0687831
   [44] 0.3614458
                    1.0140562
   [45] 0.3466667
                    0.9725926
   [46] 0.3440860
                    0.9653524
   [47] 0.3250000
                    0.9118056
   [48] 0.2000000
##
                   0.5611111
##
        lhs
                             rhs
                                              support
                                                        confidence lift
##
  [1]
        {domestic=TRUE}
                          => {aquatic=FALSE} 0.1188119 0.9230769
                                                                    1.4343195
##
   [2]
        {hair=TRUE}
                          => {aquatic=FALSE} 0.3861386 0.9069767
                                                                    1.4093023
        {eggs=FALSE}
##
   [3]
                          => {aquatic=FALSE} 0.3564356 0.8571429
                                                                    1.3318681
   [4]
##
        {milk=TRUE}
                          => {aquatic=FALSE} 0.3465347 0.8536585
                                                                    1.3264540
   [5]
        {type=mammal}
                          => {aguatic=FALSE} 0.3465347 0.8536585
##
                                                                    1.3264540
##
   [6]
        {predator=FALSE}
                          => {aquatic=FALSE} 0.3762376 0.8444444
                                                                    1.3121368
   [7]
        {fins=FALSE}
                          => {aquatic=FALSE} 0.6435644 0.7738095
                                                                    1.2023810
   [8]
                          => {aquatic=FALSE} 0.2673267 0.6750000
                                                                    1.0488462
##
        {toothed=FALSE}
   [9]
                          => {aquatic=FALSE} 0.3762376 0.6229508
        {toothed=TRUE}
                                                                    0.9679697
   [10] {tail=FALSE}
                          => {aquatic=FALSE} 0.1584158 0.6153846
                                                                    0.9562130
   [11] {domestic=FALSE}
                          => {aquatic=FALSE} 0.5247525 0.6022727
                                                                    0.9358392
   [12] {catsize=FALSE}
                          => {aquatic=FALSE} 0.3366337 0.5964912
                                                                    0.9268556
##
   [13] {eggs=TRUE}
                          => {aquatic=FALSE} 0.2871287 0.4915254
                                                                    0.7637549
##
                                          rhs
                                                         support
                                                                    confidence
   [1] {predator=TRUE,toothed=FALSE} => {aquatic=TRUE} 0.1089109 0.5789474
##
##
       lift
##
   [1] 1.624269
##
       lhs
                                          rhs
                                                         support
                                                                    confidence
   [1] {hair=FALSE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1980198 0.8695652
   [2] {milk=FALSE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1782178 0.8571429
   [3] {eggs=TRUE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1683168 0.8500000
   [4] {toothed=TRUE,catsize=FALSE}
                                      => {aquatic=TRUE} 0.1386139 0.5384615
   [5] {toothed=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2178218 0.4230769
##
       lift
```

```
## [1] 2.439614
  [2] 2.404762
  [3] 2.384722
  [4] 1.510684
##
   [5] 1.186966
##
       lhs
                                           rhs
                                                          support
                                                                     confidence
## [1] {hair=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.3069307 0.5740741
  [2] {predator=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
   [3] {eggs=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
  [4] {milk=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5272727
  [5] {airborne=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2970297 0.4411765
  [6] {domestic=FALSE, catsize=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4400000
  [7] {toothed=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4230769
  [8] {feathers=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.4084507
  [9] {backbone=TRUE,domestic=FALSE}
                                       => {aquatic=TRUE} 0.2871287 0.4084507
##
       lift
## [1] 1.610597
  [2] 1.506687
  [3] 1.506687
   [4] 1.479293
##
  [5] 1.237745
  [6] 1.234444
  [7] 1.186966
##
##
  [8] 1.145931
##
  [9] 1.145931
##
       lhs
                                                         support
                                                                   confidence
  [1] {predator=TRUE,catsize=FALSE}
##
                                      => {aquatic=TRUE} 0.1683168 0.6071429
   [2] {toothed=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1386139 0.5384615
  [3] {airborne=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.5277778
## [4] {backbone=TRUE,catsize=FALSE}
                                      => {aquatic=TRUE} 0.1782178 0.4500000
   [5] {feathers=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.4418605
   [6] {domestic=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.2178218 0.4400000
##
   [7] {tail=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1485149 0.4054054
##
       lift
   [1] 1.703373
##
##
  [2] 1.510684
  [3] 1.480710
  [4] 1.262500
##
##
   [5] 1.239664
##
  [6] 1.234444
  [7] 1.137387
##
       lhs
                                                     support
                                                               confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                  => {aquatic=TRUE} 0.1683168 0.8500000
  [2] {eggs=TRUE,predator=TRUE}
                                  => {aquatic=TRUE} 0.2277228 0.6969697
## [3] {eggs=TRUE,airborne=FALSE} => {aquatic=TRUE} 0.2475248 0.6756757
  [4] {feathers=FALSE,eggs=TRUE} => {aquatic=TRUE} 0.2376238 0.6153846
   [5] {eggs=TRUE,backbone=TRUE}
                                  => {aquatic=TRUE} 0.2376238 0.5714286
   [6] {eggs=TRUE,tail=TRUE}
                                  => {aquatic=TRUE} 0.2079208 0.5384615
##
   [7] {eggs=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.5370370
##
       lift
## [1] 2.384722
## [2] 1.955387
## [3] 1.895646
## [4] 1.726496
```

```
[5] 1.603175
##
   [6] 1.510684
   [7] 1.506687
##
       "Número de reglas con consecuente negado"
        lhs
                                                             support
##
  [1]
        {type=bird}
                                            {toothed=FALSE} 0.1980198
   [2]
        {feathers=TRUE}
                                            {toothed=FALSE} 0.1980198
##
   [3]
        {hair=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.1782178
##
   [4]
        {eggs=TRUE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
##
   [5]
        {milk=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
   [6]
        {milk=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2673267
   [7]
##
        {eggs=TRUE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2574257
##
   [8]
                                            {toothed=FALSE} 0.2277228
        {hair=FALSE,aquatic=FALSE}
        {eggs=TRUE,legs=TRUE}
##
   [9]
                                            {toothed=FALSE} 0.3465347
  [10] {milk=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
       {hair=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3069307
   [11]
                                            {toothed=FALSE} 0.1683168
   [12] {eggs=TRUE,tail=FALSE}
   [13] {milk=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   [14] {eggs=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
   [15] {milk=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
##
  [16] {eggs=TRUE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
  [17] {milk=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
  [18] {hair=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3465347
##
   [19] {hair=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1287129
   [20] {eggs=TRUE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
   [21] {milk=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
   [22] {tail=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1584158
   [23] {hair=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.1683168
  [24] {hair=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.2772277
   [25] {tail=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.1584158
   [26] {aquatic=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1089109
   [27]
       {aquatic=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.1287129
   [28] {fins=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   [29] {eggs=TRUE, venomous=FALSE}
                                            {toothed=FALSE} 0.3564356
   [30] {milk=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3465347
##
   [31] {aquatic=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.1188119
   [32] {legs=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
  [33] {tail=FALSE}
                                            {toothed=FALSE} 0.1683168
##
   [34]
       {milk=FALSE}
                                            {toothed=FALSE} 0.3861386
   [35] {aquatic=FALSE, catsize=FALSE}
                                            {toothed=FALSE} 0.2178218
   [36] {fins=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
   [37] {hair=FALSE, venomous=FALSE}
##
                                            {toothed=FALSE} 0.3267327
   [38]
       {hair=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
   [39] {breathes=TRUE, catsize=FALSE}
                                            {toothed=FALSE} 0.2475248
  [40] {predator=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1683168
  [41]
       {catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
##
   [42] {predator=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.2079208
   [43] {predator=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.1683168
                                            {toothed=FALSE} 0.3564356
  [44] {fins=FALSE,domestic=FALSE}
   [45] {predator=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.1881188
  [46] {legs=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.3168317
##
  [47] {aquatic=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.2277228
## [48] {breathes=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.2871287
## [49] {predator=TRUE}
                                            {toothed=FALSE} 0.1881188
```

```
##
        confidence lift
##
        1.0000000 2.5250000
  Г17
   [2]
        1.0000000
                   2.5250000
   [3]
##
        1.0000000
                   2.5250000
##
   [4]
        1.0000000
                   2.5250000
##
   [5]
        1.0000000
                   2.5250000
   [6]
        0.9000000
                   2.2725000
##
   [7]
        0.8965517
                   2.2637931
##
   [8]
        0.8846154
                   2.2336538
##
   [9]
        0.8750000
                   2.2093750
   [10] 0.8750000
                   2.2093750
   [11] 0.8611111
                    2.1743056
   [12] 0.8500000
                   2.1462500
   [13] 0.8500000
                    2.1462500
  [14] 0.8478261
                    2.1407609
   [15] 0.8297872
                    2.0952128
   [16] 0.8205128
                   2.0717949
   [17] 0.8205128
                    2.0717949
   [18] 0.8139535
                   2.0552326
  [19] 0.8125000
                    2.0515625
## [20] 0.8076923
                   2.0394231
  [21] 0.8076923
                    2.0394231
## [22] 0.8000000
                   2.0200000
   [23] 0.7727273
                    1.9511364
  [24] 0.7567568
                    1.9108108
   [25] 0.6956522
                    1.7565217
   [26] 0.6875000
                    1.7359375
   [27] 0.6842105
                    1.7276316
  [28] 0.6800000
                    1.7170000
                   1.7150943
  [29] 0.6792453
   [30] 0.6730769
                    1.6995192
##
   [31] 0.6666667
                    1.6833333
   [32] 0.6585366
                    1.6628049
                   1.6509615
   [33] 0.6538462
   [34] 0.6500000
                    1.6412500
   [35] 0.6470588
##
                    1.6338235
   [36] 0.6458333
                    1.6307292
   [37] 0.6346154
                    1.6024038
   [38] 0.6136364
                    1.5494318
   [39] 0.6097561
                    1.5396341
   [40] 0.5862069
                    1.4801724
   [41] 0.5438596
                    1.3732456
   [42] 0.5121951
                    1.2932927
  [43] 0.5000000
                    1.2625000
  [44] 0.5000000
                   1.2625000
  [45] 0.4871795
                    1.2301282
##
   [46] 0.4848485
                    1.2242424
   [47] 0.4339623
                    1.0957547
   [48] 0.4264706
                    1.0768382
##
   [49]
        0.3392857
                   0.8566964
##
        lhs
                                             support
                                                       confidence lift
## [1]
        {type=fish}
                          => {toothed=TRUE} 0.1287129 1.0000000 1.6557377
## [2]
        {fins=TRUE}
                          => {toothed=TRUE} 0.1683168 1.0000000 1.6557377
## [3]
        {eggs=FALSE}
                          => {toothed=TRUE} 0.4059406 0.9761905 1.6163154
```

```
## [4]
        {legs=FALSE}
                         => {toothed=TRUE} 0.1881188 0.8260870
                                                                  1.3677833
##
  [5]
                         => {toothed=TRUE} 0.3465347 0.7954545
        {catsize=TRUE}
                                                                  1.3170641
        {feathers=FALSE} => {toothed=TRUE} 0.6039604 0.7530864
##
  [6]
                                                                  1.2469136
  [7]
        {tail=TRUE}
                         => {toothed=TRUE} 0.5148515 0.6933333
##
                                                                  1.1479781
##
   [8]
        {breathes=FALSE} => {toothed=TRUE} 0.1386139 0.6666667
                                                                  1.1038251
##
   [9]
        {predator=TRUE}
                         => {toothed=TRUE} 0.3663366 0.6607143
                                                                  1.0939696
  [10] {aquatic=TRUE}
                         => {toothed=TRUE} 0.2277228 0.6388889
                                                                  1.0578324
  [11] {domestic=FALSE} => {toothed=TRUE} 0.5148515 0.5909091
                                                                  0.9783905
  [12] {breathes=TRUE}
                         => {toothed=TRUE} 0.4653465 0.5875000
                                                                  0.9727459
  [13] {predator=FALSE} => {toothed=TRUE} 0.2376238 0.5333333
                                                                  0.8830601
  [14] {catsize=FALSE}
                         => {toothed=TRUE} 0.2574257 0.4561404
                                                                  0.7552488
   [15] {hair=FALSE}
                         => {toothed=TRUE} 0.2277228 0.3965517
                                                                  0.6565856
##
   [16] {eggs=TRUE}
                         => {toothed=TRUE} 0.1980198 0.3389831
                                                                  0.5612670
##
                                                     support
  [1] {aquatic=TRUE,fins=FALSE} => {toothed=FALSE} 0.1287129 0.6842105
##
   [2] {aquatic=TRUE,legs=TRUE} => {toothed=FALSE} 0.1188119 0.6666667
##
       lift
##
   [1] 1.727632
   [2] 1.683333
##
##
       lhs
                                           rhs
                                                           support
##
  [1] {tail=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.1584158
  [2] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
## [3] {fins=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3564356
   [4] {legs=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3168317
   [5] {aquatic=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2277228
   [6] {breathes=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2871287
##
       confidence lift
##
  [1] 0.6956522
                  1.756522
  [2] 0.5000000
                  1.262500
  [3] 0.5000000
                  1.262500
   [4] 0.4848485
                  1.224242
   [5] 0.4339623
                  1.095755
##
   [6] 0.4264706
                  1.076838
##
       lhs
                                                                     confidence
                                          rhs
                                                          support
   [1] {eggs=TRUE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
  [2] {milk=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
  [3] {hair=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.2772277 0.7567568
  [4] {breathes=TRUE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2475248 0.6097561
  [5] {breathes=TRUE,domestic=FALSE} => {toothed=FALSE} 0.2871287 0.4264706
##
##
       lift.
  [1] 2.071795
  [2] 2.071795
##
   [3] 1.910811
##
  [4] 1.539634
##
  [5] 1.076838
##
       lhs
                                           rhs
                                                           support
## [1] {eggs=TRUE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
   [2] {milk=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [3] {hair=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.1683168
   [4] {predator=FALSE, catsize=FALSE}
                                        => {toothed=FALSE} 0.1683168
  [5] {predator=FALSE,fins=FALSE}
                                        => {toothed=FALSE} 0.2079208
## [6] {predator=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.1683168
## [7] {predator=FALSE,legs=TRUE}
                                        => {toothed=FALSE} 0.1881188
##
       confidence lift
```

```
## [1] 0.8076923
                  2.039423
  [2] 0.8076923
                  2.039423
                  1.951136
  [3] 0.7727273
  [4] 0.5862069
                  1.480172
   [5] 0.5121951
                  1.293293
  [6] 0.5000000
##
                  1.262500
##
  [7] 0.4871795
                  1.230128
##
       lhs
                                          rhs
                                                          support
                                                                     confidence
## [1] {tail=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.1584158 0.8000000
   [2] {legs=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6585366
  [3] {aquatic=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2178218 0.6470588
   [4] {fins=FALSE, catsize=FALSE}
                                       => {toothed=FALSE} 0.3069307 0.6458333
   [5] {hair=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6136364
   [6] {breathes=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2475248 0.6097561
  [7] {predator=FALSE,catsize=FALSE} => {toothed=FALSE} 0.1683168 0.5862069
##
##
       lift
  [1] 2.020000
##
   [2] 1.662805
  [3] 1.633824
   [4] 1.630729
##
  [5] 1.549432
  [6] 1.539634
## [7] 1.480172
##
                                                       support
                                                                 confidence
##
  [1] {hair=FALSE,airborne=TRUE}
                                   => {toothed=FALSE} 0.1782178 1.0000000
  [2] {hair=FALSE,aquatic=FALSE}
                                   => {toothed=FALSE} 0.2277228 0.8846154
  [3] {hair=FALSE,legs=TRUE}
                                    => {toothed=FALSE} 0.3069307 0.8611111
  [4] {hair=FALSE,fins=FALSE}
                                    => {toothed=FALSE} 0.3465347 0.8139535
  [5] {hair=FALSE,tail=FALSE}
                                    => {toothed=FALSE} 0.1287129 0.8125000
  [6] {hair=FALSE,predator=FALSE} => {toothed=FALSE} 0.1683168 0.7727273
   [7] {hair=FALSE,breathes=TRUE}
                                   => {toothed=FALSE} 0.2772277 0.7567568
   [8] {hair=FALSE, venomous=FALSE} => {toothed=FALSE} 0.3267327 0.6346154
##
   [9] {hair=FALSE, catsize=FALSE} => {toothed=FALSE} 0.2673267 0.6136364
##
       lift
   [1] 2.525000
##
##
   [2] 2.233654
  [3] 2.174306
  [4] 2.055233
##
##
   [5] 2.051563
##
  [6] 1.951136
  [7] 1.910811
##
  [8] 1.602404
##
   [9] 1.549432
##
       lhs
                                      rhs
                                                      support
                                                                 confidence
## [1] {eggs=TRUE,airborne=TRUE}
                                   => {toothed=FALSE} 0.2178218 1.0000000
  [2] {eggs=TRUE,aquatic=FALSE}
                                   => {toothed=FALSE} 0.2574257 0.8965517
##
   [3] {eggs=TRUE,legs=TRUE}
                                   => {toothed=FALSE} 0.3465347 0.8750000
  [4] {eggs=TRUE,tail=FALSE}
                                   => {toothed=FALSE} 0.1683168 0.8500000
  [5] {eggs=TRUE,fins=FALSE}
                                   => {toothed=FALSE} 0.3861386 0.8478261
   [6] {eggs=TRUE,breathes=TRUE}
                                   => {toothed=FALSE} 0.3168317 0.8205128
   [7] {eggs=TRUE,predator=FALSE} => {toothed=FALSE} 0.2079208 0.8076923
##
   [8] {eggs=TRUE, venomous=FALSE} => {toothed=FALSE} 0.3564356 0.6792453
##
       lift
## [1] 2.525000
```

```
[2] 2.263793
   [3] 2.209375
   [4] 2.146250
   [5] 2.140761
##
##
   [6]
      2.071795
##
   [7] 2.039423
   [8] 1.715094
##
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                          support
                                                                    confidence
##
   [1]
        {milk=TRUE, toothed=TRUE}
                                         => {eggs=FALSE} 0.3960396 1.0000000
   [2]
        {milk=TRUE,aquatic=FALSE}
                                           {eggs=FALSE} 0.3465347 1.0000000
   [3]
        {toothed=TRUE, type=mammal}
##
                                           {eggs=FALSE} 0.3960396 1.0000000
##
   [4]
        {aquatic=FALSE, type=mammal}
                                           {eggs=FALSE} 0.3465347 1.0000000
##
   [5]
        {hair=TRUE,toothed=TRUE}
                                            {eggs=FALSE} 0.3762376 1.0000000
##
   [6]
                                            {eggs=FALSE} 0.3960396 0.9756098
        {milk=TRUE}
##
   [7]
        {type=mammal}
                                            {eggs=FALSE} 0.3960396 0.9756098
##
   [8]
        {hair=TRUE,backbone=TRUE}
                                            {eggs=FALSE} 0.3762376 0.9743590
        {hair=TRUE,airborne=FALSE}
                                            {eggs=FALSE} 0.3564356 0.9729730
   [9]
   [10] {hair=TRUE,tail=TRUE}
                                            {eggs=FALSE} 0.3168317 0.9696970
##
   [11] {hair=TRUE,catsize=TRUE}
                                            {eggs=FALSE} 0.2871287 0.9666667
##
  [12]
       {hair=TRUE, predator=TRUE}
                                            {eggs=FALSE} 0.1881188 0.9500000
  [13] {aquatic=FALSE,toothed=TRUE}
                                            {eggs=FALSE} 0.3465347 0.9210526
   [14] {toothed=TRUE,catsize=TRUE}
                                            {eggs=FALSE} 0.3069307 0.8857143
   [15] {toothed=TRUE,legs=TRUE}
##
                                            {eggs=FALSE} 0.3663366 0.8809524
   [16] {toothed=TRUE, breathes=TRUE}
                                           {eggs=FALSE} 0.3960396 0.8510638
   [17] {toothed=TRUE,fins=FALSE}
                                           {eggs=FALSE} 0.3663366 0.8409091
   [18] {aquatic=FALSE, catsize=TRUE}
                                           {eggs=FALSE} 0.2574257 0.8387097
   [19] {feathers=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.3069307 0.8157895
   [20] {breathes=TRUE,catsize=TRUE}
                                           {eggs=FALSE} 0.3069307 0.7948718
   [21] {predator=FALSE,toothed=TRUE}
                                           {eggs=FALSE} 0.1881188 0.7916667
   [22]
       {legs=TRUE,catsize=TRUE}
                                            {eggs=FALSE} 0.2772277 0.7567568
   [23]
       {airborne=FALSE,catsize=TRUE}
                                            {eggs=FALSE} 0.3069307 0.7560976
   [24] {predator=FALSE,catsize=TRUE}
                                            {eggs=FALSE} 0.1188119 0.7500000
   [25] {fins=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.2673267 0.7500000
   [26] {airborne=FALSE,aquatic=FALSE}
                                            {eggs=FALSE} 0.3366337 0.7391304
   [27] {feathers=FALSE,aquatic=FALSE}
##
                                            {eggs=FALSE} 0.3564356 0.7058824
   [28] {toothed=TRUE, venomous=FALSE}
                                            {eggs=FALSE} 0.3960396 0.7017544
  [29] {airborne=FALSE,breathes=TRUE}
                                            {eggs=FALSE} 0.3861386 0.6964286
   [30] {feathers=FALSE, breathes=TRUE}
                                            {eggs=FALSE} 0.4059406 0.6833333
##
   [31] {toothed=TRUE,tail=TRUE}
                                           {eggs=FALSE} 0.3465347 0.6730769
   [32] {airborne=FALSE,legs=TRUE}
                                           {eggs=FALSE} 0.3564356 0.6666667
   [33] {aquatic=FALSE,backbone=TRUE}
                                           {eggs=FALSE} 0.3465347 0.6603774
   [34] {feathers=FALSE,legs=TRUE}
                                           {eggs=FALSE} 0.3762376 0.6551724
   [35] {feathers=FALSE,tail=TRUE}
##
                                           {eggs=FALSE} 0.3564356 0.6545455
  [36] {feathers=FALSE,backbone=TRUE}
                                           {eggs=FALSE} 0.4059406 0.6507937
        {aquatic=FALSE,tail=TRUE}
   [37]
                                            {eggs=FALSE} 0.3069307 0.6326531
##
   [38]
       {aquatic=FALSE,predator=TRUE}
                                            {eggs=FALSE} 0.1683168 0.6296296
       {airborne=FALSE,predator=FALSE}
                                            {eggs=FALSE} 0.1683168 0.6071429
   [40] {airborne=FALSE,backbone=TRUE}
                                           {eggs=FALSE} 0.3861386 0.6000000
   [41] {airborne=FALSE,fins=FALSE}
                                           {eggs=FALSE} 0.3564356 0.6000000
##
   [42]
       {airborne=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3366337 0.5964912
  [43] {feathers=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3762376 0.5937500
## [44] {backbone=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.5797101
## [45] {legs=TRUE,tail=TRUE}
                                            {eggs=FALSE} 0.3267327 0.5789474
```

```
## [46] {backbone=TRUE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.5781250
  [47] {aquatic=FALSE, venomous=FALSE}
                                            {eggs=FALSE} 0.3465347 0.5737705
                                         => {eggs=FALSE} 0.3465347 0.5737705
  [48] {breathes=TRUE,tail=TRUE}
  [49] {predator=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.2178218 0.5641026
  [50] {backbone=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.5606061
  [51] {fins=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3267327 0.5593220
  [52] {feathers=FALSE,predator=FALSE} => {eggs=FALSE} 0.1881188 0.5588235
   [53] {feathers=FALSE,airborne=FALSE} =>
                                            {eggs=FALSE} 0.3960396 0.5479452
   [54] {feathers=FALSE, venomous=FALSE} =>
                                            {eggs=FALSE} 0.3960396 0.5479452
   [55] {airborne=FALSE, venomous=FALSE} =>
                                            {eggs=FALSE} 0.3762376 0.5352113
   [56] {breathes=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5333333
   [57] {predator=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.5277778
   [58] {predator=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.1683168 0.5151515
   [59] {backbone=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5063291
  [60] {venomous=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.5000000
   [61]
        {backbone=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.4939759
                                         => {eggs=FALSE} 0.3564356 0.4675325
##
   [62]
       {venomous=FALSE,fins=FALSE}
##
        lift
##
  [1]
        2.404762
##
   [2]
        2.404762
   [3]
##
        2.404762
  [4]
        2.404762
  [5]
        2.404762
##
   [6]
##
        2.346109
##
  [7]
        2.346109
  [8]
        2.343101
  [9]
##
        2.339768
##
   [10] 2.331890
  [11] 2.324603
## [12] 2.284524
## [13] 2.214912
##
  [14] 2.129932
  [15] 2.118481
  [16] 2.046606
   [17] 2.022186
##
  [18] 2.016897
## [19] 1.961779
## [20] 1.911477
  [21] 1.903770
  [22] 1.819820
##
  [23] 1.818235
  [24] 1.803571
  [25] 1.803571
  [26] 1.777433
  [27] 1.697479
## [28] 1.687552
##
  [29] 1.674745
  [30] 1.643254
  [31] 1.618590
  [32] 1.603175
  [33] 1.588050
##
## [34] 1.575534
## [35] 1.574026
## [36] 1.565004
```

```
## [37] 1.521380
   [38] 1.514109
  [39] 1.460034
  [40] 1.442857
  [41] 1.442857
  [42] 1.434419
##
  [43] 1.427827
  [44] 1.394065
   [45] 1.392231
  [46] 1.390253
  [47] 1.379781
  [48] 1.379781
##
  [49] 1.356532
  [50] 1.348124
  [51] 1.345036
   [52] 1.343838
##
   [53] 1.317678
   [54] 1.317678
  [55] 1.287056
   [56] 1.282540
##
   [57] 1.269180
  [58] 1.238817
  [59] 1.217601
##
##
   [60] 1.202381
   [61] 1.187894
   [62] 1.124304
##
                                                    confidence lift
        lhs
                             rhs
                                         support
                                                               1.7118644
##
  [1]
        {type=fish}
                          => {eggs=TRUE} 0.1287129 1.0000000
   [2]
                          => {eggs=TRUE} 0.1980198 1.0000000
##
        {type=bird}
                                                               1.7118644
##
  [3]
        {feathers=TRUE}
                          => {eggs=TRUE} 0.1980198 1.0000000
                                                               1.7118644
##
  [4]
        {toothed=FALSE}
                          => {eggs=TRUE} 0.3861386 0.9750000
                                                               1.6690678
##
   [5]
        {breathes=FALSE}
                         => {eggs=TRUE} 0.1980198 0.9523810
                                                               1.6303471
##
  [6]
        {hair=FALSE}
                          => {eggs=TRUE} 0.5346535 0.9310345
                                                               1.5938048
  [7]
##
        {airborne=TRUE}
                          => {eggs=TRUE} 0.2178218 0.9166667
                                                               1.5692090
   [8]
        {aquatic=TRUE}
                          => {eggs=TRUE} 0.2970297 0.8333333
                                                               1.4265537
##
   [9]
        {legs=FALSE}
                          => {eggs=TRUE} 0.1881188 0.8260870
                                                               1.4141489
  [10] {tail=FALSE}
                          => {eggs=TRUE} 0.1980198 0.7692308
  [11] {fins=TRUE}
                          => {eggs=TRUE} 0.1287129 0.7647059
                                                               1.3090728
   [12] {predator=TRUE}
                          => {eggs=TRUE} 0.3267327 0.5892857
                                                               1.0087772
   [13] {catsize=TRUE}
                          => {eggs=TRUE} 0.1287129 0.2954545
##
                                                               0.5057781
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
   [1] {hair=TRUE,predator=TRUE}
                                      => {eggs=FALSE} 0.1881188 0.9500000
   [2] {aquatic=FALSE,predator=TRUE} => {eggs=FALSE} 0.1683168 0.6296296
   [3] {predator=TRUE,breathes=TRUE} => {eggs=FALSE} 0.2178218 0.5641026
##
##
       lift
  [1] 2.284524
##
##
   [2] 1.514109
##
   [3] 1.356532
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
##
   [1] {hair=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2871287 0.9666667
   [2] {toothed=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.8857143
  [3] {aquatic=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2574257 0.8387097
## [4] {feathers=FALSE,catsize=TRUE} => {eggs=FALSE} 0.3069307 0.8157895
## [5] {breathes=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.7948718
```

```
## [6] {legs=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2772277 0.7567568
  [7] {airborne=FALSE,catsize=TRUE} => {eggs=FALSE} 0.3069307 0.7560976
  [8] {predator=FALSE,catsize=TRUE} => {eggs=FALSE} 0.1188119 0.7500000
   [9] {fins=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2673267 0.7500000
##
       lift.
## [1] 2.324603
  [2] 2.129932
  [3] 2.016897
##
   [4] 1.961779
  [5] 1.911477
  [6] 1.819820
  [7] 1.818235
##
   [8] 1.803571
   [9] 1.803571
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                           support
##
  [1]
        {type=fish}
                                         => {aquatic=TRUE} 0.1287129
   [2]
        {fins=TRUE}
                                           {aquatic=TRUE} 0.1683168
   [3]
##
        {breathes=FALSE,tail=TRUE}
                                         => {aquatic=TRUE} 0.1386139
##
   [4]
        {backbone=TRUE, breathes=FALSE}
                                         => {aquatic=TRUE} 0.1386139
##
   [5]
        {breathes=FALSE}
                                         => {aquatic=TRUE} 0.1980198
##
  [6]
        {backbone=TRUE,legs=FALSE}
                                           {aquatic=TRUE} 0.1683168
  [7]
        {hair=FALSE,toothed=TRUE}
                                           {aquatic=TRUE} 0.1980198
##
##
  [8]
        {milk=FALSE,toothed=TRUE}
                                           {aquatic=TRUE} 0.1782178
##
  [9]
        {eggs=TRUE, toothed=TRUE}
                                           {aquatic=TRUE} 0.1683168
  [10] {predator=TRUE,legs=FALSE}
                                         => {aquatic=TRUE} 0.1386139
   [11] {venomous=FALSE,legs=FALSE}
                                           {aquatic=TRUE} 0.1485149
##
  [12] {legs=FALSE}
                                         => {aquatic=TRUE} 0.1782178
  [13] {eggs=TRUE,predator=TRUE}
                                           {aquatic=TRUE} 0.2277228
  [14] {hair=FALSE,predator=TRUE}
                                           {aquatic=TRUE} 0.2475248
  [15] {hair=FALSE,feathers=FALSE}
                                            {aquatic=TRUE} 0.2574257
  [16] {milk=FALSE,predator=TRUE}
                                         => {aquatic=TRUE} 0.2277228
  [17] {eggs=TRUE,airborne=FALSE}
                                         => {aquatic=TRUE} 0.2475248
  [18] {hair=FALSE,airborne=FALSE}
                                         => {aquatic=TRUE} 0.2673267
   [19] {milk=FALSE,airborne=FALSE}
                                         => {aguatic=TRUE} 0.2475248
  [20] {feathers=FALSE,eggs=TRUE}
                                         => {aquatic=TRUE} 0.2376238
  [21] {predator=TRUE, catsize=FALSE}
                                         => {aquatic=TRUE} 0.1683168
## [22] {feathers=FALSE,milk=FALSE}
                                         => {aquatic=TRUE} 0.2376238
  [23] {hair=FALSE,backbone=TRUE}
                                           {aquatic=TRUE} 0.2574257
  [24] {predator=TRUE, toothed=FALSE}
                                           {aquatic=TRUE} 0.1089109
  [25] {hair=FALSE,domestic=FALSE}
                                           {aquatic=TRUE} 0.3069307
  [26] {eggs=TRUE,backbone=TRUE}
                                           {aquatic=TRUE} 0.2376238
  [27] {milk=FALSE,backbone=TRUE}
                                         => {aquatic=TRUE} 0.2376238
## [28] {toothed=TRUE,catsize=FALSE}
                                         => {aquatic=TRUE} 0.1386139
## [29] {eggs=TRUE,tail=TRUE}
                                         => {aquatic=TRUE} 0.2079208
  [30] {predator=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
  [31]
       {eggs=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
       {airborne=FALSE,catsize=FALSE}
                                           {aquatic=TRUE} 0.1881188
  [33] {milk=FALSE,domestic=FALSE}
                                         => {aquatic=TRUE} 0.2871287
   [34] {milk=FALSE,tail=TRUE}
                                         => {aquatic=TRUE} 0.2079208
  [35] {backbone=TRUE,catsize=FALSE}
                                         => {aquatic=TRUE} 0.1782178
## [36] {feathers=FALSE,catsize=FALSE}
                                         => {aquatic=TRUE} 0.1881188
## [37] {airborne=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2970297
## [38] {domestic=FALSE, catsize=FALSE}
                                        => {aquatic=TRUE} 0.2178218
```

```
## [39] {toothed=TRUE,domestic=FALSE}
                                          => {aquatic=TRUE} 0.2178218
  [40] {feathers=FALSE,domestic=FALSE} =>
                                            {aquatic=TRUE} 0.2871287
   [41] {backbone=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
  [42] {tail=TRUE,catsize=FALSE}
                                          => {aquatic=TRUE} 0.1485149
   [43]
       {feathers=FALSE,backbone=TRUE}
                                         => {aquatic=TRUE} 0.2376238
  [44] {backbone=TRUE}
                                          => {aquatic=TRUE} 0.2970297
  [45] {tail=TRUE}
                                          => {aquatic=TRUE} 0.2574257
## [46] {venomous=FALSE}
                                          => {aquatic=TRUE} 0.3168317
   [47]
       {toothed=FALSE}
                                          => {aquatic=TRUE} 0.1287129
   [48] {breathes=TRUE}
                                         => {aquatic=TRUE} 0.1584158
##
        confidence lift
                   2.8055556
##
   [1]
        1.0000000
   [2]
        1.0000000
                   2.8055556
   [3]
##
        1.0000000
                   2.8055556
##
  [4]
        1.0000000
                   2.8055556
##
   [5]
        0.9523810
                    2.6719577
   [6]
##
        0.8947368
                   2.5102339
   [7]
        0.8695652
                    2.4396135
   [8]
##
        0.8571429
                   2.4047619
   [9]
        0.8500000
                    2.3847222
##
   [10] 0.8235294
                   2.3104575
  [11] 0.7894737
                    2.2149123
   [12] 0.7826087
                    2.1956522
   [13] 0.6969697
                    1.9553872
   [14] 0.6944444
                    1.9483025
   [15] 0.6842105
                    1.9195906
   [16] 0.6764706
                    1.8978758
                    1.8956456
   [17] 0.6756757
  [18] 0.6750000
                    1.8937500
                    1.8457602
   [19] 0.6578947
   [20] 0.6153846
                    1.7264957
   [21] 0.6071429
                    1.7033730
   [22] 0.6000000
                    1.6833333
   [23] 0.5909091
                    1.6578283
   [24] 0.5789474
                    1.6242690
  [25] 0.5740741
                    1.6105967
   [26] 0.5714286
                    1.6031746
  [27] 0.5714286
                    1.6031746
   [28] 0.5384615
                    1.5106838
   [29] 0.5384615
                    1.5106838
   [30] 0.5370370
                    1.5066872
   [31] 0.5370370
                    1.5066872
   [32] 0.5277778
                    1.4807099
   [33] 0.5272727
                    1.4792929
  [34] 0.5250000
                    1.4729167
   [35] 0.4500000
                    1.2625000
   [36] 0.4418605
                    1.2396641
   [37] 0.4411765
                    1.2377451
   [38] 0.4400000
                    1.2344444
   [39]
        0.4230769
                    1.1869658
##
   [40] 0.4084507
                    1.1459311
## [41] 0.4084507
                    1.1459311
## [42] 0.4054054
                    1.1373874
## [43] 0.3809524
                   1.0687831
```

```
## [44] 0.3614458
                   1.0140562
  [45] 0.3466667
                   0.9725926
  [46] 0.3440860
                   0.9653524
  [47] 0.3250000
                   0.9118056
   Γ481
       0.2000000
                   0.5611111
##
        lhs
                                             support
                                                       confidence lift
## [1]
        {domestic=TRUE}
                         => {aquatic=FALSE} 0.1188119 0.9230769
## [2]
        {hair=TRUE}
                         => {aquatic=FALSE} 0.3861386 0.9069767
                                                                   1.4093023
        {eggs=FALSE}
##
  [3]
                         => {aquatic=FALSE} 0.3564356 0.8571429
                                                                   1.3318681
  [4]
##
        {milk=TRUE}
                         => {aquatic=FALSE} 0.3465347 0.8536585
                                                                   1.3264540
  [5]
        {type=mammal}
                         => {aquatic=FALSE} 0.3465347 0.8536585
                                                                  1.3264540
  [6]
                         => {aquatic=FALSE} 0.3762376 0.8444444
##
        {predator=FALSE}
                                                                  1.3121368
##
  [7]
        {fins=FALSE}
                         => {aquatic=FALSE} 0.6435644 0.7738095
                                                                  1.2023810
## [8]
        {toothed=FALSE}
                         => {aquatic=FALSE} 0.2673267 0.6750000
                                                                  1.0488462
## [9]
                         => {aquatic=FALSE} 0.3762376 0.6229508
        {toothed=TRUE}
                                                                  0.9679697
## [10] {tail=FALSE}
                         => {aquatic=FALSE} 0.1584158 0.6153846
                                                                   0.9562130
  [11] {domestic=FALSE} => {aquatic=FALSE} 0.5247525 0.6022727
                                                                   0.9358392
  [12] {catsize=FALSE}
                         => {aquatic=FALSE} 0.3366337 0.5964912
                                                                   0.9268556
                         => {aquatic=FALSE} 0.2871287 0.4915254
##
   [13] {eggs=TRUE}
                                                                  0.7637549
##
                                         rhs
                                                        support
                                                                   confidence
##
   [1] {predator=TRUE,toothed=FALSE} => {aquatic=TRUE} 0.1089109 0.5789474
##
##
  [1] 1.624269
##
       lhs
                                         rhs
                                                        support
                                                                   confidence
  [1] {hair=FALSE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1980198 0.8695652
  [2] {milk=FALSE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1782178 0.8571429
   [3] {eggs=TRUE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1683168 0.8500000
   [4] {toothed=TRUE,catsize=FALSE}
                                      => {aquatic=TRUE} 0.1386139 0.5384615
   [5] {toothed=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2178218 0.4230769
##
       lift
## [1] 2.439614
  [2] 2.404762
  [3] 2.384722
  [4] 1.510684
##
   [5]
      1.186966
##
       lhs
                                           rhs
                                                          support
                                                                     confidence
## [1] {hair=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.3069307 0.5740741
## [2] {predator=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
## [3] {eggs=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
## [4] {milk=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5272727
  [5] {airborne=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2970297 0.4411765
  [6] {domestic=FALSE,catsize=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4400000
  [7] {toothed=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4230769
## [8] {feathers=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.4084507
  [9] {backbone=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.4084507
##
       lift
## [1] 1.610597
## [2] 1.506687
## [3] 1.506687
## [4] 1.479293
## [5] 1.237745
## [6] 1.234444
## [7] 1.186966
## [8] 1.145931
```

```
## [9] 1.145931
##
       lhs
                                          rhs
                                                         support
                                                                   confidence
  [1] {predator=TRUE, catsize=FALSE}
                                       => {aquatic=TRUE} 0.1683168 0.6071429
  [2] {toothed=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1386139 0.5384615
## [3] {airborne=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.5277778
## [4] {backbone=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1782178 0.4500000
  [5] {feathers=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.4418605
  [6] {domestic=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.2178218 0.4400000
##
   [7] {tail=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1485149 0.4054054
##
       lift
## [1] 1.703373
## [2] 1.510684
## [3] 1.480710
## [4] 1.262500
## [5] 1.239664
## [6] 1.234444
##
  [7] 1.137387
##
       lhs
                                                     support
                                                               confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {aquatic=TRUE} 0.1683168 0.8500000
  [2] {eggs=TRUE,predator=TRUE}
                                  => {aquatic=TRUE} 0.2277228 0.6969697
## [3] {eggs=TRUE,airborne=FALSE} => {aquatic=TRUE} 0.2475248 0.6756757
## [4] {feathers=FALSE,eggs=TRUE} => {aquatic=TRUE} 0.2376238 0.6153846
## [5] {eggs=TRUE,backbone=TRUE}
                                  => {aquatic=TRUE} 0.2376238 0.5714286
  [6] {eggs=TRUE,tail=TRUE}
                                   => {aquatic=TRUE} 0.2079208 0.5384615
##
   [7] {eggs=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.5370370
       lift
## [1] 2.384722
##
  [2] 1.955387
## [3] 1.895646
## [4] 1.726496
## [5] 1.603175
##
  [6] 1.510684
  [7] 1.506687
       "Número de reglas con consecuente negado"
##
##
                                                            support
## [1]
        {catsize=FALSE, type=bird}
                                         => {airborne=TRUE} 0.1287129
## [2]
        {feathers=TRUE, catsize=FALSE}
                                         => {airborne=TRUE} 0.1287129
## [3]
        {type=bird}
                                         => {airborne=TRUE} 0.1584158
## [4]
        {feathers=TRUE}
                                         => {airborne=TRUE} 0.1584158
##
  [5]
        {toothed=FALSE,backbone=TRUE}
                                         => {airborne=TRUE} 0.1584158
  [6]
        {predator=FALSE, toothed=FALSE}
                                         => {airborne=TRUE} 0.1485149
## [7]
        {toothed=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1584158
##
  [8]
        {toothed=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [9]
        {aquatic=FALSE,toothed=FALSE}
                                         => {airborne=TRUE} 0.1683168
## [10] {toothed=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
## [11] {toothed=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [12] {eggs=TRUE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1683168
## [13] {eggs=TRUE,predator=FALSE}
                                         => {airborne=TRUE} 0.1485149
## [14] {milk=FALSE,predator=FALSE}
                                         => {airborne=TRUE} 0.1485149
## [15] {milk=FALSE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1683168
## [16] {eggs=TRUE,breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [17] {milk=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [18] {toothed=FALSE,venomous=FALSE}
                                         => {airborne=TRUE} 0.1980198
## [19] {toothed=FALSE}
                                         => {airborne=TRUE} 0.2178218
```

```
## [20] {eggs=TRUE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
                                            {airborne=TRUE} 0.2178218
  [21] {milk=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1485149
  [22] {predator=FALSE,catsize=FALSE}
  [23] {legs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
  [24] {breathes=TRUE, catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
##
  [25] {hair=FALSE,predator=FALSE}
                                            {airborne=TRUE} 0.1089109
  [26] {aquatic=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1683168
  [27] {hair=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1287129
##
   [28]
       {hair=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1782178
   [29]
       {hair=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1782178
   [30] {eggs=TRUE,fins=FALSE}
                                           {airborne=TRUE} 0.2178218
   [31] {milk=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.2178218
   [32]
       {fins=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
       {predator=FALSE,legs=TRUE}
  [33]
                                         => {airborne=TRUE} 0.1683168
       {hair=FALSE,fins=FALSE}
                                         => {airborne=TRUE} 0.1782178
## [34]
   [35]
        {predator=FALSE, breathes=TRUE}
                                            {airborne=TRUE} 0.1683168
   [36]
       {predator=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.1683168
       {eggs=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.1881188
  [38] {eggs=TRUE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
   [39] {tail=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
##
  [40] {milk=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [41] {milk=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [42] {milk=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
       {predator=FALSE,domestic=FALSE} =>
                                            {airborne=TRUE} 0.1287129
  Г431
  [44]
       {hair=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [45] {eggs=TRUE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [46] {milk=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [47] {venomous=FALSE, catsize=FALSE}
                                           {airborne=TRUE} 0.1881188
## [48] {eggs=TRUE, venomous=FALSE}
                                         => {airborne=TRUE} 0.1980198
  [49] {backbone=TRUE, catsize=FALSE}
                                         => {airborne=TRUE} 0.1485149
  [50]
       {hair=FALSE, venomous=FALSE}
                                           {airborne=TRUE} 0.1782178
##
   [51]
        {breathes=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2376238
       {aquatic=FALSE,legs=TRUE}
                                           {airborne=TRUE} 0.1881188
   [53] {legs=TRUE,tail=TRUE}
                                           {airborne=TRUE} 0.1782178
   [54] {breathes=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2376238
##
   [55] {fins=FALSE,legs=TRUE}
                                           {airborne=TRUE} 0.2376238
       {fins=FALSE,tail=TRUE}
                                           {airborne=TRUE} 0.1782178
   [57] {aquatic=FALSE}
                                         => {airborne=TRUE} 0.1881188
##
   [58]
       {venomous=FALSE}
                                         => {airborne=TRUE} 0.2178218
##
##
        confidence lift
  [1]
        0.9285714
                   3.9077381
   [2]
        0.9285714
                   3.9077381
##
##
   [3]
        0.8000000
                   3.3666667
##
   [4]
        0.8000000
                   3.3666667
##
  [5]
        0.7272727
                   3.0606061
  [6]
##
        0.7142857
                   3.0059524
##
   [7]
        0.6956522
                   2.9275362
##
   [8]
        0.6666667
                   2.8055556
  [9]
        0.6296296
                   2.6496914
   [10]
       0.6129032
                   2.5793011
##
  [11] 0.6111111
                   2.5717593
## [12] 0.5862069
                   2.4669540
## [13] 0.5769231
                   2.4278846
## [14] 0.5769231
                   2.4278846
```

```
## [15] 0.5666667
                    2.3847222
   [16] 0.5641026
                    2.3739316
   [17] 0.5641026
                    2.3739316
   [18] 0.555556
                    2.3379630
   [19] 0.5500000
                    2.3145833
                    2.3145833
   [20] 0.5500000
   [21] 0.5500000
                    2.3145833
   [22] 0.5172414
                    2.1767241
   [23] 0.5121951
                    2.1554878
   [24] 0.5121951
                    2.1554878
   [25] 0.5000000
                    2.1041667
   [26] 0.5000000
                    2.1041667
   [27] 0.5000000
                    2.1041667
   [28] 0.5000000
                    2.1041667
   [29] 0.4864865
                    2.0472973
   [30] 0.4782609
                    2.0126812
   [31] 0.4680851
                    1.9698582
   [32] 0.4375000
                    1.8411458
   [33] 0.4358974
                    1.8344017
   [34] 0.4186047
                    1.7616279
##
   [35] 0.4146341
                    1.7449187
   [36] 0.4146341
                    1.7449187
   [37] 0.4130435
                    1.7382246
   [38] 0.4102564
##
                    1.7264957
   [39] 0.4054054
                    1.7060811
   [40] 0.4000000
                    1.6833333
   [41] 0.3958333
                    1.6657986
##
   [42] 0.3846154
                    1.6185897
   [43] 0.3823529
                    1.6090686
   [44] 0.3809524
                    1.6031746
   [45] 0.3809524
                    1.6031746
##
   [46] 0.3809524
                    1.6031746
   [47] 0.3800000
                    1.5991667
   [48] 0.3773585
                    1.5880503
   [49] 0.3750000
                    1.5781250
##
   [50] 0.3461538
                    1.4567308
   [51] 0.3287671
                    1.3835616
   [52] 0.3166667
##
                    1.3326389
   [53] 0.3157895
                    1.3289474
##
   [54] 0.3157895
                    1.3289474
   [55] 0.3116883
                    1.3116883
   [56] 0.3050847
                    1.2838983
##
   [57]
        0.2923077
                    1.2301282
                    0.9955197
##
   [58] 0.2365591
##
        lhs
                                               support
                                                          confidence lift
   [1]
##
        {type=fish}
                             {airborne=FALSE} 0.1287129 1.0000000
                                                                     1.3116883
                                                                     1.3116883
##
   [2]
        {fins=TRUE}
                             {airborne=FALSE} 0.1683168 1.0000000
   [3]
##
        {breathes=FALSE}
                             {airborne=FALSE} 0.2079208 1.0000000
                                                                      1.3116883
##
   [4]
        {legs=FALSE}
                             {airborne=FALSE} 0.2277228 1.0000000
                                                                      1.3116883
##
   [5]
        {toothed=TRUE}
                             {airborne=FALSE} 0.5841584 0.9672131
                                                                      1.2686821
##
   [6]
        {eggs=FALSE}
                             {airborne=FALSE} 0.3960396 0.9523810
                                                                      1.2492270
                          =>
##
   [7]
        {milk=TRUE}
                             {airborne=FALSE} 0.3861386 0.9512195
##
  [8]
        {type=mammal}
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                     1.2477035
## [9]
        {catsize=TRUE}
                          => {airborne=FALSE} 0.4059406 0.9318182 1.2222550
```

```
## [10] {predator=TRUE}
                         => {airborne=FALSE} 0.4851485 0.8750000 1.1477273
                         => {airborne=FALSE} 0.3069307 0.8611111
## [11] {aquatic=TRUE}
                                                                   1.1295094
## [12] {hair=TRUE}
                         => {airborne=FALSE} 0.3663366 0.8604651
## [13] {backbone=TRUE}
                         => {airborne=FALSE} 0.6435644 0.7831325
                                                                   1.0272258
## [14] {tail=FALSE}
                         => {airborne=FALSE} 0.1980198 0.7692308
                                                                   1.0089910
## [15] {tail=TRUE}
                         => {airborne=FALSE} 0.5643564 0.7600000
                                                                   0.9968831
                         => {airborne=FALSE} 0.4554455 0.7076923
## [16] {aquatic=FALSE}
                                                                   0.9282717
## [17] {hair=FALSE}
                         => {airborne=FALSE} 0.3960396 0.6896552
                                                                   0.9046126
## [18] {backbone=FALSE} => {airborne=FALSE} 0.1188119 0.6666667
                                                                   0.8744589
## [19] {milk=FALSE}
                         => {airborne=FALSE} 0.3762376 0.6333333
                                                                   0.8307359
## [20] {eggs=TRUE}
                         => {airborne=FALSE} 0.3663366 0.6271186
                                                                   0.8225842
  [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.6222222
                                                                   0.8161616
                                                                   0.5902597
   [22] {toothed=FALSE} => {airborne=FALSE} 0.1782178 0.4500000
##
       lhs
                                        rhs
                                                         support
                                                                   confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
   [2] {eggs=TRUE,backbone=TRUE}
                                     => {airborne=TRUE} 0.1584158 0.3809524
  [3] {milk=FALSE,backbone=TRUE}
                                     => {airborne=TRUE} 0.1584158 0.3809524
  [4] {backbone=TRUE, catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift
## [1] 3.060606
## [2] 1.603175
## [3] 1.603175
## [4] 1.578125
##
                                    rhs
                                                     support
                                                               confidence
## [1] {toothed=FALSE,tail=TRUE} => {airborne=TRUE} 0.1584158 0.6956522
## [2] {eggs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4102564
## [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4000000
                                 => {airborne=TRUE} 0.1584158 0.3809524
## [5] {hair=FALSE,tail=TRUE}
## [6] {legs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1782178 0.3157895
## [7] {fins=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1782178 0.3050847
##
       lift
## [1] 2.927536
## [2] 1.726496
## [3] 1.706081
## [4] 1.683333
## [5] 1.603175
## [6] 1.328947
  [7] 1.283898
##
##
       lhs
                                                         support
                                                                   confidence
                                         rhs
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
## [2] {eggs=TRUE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5862069
## [3] {milk=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5666667
  [4] {aquatic=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
## [5] {hair=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1287129 0.5000000
                                     => {airborne=TRUE} 0.1881188 0.3166667
  [6] {aquatic=FALSE,legs=TRUE}
##
##
       lift
## [1] 2.649691
## [2] 2.466954
## [3] 2.384722
## [4] 2.104167
## [5] 2.104167
## [6] 1.332639
##
       lhs
                                                       support
                                                                 confidence
                                      rhs
```

```
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
## [2] {hair=FALSE,aquatic=FALSE} => {airborne=TRUE} 0.1287129 0.5000000
## [3] {hair=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.5000000
## [4] {hair=FALSE,breathes=TRUE} => {airborne=TRUE} 0.1782178 0.4864865
## [5] {hair=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.1782178 0.4186047
## [6] {hair=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.3809524
## [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
##
       lift
## [1] 2.104167
## [2] 2.104167
## [3] 2.104167
## [4] 2.047297
## [5] 1.761628
## [6] 1.603175
## [7] 1.456731
##
       lhs
                                                                 confidence
                                                       support
## [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
  [2] {milk=FALSE,aquatic=FALSE} => {airborne=TRUE} 0.1683168 0.5666667
## [3] {milk=FALSE,breathes=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5641026
## [4] {milk=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5500000
## [5] {milk=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.2178218 0.4680851
## [6] {milk=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.4000000
## [7] {milk=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1881188 0.3958333
## [8] {milk=FALSE,venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
## [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
       lift
## [1] 2.427885
## [2] 2.384722
## [3] 2.373932
## [4] 2.314583
## [5] 1.969858
## [6] 1.683333
## [7] 1.665799
## [8] 1.618590
## [9] 1.603175
##
       lhs
                                     rhs
                                                     support
                                                                confidence
## [1] {eggs=TRUE,aquatic=FALSE} => {airborne=TRUE} 0.1683168 0.5862069
## [2] {eggs=TRUE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
## [3] {eggs=TRUE,breathes=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5641026
                                  => {airborne=TRUE} 0.2178218 0.5500000
## [4] {eggs=TRUE,legs=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.4782609
## [5] {eggs=TRUE,fins=FALSE}
## [6] {eggs=TRUE,catsize=FALSE}
                                  => {airborne=TRUE} 0.1881188 0.4130435
## [7] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
## [8] {eggs=TRUE,backbone=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
## [9] {eggs=TRUE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
       lift
## [1] 2.466954
## [2] 2.427885
## [3] 2.373932
## [4] 2.314583
## [5] 2.012681
## [6] 1.738225
## [7] 1.726496
## [8] 1.603175
```

```
## [9] 1.588050
##
       lhs
                                           rhs
                                                           support
                                        => {airborne=TRUE} 0.1485149
  [1] {predator=FALSE, toothed=FALSE}
  [2] {eggs=TRUE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [3] {milk=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [4] {predator=FALSE, catsize=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [5] {hair=FALSE, predator=FALSE}
                                        => {airborne=TRUE} 0.1089109
  [6] {predator=FALSE,legs=TRUE}
                                        => {airborne=TRUE} 0.1683168
  [7] {predator=FALSE,breathes=TRUE}
                                        => {airborne=TRUE} 0.1683168
  [8] {predator=FALSE,fins=FALSE}
                                        => {airborne=TRUE} 0.1683168
  [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
##
       confidence lift
## [1] 0.7142857
                  3.005952
## [2] 0.5769231
                  2.427885
## [3] 0.5769231
                  2.427885
## [4] 0.5172414
                  2.176724
  [5] 0.5000000
                  2.104167
  [6] 0.4358974
                  1.834402
  [7] 0.4146341
                  1.744919
  [8] 0.4146341
                  1.744919
##
   [9] 0.3823529
                  1.609069
##
                                                          support
                                                                     confidence
## [1] {toothed=FALSE,backbone=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.7272727
  [2] {predator=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1485149 0.7142857
  [3] {toothed=FALSE,tail=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.6956522
  [4] {toothed=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6666667
  [5] {aquatic=FALSE,toothed=FALSE}
                                       => {airborne=TRUE} 0.1683168 0.6296296
  [6] {toothed=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1881188 0.6129032
## [7] {toothed=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6111111
  [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
       lift
## [1] 3.060606
  [2] 3.005952
## [3] 2.927536
   [4] 2.805556
##
  [5] 2.649691
## [6] 2.579301
## [7] 2.571759
  [8]
      2.337963
##
  [1]
      "Número de reglas con consecuente negado"
##
                                            rhs
                                                            support
##
  [1]
        {catsize=FALSE,type=bird}
                                           {airborne=TRUE} 0.1287129
##
  [2]
        {feathers=TRUE, catsize=FALSE}
                                         => {airborne=TRUE} 0.1287129
##
  [3]
        {type=bird}
                                         => {airborne=TRUE} 0.1584158
## [4]
        {feathers=TRUE}
                                         => {airborne=TRUE} 0.1584158
## [5]
        {toothed=FALSE,backbone=TRUE}
                                         => {airborne=TRUE} 0.1584158
##
  [6]
        {predator=FALSE, toothed=FALSE}
                                           {airborne=TRUE} 0.1485149
##
  [7]
        {toothed=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1584158
  [8]
        {toothed=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
  [9]
        {aquatic=FALSE, toothed=FALSE}
                                           {airborne=TRUE} 0.1683168
## [10] {toothed=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
## [11] {toothed=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [12] {eggs=TRUE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1683168
## [13] {eggs=TRUE,predator=FALSE}
                                           {airborne=TRUE} 0.1485149
```

```
## [14] {milk=FALSE,predator=FALSE}
                                         => {airborne=TRUE} 0.1485149
                                           {airborne=TRUE} 0.1683168
  [15] {milk=FALSE,aquatic=FALSE}
  [16] {eggs=TRUE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
  [17] {milk=FALSE,breathes=TRUE}
                                           {airborne=TRUE} 0.2178218
  [18] {toothed=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
##
  [19] {toothed=FALSE}
                                            {airborne=TRUE} 0.2178218
  [20] {eggs=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
## [21] {milk=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
  [22]
        {predator=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
   [23] {legs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
   [24] {breathes=TRUE, catsize=FALSE}
                                         => {airborne=TRUE} 0.2079208
   [25] {hair=FALSE,predator=FALSE}
                                           {airborne=TRUE} 0.1089109
   [26] {aquatic=FALSE, catsize=FALSE}
                                           {airborne=TRUE} 0.1683168
       {hair=FALSE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1287129
                                         => {airborne=TRUE} 0.1782178
  [28] {hair=FALSE,legs=TRUE}
   [29]
        {hair=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1782178
   [30]
                                            {airborne=TRUE} 0.2178218
       {eggs=TRUE,fins=FALSE}
   [31] {milk=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.2178218
                                           {airborne=TRUE} 0.2079208
  [32] {fins=FALSE,catsize=FALSE}
   [33] {predator=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1683168
##
  [34] {hair=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1782178
  [35] {predator=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1683168
  [36] {predator=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1683168
                                            {airborne=TRUE} 0.1881188
##
   [37]
       {eggs=TRUE,catsize=FALSE}
   [38]
       {eggs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [39] {tail=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.1485149
  [40] {milk=FALSE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
  [41] {milk=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [42] {milk=FALSE, venomous=FALSE}
                                           {airborne=TRUE} 0.1980198
  [43] {predator=FALSE,domestic=FALSE} =>
                                            {airborne=TRUE} 0.1287129
  [44]
        {hair=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
##
   [45]
       {eggs=TRUE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [46]
       {milk=FALSE,backbone=TRUE}
                                           {airborne=TRUE} 0.1584158
  [47] {venomous=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
       {eggs=TRUE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
   Г481
  [49] {backbone=TRUE,catsize=FALSE}
##
                                            {airborne=TRUE} 0.1485149
  [50] {hair=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1782178
  [51] {breathes=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2376238
##
        {aquatic=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1881188
##
   [52]
       {legs=TRUE,tail=TRUE}
##
   [53]
                                            {airborne=TRUE} 0.1782178
   [54] {breathes=TRUE,fins=FALSE}
                                           {airborne=TRUE} 0.2376238
   [55] {fins=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2376238
##
   ſ561
       {fins=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1782178
##
       {aquatic=FALSE}
                                         => {airborne=TRUE} 0.1881188
   [57]
##
   [58] {venomous=FALSE}
                                         => {airborne=TRUE} 0.2178218
##
        confidence lift
##
  [1]
        0.9285714
                   3.9077381
   [2]
##
        0.9285714
                   3.9077381
##
   [3]
        0.8000000
                   3.3666667
##
   [4]
        0.8000000
                   3.3666667
   [5]
##
        0.7272727
                   3.0606061
##
  [6]
        0.7142857
                   3.0059524
##
  [7]
        0.6956522
                   2.9275362
## [8]
        0.6666667
                   2.8055556
```

```
## [9] 0.6296296 2.6496914
## [10] 0.6129032
                   2.5793011
  [11] 0.6111111
                   2.5717593
## [12] 0.5862069
                   2.4669540
## [13] 0.5769231
                   2.4278846
## [14] 0.5769231
                   2.4278846
## [15] 0.5666667
                   2.3847222
## [16] 0.5641026
                   2.3739316
  [17] 0.5641026
                   2.3739316
  [18] 0.5555556
                   2.3379630
  [19] 0.5500000
                   2.3145833
  [20] 0.5500000
                   2.3145833
## [21] 0.5500000
                   2.3145833
## [22] 0.5172414
                   2.1767241
## [23] 0.5121951
                   2.1554878
## [24] 0.5121951
                   2.1554878
  [25] 0.5000000
                   2.1041667
  [26] 0.5000000
                   2.1041667
  [27] 0.5000000
                   2.1041667
## [28] 0.5000000
                   2.1041667
## [29] 0.4864865
                   2.0472973
## [30] 0.4782609
                   2.0126812
## [31] 0.4680851
                   1.9698582
  [32] 0.4375000
                   1.8411458
  [33] 0.4358974
                   1.8344017
  [34] 0.4186047
                   1.7616279
  [35] 0.4146341
                   1.7449187
  [36] 0.4146341
                   1.7449187
  [37] 0.4130435
                   1.7382246
                   1.7264957
## [38] 0.4102564
  [39] 0.4054054
                   1.7060811
  [40] 0.4000000
                   1.6833333
  [41] 0.3958333
                   1.6657986
## [42] 0.3846154
                   1.6185897
  [43] 0.3823529
                   1.6090686
## [44] 0.3809524
                   1.6031746
## [45] 0.3809524
                   1.6031746
## [46] 0.3809524
                   1.6031746
## [47] 0.3800000
                   1.5991667
  [48] 0.3773585
                   1.5880503
  [49] 0.3750000
                   1.5781250
  [50] 0.3461538
                   1.4567308
  [51] 0.3287671
                   1.3835616
  [52] 0.3166667
                   1.3326389
## [53] 0.3157895
                   1.3289474
## [54] 0.3157895
                   1.3289474
##
  [55] 0.3116883
                   1.3116883
   [56] 0.3050847
                   1.2838983
   [57]
        0.2923077
                   1.2301282
##
   [58]
        0.2365591
                   0.9955197
##
        lhs
                             rhs
                                              support
                                                         confidence lift
## [1]
        {type=fish}
                          => {airborne=FALSE} 0.1287129 1.0000000 1.3116883
## [2]
        {fins=TRUE}
                         => {airborne=FALSE} 0.1683168 1.0000000 1.3116883
## [3]
        {breathes=FALSE} => {airborne=FALSE} 0.2079208 1.0000000 1.3116883
```

```
## [4]
        {legs=FALSE}
                         => {airborne=FALSE} 0.2277228 1.0000000
                                                                   1.3116883
##
  [5]
                         => {airborne=FALSE} 0.5841584 0.9672131
        {toothed=TRUE}
                                                                   1.2686821
##
  [6]
        {eggs=FALSE}
                         => {airborne=FALSE} 0.3960396 0.9523810
  [7]
        {milk=TRUE}
                         => {airborne=FALSE} 0.3861386 0.9512195
##
                                                                   1.2477035
##
   [8]
        {type=mammal}
                         => {airborne=FALSE} 0.3861386 0.9512195
                                                                   1.2477035
##
  [9]
        {catsize=TRUE}
                         => {airborne=FALSE} 0.4059406 0.9318182
                                                                   1.2222550
  [10] {predator=TRUE}
                         => {airborne=FALSE} 0.4851485 0.8750000
                                                                   1.1477273
## [11] {aquatic=TRUE}
                         => {airborne=FALSE} 0.3069307 0.8611111
                                                                   1.1295094
##
  [12] {hair=TRUE}
                         => {airborne=FALSE} 0.3663366 0.8604651
                                                                   1.1286620
  [13] {backbone=TRUE}
                         => {airborne=FALSE} 0.6435644 0.7831325
                                                                   1.0272258
## [14] {tail=FALSE}
                         => {airborne=FALSE} 0.1980198 0.7692308
                                                                   1.0089910
## [15] {tail=TRUE}
                         => {airborne=FALSE} 0.5643564 0.7600000
                                                                   0.9968831
                         => {airborne=FALSE} 0.4554455 0.7076923
## [16] {aquatic=FALSE}
                                                                   0.9282717
## [17] {hair=FALSE}
                         => {airborne=FALSE} 0.3960396 0.6896552
                                                                   0.9046126
## [18] {backbone=FALSE} => {airborne=FALSE} 0.1188119 0.6666667
                                                                   0.8744589
## [19] {milk=FALSE}
                         => {airborne=FALSE} 0.3762376 0.6333333
                                                                   0.8307359
  [20] {eggs=TRUE}
                         => {airborne=FALSE} 0.3663366 0.6271186
                                                                   0.8225842
  [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.6222222
                                                                   0.8161616
##
  [22] {toothed=FALSE}
                         => {airborne=FALSE} 0.1782178 0.4500000
                                                                   0.5902597
##
       lhs
                                         rhs
                                                         support
                                                                    confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
  [2] {eggs=TRUE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
  [3] {milk=FALSE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
##
   [4] {backbone=TRUE, catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift
## [1] 3.060606
  [2] 1.603175
   [3] 1.603175
##
  [4] 1.578125
##
       lhs
                                     rhs
                                                     support
                                                               confidence
## [1] {toothed=FALSE,tail=TRUE} =>
                                    {airborne=TRUE} 0.1584158 0.6956522
   [2] {eggs=TRUE,tail=TRUE}
                                    {airborne=TRUE} 0.1584158 0.4102564
  [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4000000
   [5] {hair=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
                                  => {airborne=TRUE} 0.1782178 0.3157895
##
  [6] {legs=TRUE,tail=TRUE}
  [7] {fins=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1782178 0.3050847
##
       lift
## [1] 2.927536
##
  [2] 1.726496
  [3] 1.706081
  [4] 1.683333
##
   [5] 1.603175
##
  [6] 1.328947
##
  [7] 1.283898
##
       lhs
                                         rhs
                                                         support
                                                                    confidence
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
   [2] {eggs=TRUE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1683168 0.5862069
  [3] {milk=FALSE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1683168 0.5666667
   [4] {aquatic=FALSE, catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
  [5] {hair=FALSE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1287129 0.5000000
  [6] {aquatic=FALSE,legs=TRUE}
                                      => {airborne=TRUE} 0.1881188 0.3166667
##
       lift
## [1] 2.649691
```

```
## [2] 2.466954
  [3] 2.384722
  [4] 2.104167
  [5] 2.104167
##
   [6] 1.332639
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
  [2] {hair=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1287129 0.5000000
  [3] {hair=FALSE,legs=TRUE}
                                    => {airborne=TRUE} 0.1782178 0.5000000
  [4] {hair=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.4864865
  [5] {hair=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.1782178 0.4186047
  [6] {hair=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.3809524
   [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
##
       lift
## [1] 2.104167
##
  [2] 2.104167
  [3] 2.104167
  [4] 2.047297
## [5] 1.761628
  [6] 1.603175
##
  [7] 1.456731
##
       lhs
                                                       support
                                                                 confidence
  [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
  [2] {milk=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1683168 0.5666667
  [3] {milk=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5641026
  [4] {milk=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5500000
  [5] {milk=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.2178218 0.4680851
## [6] {milk=FALSE,tail=TRUE}
                                    => {airborne=TRUE} 0.1584158 0.4000000
  [7] {milk=FALSE,catsize=FALSE}
                                   => {airborne=TRUE} 0.1881188 0.3958333
## [8] {milk=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
##
  [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
       lift
## [1] 2.427885
  [2] 2.384722
   [3] 2.373932
  [4] 2.314583
##
  [5] 1.969858
## [6] 1.683333
   [7] 1.665799
##
  [8] 1.618590
  [9] 1.603175
##
       lhs
                                     rhs
                                                      support
                                                                confidence
## [1] {eggs=TRUE,aquatic=FALSE}
                                  => {airborne=TRUE} 0.1683168 0.5862069
  [2] {eggs=TRUE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
## [3] {eggs=TRUE,breathes=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5641026
## [4] {eggs=TRUE,legs=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5500000
  [5] {eggs=TRUE,fins=FALSE}
                                  => {airborne=TRUE} 0.2178218 0.4782609
  [6] {eggs=TRUE,catsize=FALSE}
                                  => {airborne=TRUE} 0.1881188 0.4130435
  [7] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
   [8] {eggs=TRUE,backbone=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
##
   [9] {eggs=TRUE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
       lift
## [1] 2.466954
## [2] 2.427885
```

```
## [3] 2.373932
  [4] 2.314583
  [5] 2.012681
##
  [6] 1.738225
   [7] 1.726496
   [8] 1.603175
##
##
  [9] 1.588050
##
       lhs
                                           rhs
                                                            support
##
  [1] {predator=FALSE, toothed=FALSE}
                                        => {airborne=TRUE} 0.1485149
   [2] {eggs=TRUE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [3] {milk=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
   [4] {predator=FALSE, catsize=FALSE}
                                        => {airborne=TRUE} 0.1485149
   [5] {hair=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1089109
  [6] {predator=FALSE,legs=TRUE}
                                        => {airborne=TRUE} 0.1683168
  [7] {predator=FALSE,breathes=TRUE}
                                        => {airborne=TRUE} 0.1683168
   [8] {predator=FALSE,fins=FALSE}
                                        => {airborne=TRUE} 0.1683168
##
   [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
##
       confidence lift
  [1] 0.7142857
##
                  3.005952
   [2] 0.5769231
                  2.427885
##
  [3] 0.5769231
                  2.427885
  [4] 0.5172414
                  2.176724
  [5] 0.5000000
                  2.104167
##
##
   [6] 0.4358974
                  1.834402
  [7] 0.4146341
                  1.744919
  [8] 0.4146341
                  1.744919
   [9] 0.3823529
                  1.609069
##
##
       lhs
                                          rhs
                                                           support
                                                                     confidence
                                          {airborne=TRUE} 0.1584158 0.7272727
## [1] {toothed=FALSE,backbone=TRUE}
  [2] {predator=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1485149 0.7142857
   [3] {toothed=FALSE,tail=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.6956522
  [4] {toothed=FALSE,breathes=TRUE}
                                          {airborne=TRUE} 0.2178218 0.6666667
  [5] {aquatic=FALSE,toothed=FALSE}
                                       => {airborne=TRUE} 0.1683168 0.6296296
  [6] {toothed=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1881188 0.6129032
   [7] {toothed=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6111111
   [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
##
       lift
## [1] 3.060606
   [2] 3.005952
  [3] 2.927536
##
  [4] 2.805556
   [5] 2.649691
##
   [6] 2.579301
##
   [7] 2.571759
##
  [8] 2.337963
##
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
##
  [1]
        {catsize=FALSE,type=bird}
                                            {airborne=TRUE} 0.1287129
##
   [2]
        {feathers=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1287129
##
   [3]
        {type=bird}
                                            {airborne=TRUE} 0.1584158
   [4]
##
        {feathers=TRUE}
                                            {airborne=TRUE} 0.1584158
##
  [5]
        {toothed=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
##
  [6]
        {predator=FALSE, toothed=FALSE}
                                         => {airborne=TRUE} 0.1485149
## [7]
        {toothed=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
```

```
{toothed=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
##
  [9]
        {aquatic=FALSE, toothed=FALSE}
                                           {airborne=TRUE} 0.1683168
  [10] {toothed=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [11] {toothed=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
##
  [12] {eggs=TRUE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
  [13] {eggs=TRUE,predator=FALSE}
                                           {airborne=TRUE} 0.1485149
##
  [14] {milk=FALSE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
  [15] {milk=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
##
   [16] {eggs=TRUE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
   [17] {milk=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
   [18] {toothed=FALSE, venomous=FALSE}
                                           {airborne=TRUE} 0.1980198
   [19] {toothed=FALSE}
                                           {airborne=TRUE} 0.2178218
##
  [20] {eggs=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
  [21] {milk=FALSE,legs=TRUE}
                                           {airborne=TRUE} 0.2178218
  [22] {predator=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.1485149
   [23] {legs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
   [24] {breathes=TRUE, catsize=FALSE}
                                           {airborne=TRUE} 0.2079208
   [25] {hair=FALSE,predator=FALSE}
                                           {airborne=TRUE} 0.1089109
   [26] {aquatic=FALSE, catsize=FALSE}
                                           {airborne=TRUE} 0.1683168
   [27] {hair=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1287129
##
  [28] {hair=FALSE,legs=TRUE}
                                           {airborne=TRUE} 0.1782178
  [29] {hair=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1782178
  [30] {eggs=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2178218
##
                                            {airborne=TRUE} 0.2178218
##
   [31] {milk=FALSE.fins=FALSE}
  [32] {fins=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.2079208
  [33] {predator=FALSE,legs=TRUE}
                                           {airborne=TRUE} 0.1683168
   [34] {hair=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.1782178
##
   [35] {predator=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1683168
  [36] {predator=FALSE,fins=FALSE}
                                         => {airborne=TRUE} 0.1683168
  [37] {eggs=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
   [38]
       {eggs=TRUE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
##
   [39]
       {tail=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.1485149
   [40] {milk=FALSE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
  [41] {milk=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.1881188
       {milk=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
##
  [43] {predator=FALSE,domestic=FALSE}
                                            {airborne=TRUE} 0.1287129
  [44] {hair=FALSE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
  [45] {eggs=TRUE,backbone=TRUE}
                                           {airborne=TRUE} 0.1584158
   [46] {milk=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
##
  [47] {venomous=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [48] {eggs=TRUE, venomous=FALSE}
                                           {airborne=TRUE} 0.1980198
  [49] {backbone=TRUE, catsize=FALSE}
                                           {airborne=TRUE} 0.1485149
##
   [50] {hair=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1782178
   [51] {breathes=TRUE,legs=TRUE}
                                           {airborne=TRUE} 0.2376238
  [52] {aquatic=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.1881188
   [53] {legs=TRUE,tail=TRUE}
##
                                         => {airborne=TRUE} 0.1782178
   [54]
##
       {breathes=TRUE,fins=FALSE}
                                         => {airborne=TRUE} 0.2376238
   [55] {fins=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2376238
   [56] {fins=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1782178
##
   [57]
        {aquatic=FALSE}
                                         => {airborne=TRUE} 0.1881188
   [58]
                                         => {airborne=TRUE} 0.2178218
##
       {venomous=FALSE}
##
        confidence lift
## [1]
        0.9285714 3.9077381
## [2]
        0.9285714 3.9077381
```

```
## [3]
        0.8000000 3.3666667
##
   [4]
        0.8000000
                   3.3666667
   [5]
        0.7272727
                   3.0606061
   [6]
        0.7142857
                   3.0059524
##
##
   [7]
        0.6956522
                   2.9275362
##
   [8]
        0.6666667
                   2.8055556
        0.6296296
   [9]
                   2.6496914
   [10] 0.6129032
                   2.5793011
   [11] 0.6111111
                    2.5717593
   [12] 0.5862069
                   2.4669540
   [13] 0.5769231
                   2.4278846
   [14] 0.5769231
                    2.4278846
   [15] 0.5666667
                   2.3847222
   [16] 0.5641026
                   2.3739316
                   2.3739316
  [17] 0.5641026
   [18] 0.5555556
                   2.3379630
                   2.3145833
   [19] 0.5500000
   [20] 0.5500000
                   2.3145833
   [21] 0.5500000
                   2.3145833
   [22] 0.5172414
                   2.1767241
##
  [23] 0.5121951
                   2.1554878
  [24] 0.5121951
                   2.1554878
   [25] 0.5000000
                   2.1041667
   [26] 0.5000000
##
                   2.1041667
   [27] 0.5000000
                   2.1041667
   [28] 0.5000000
                   2.1041667
   [29] 0.4864865
                   2.0472973
##
   [30] 0.4782609
                   2.0126812
   [31] 0.4680851
                   1.9698582
   [32] 0.4375000
                   1.8411458
   [33] 0.4358974
                    1.8344017
##
   [34] 0.4186047
                    1.7616279
   [35] 0.4146341
                    1.7449187
   [36] 0.4146341
                    1.7449187
   [37] 0.4130435
                    1.7382246
##
   [38] 0.4102564
                    1.7264957
   [39] 0.4054054
                    1.7060811
  [40] 0.4000000
                    1.6833333
   [41] 0.3958333
                    1.6657986
##
   [42] 0.3846154
                    1.6185897
   [43] 0.3823529
                    1.6090686
   [44] 0.3809524
                    1.6031746
   [45] 0.3809524
                    1.6031746
   [46] 0.3809524
                    1.6031746
  [47] 0.3800000
                   1.5991667
   [48] 0.3773585
                    1.5880503
##
   [49] 0.3750000
                    1.5781250
   [50] 0.3461538
                    1.4567308
   [51] 0.3287671
                    1.3835616
   [52] 0.3166667
                    1.3326389
##
   [53] 0.3157895
                    1.3289474
  [54] 0.3157895
                    1.3289474
## [55] 0.3116883
                   1.3116883
## [56] 0.3050847
                   1.2838983
```

```
## [57] 0.2923077 1.2301282
##
   [58] 0.2365591 0.9955197
##
        lhs
                                              support
                                                        confidence lift
## [1]
                         => {airborne=FALSE} 0.1287129 1.0000000 1.3116883
        {type=fish}
##
  [2]
        {fins=TRUE}
                         => {airborne=FALSE} 0.1683168 1.0000000 1.3116883
  [3]
                         => {airborne=FALSE} 0.2079208 1.0000000
##
        {breathes=FALSE}
                                                                  1.3116883
## [4]
                         => {airborne=FALSE} 0.2277228 1.0000000
        {legs=FALSE}
## [5]
        {toothed=TRUE}
                         => {airborne=FALSE} 0.5841584 0.9672131
                                                                   1.2686821
## [6]
        {eggs=FALSE}
                         => {airborne=FALSE} 0.3960396 0.9523810
                                                                   1.2492270
## [7]
        {milk=TRUE}
                         => {airborne=FALSE} 0.3861386 0.9512195
                                                                   1.2477035
## [8]
        {type=mammal}
                         => {airborne=FALSE} 0.3861386 0.9512195
                                                                   1.2477035
## [9]
                         => {airborne=FALSE} 0.4059406 0.9318182
        {catsize=TRUE}
                                                                   1.2222550
## [10] {predator=TRUE}
                         => {airborne=FALSE} 0.4851485 0.8750000
                                                                   1.1477273
                                                                   1.1295094
## [11] {aquatic=TRUE}
                         => {airborne=FALSE} 0.3069307 0.8611111
## [12] {hair=TRUE}
                         => {airborne=FALSE} 0.3663366 0.8604651
                                                                   1.1286620
## [13] {backbone=TRUE}
                         => {airborne=FALSE} 0.6435644 0.7831325
                                                                   1.0272258
                         => {airborne=FALSE} 0.1980198 0.7692308
## [14] {tail=FALSE}
                                                                   1.0089910
## [15] {tail=TRUE}
                         => {airborne=FALSE} 0.5643564 0.7600000
                                                                   0.9968831
                         => {airborne=FALSE} 0.4554455 0.7076923
## [16] {aquatic=FALSE}
                                                                   0.9282717
## [17] {hair=FALSE}
                         => {airborne=FALSE} 0.3960396 0.6896552
                                                                   0.9046126
## [18] {backbone=FALSE} => {airborne=FALSE} 0.1188119 0.6666667
                                                                   0.8744589
                         => {airborne=FALSE} 0.3762376 0.6333333
## [19] {milk=FALSE}
                                                                   0.8307359
                         => {airborne=FALSE} 0.3663366 0.6271186
## [20] {eggs=TRUE}
                                                                   0.8225842
## [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.6222222
                                                                   0.8161616
  [22] {toothed=FALSE} => {airborne=FALSE} 0.1782178 0.4500000
                                                                   0.5902597
                                        rhs
                                                         support
                                                                   confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
  [2] {eggs=TRUE,backbone=TRUE}
                                     => {airborne=TRUE} 0.1584158 0.3809524
## [3] {milk=FALSE,backbone=TRUE}
                                     => {airborne=TRUE} 0.1584158 0.3809524
## [4] {backbone=TRUE, catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift
## [1] 3.060606
## [2] 1.603175
## [3] 1.603175
##
  [4] 1.578125
##
       lhs
                                    rhs
                                                     support
                                                               confidence
## [1] {toothed=FALSE,tail=TRUE} => {airborne=TRUE} 0.1584158 0.6956522
## [2] {eggs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4102564
## [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4000000
                                 => {airborne=TRUE} 0.1584158 0.3809524
## [5] {hair=FALSE,tail=TRUE}
  [6] {legs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1782178 0.3157895
                                 => {airborne=TRUE} 0.1782178 0.3050847
  [7] {fins=FALSE,tail=TRUE}
##
       lift
## [1] 2.927536
## [2] 1.726496
## [3] 1.706081
## [4] 1.683333
## [5] 1.603175
## [6] 1.328947
##
  [7] 1.283898
##
       lhs
                                        rhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
## [2] {eggs=TRUE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5862069
```

```
## [3] {milk=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5666667
## [4] {aquatic=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
  [5] {hair=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1287129 0.5000000
  [6] {aquatic=FALSE,legs=TRUE}
                                     => {airborne=TRUE} 0.1881188 0.3166667
##
       lift.
## [1] 2.649691
## [2] 2.466954
## [3] 2.384722
  [4] 2.104167
##
  [5] 2.104167
  [6] 1.332639
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
## [2] {hair=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1287129 0.5000000
                                    => {airborne=TRUE} 0.1782178 0.5000000
## [3] {hair=FALSE,legs=TRUE}
## [4] {hair=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.4864865
                                   => {airborne=TRUE} 0.1782178 0.4186047
## [5] {hair=FALSE,fins=FALSE}
  [6] {hair=FALSE,tail=TRUE}
                                    => {airborne=TRUE} 0.1584158 0.3809524
  [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
##
##
       lift.
## [1] 2.104167
## [2] 2.104167
## [3] 2.104167
## [4] 2.047297
## [5] 1.761628
## [6] 1.603175
  [7] 1.456731
##
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,predator=FALSE} =>
                                      {airborne=TRUE} 0.1485149 0.5769231
## [2] {milk=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1683168 0.5666667
## [3] {milk=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5641026
## [4] {milk=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5500000
## [5] {milk=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.2178218 0.4680851
                                   => {airborne=TRUE} 0.1584158 0.4000000
## [6] {milk=FALSE,tail=TRUE}
   [7] {milk=FALSE,catsize=FALSE}
                                   => {airborne=TRUE} 0.1881188 0.3958333
  [8] {milk=FALSE,venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
##
  [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
       lift
## [1] 2.427885
##
  [2] 2.384722
  [3] 2.373932
  [4] 2.314583
## [5] 1.969858
## [6] 1.683333
## [7] 1.665799
## [8] 1.618590
##
  [9] 1.603175
##
       lhs
                                     rhs
                                                      support
## [1] {eggs=TRUE,aquatic=FALSE}
                                  => {airborne=TRUE} 0.1683168 0.5862069
  [2] {eggs=TRUE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
## [3] {eggs=TRUE,breathes=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5641026
## [4] {eggs=TRUE,legs=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5500000
## [5] {eggs=TRUE,fins=FALSE}
                                  => {airborne=TRUE} 0.2178218 0.4782609
## [6] {eggs=TRUE,catsize=FALSE}
                                  => {airborne=TRUE} 0.1881188 0.4130435
```

```
## [7] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
## [8] {eggs=TRUE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
  [9] {eggs=TRUE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
       lift.
## [1] 2.466954
## [2] 2.427885
## [3] 2.373932
## [4] 2.314583
## [5] 2.012681
## [6] 1.738225
## [7] 1.726496
## [8] 1.603175
##
  [9] 1.588050
##
       lhs
                                           rhs
                                                           support
## [1] {predator=FALSE,toothed=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [2] {eggs=TRUE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
## [3] {milk=FALSE,predator=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [4] {predator=FALSE, catsize=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [5] {hair=FALSE,predator=FALSE}
                                       => {airborne=TRUE} 0.1089109
## [6] {predator=FALSE,legs=TRUE}
                                        => {airborne=TRUE} 0.1683168
## [7] {predator=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.1683168
## [8] {predator=FALSE,fins=FALSE}
                                       => {airborne=TRUE} 0.1683168
## [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
       confidence lift
## [1] 0.7142857 3.005952
## [2] 0.5769231 2.427885
## [3] 0.5769231
                  2.427885
## [4] 0.5172414
                  2.176724
## [5] 0.5000000
                  2.104167
## [6] 0.4358974
                  1.834402
## [7] 0.4146341
                  1.744919
## [8] 0.4146341
                  1.744919
## [9] 0.3823529
                 1.609069
##
       lhs
                                          rhs
                                                          support
                                                                    confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
## [2] {predator=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1485149 0.7142857
## [3] {toothed=FALSE,tail=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.6956522
## [4] {toothed=FALSE,breathes=TRUE} => {airborne=TRUE} 0.2178218 0.6666667
## [5] {aquatic=FALSE,toothed=FALSE}
                                      => {airborne=TRUE} 0.1683168 0.6296296
## [6] {toothed=FALSE,catsize=FALSE}
                                      => {airborne=TRUE} 0.1881188 0.6129032
## [7] {toothed=FALSE,legs=TRUE}
                                      => {airborne=TRUE} 0.2178218 0.6111111
  [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
       lift
## [1] 3.060606
## [2] 3.005952
## [3] 2.927536
## [4] 2.805556
## [5] 2.649691
## [6] 2.579301
## [7] 2.571759
## [8] 2.337963
## [1] "Número de reglas con consecuente negado"
##
                                           rhs
                                                            support
## [1] {catsize=FALSE,type=bird}
                                        => {airborne=TRUE} 0.1287129
```

```
[2]
        {feathers=TRUE, catsize=FALSE}
                                         => {airborne=TRUE} 0.1287129
                                           {airborne=TRUE} 0.1584158
##
   [3]
        {type=bird}
        {feathers=TRUE}
##
  [4]
                                           {airborne=TRUE} 0.1584158
##
   [5]
        {toothed=FALSE,backbone=TRUE}
                                           {airborne=TRUE} 0.1584158
##
   [6]
        {predator=FALSE, toothed=FALSE}
                                            {airborne=TRUE} 0.1485149
##
   [7]
        {toothed=FALSE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
   [8]
        {toothed=FALSE, breathes=TRUE}
                                           {airborne=TRUE} 0.2178218
##
  [9]
        {aquatic=FALSE, toothed=FALSE}
                                            {airborne=TRUE} 0.1683168
   [10] {toothed=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
   [11] {toothed=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
   [12] {eggs=TRUE,aquatic=FALSE}
                                           {airborne=TRUE} 0.1683168
   [13] {eggs=TRUE,predator=FALSE}
                                           {airborne=TRUE} 0.1485149
   [14] {milk=FALSE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
  [15] {milk=FALSE,aquatic=FALSE}
                                           {airborne=TRUE} 0.1683168
  [16] {eggs=TRUE,breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
   [17] {milk=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
   [18]
       {toothed=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
   [19] {toothed=FALSE}
                                           {airborne=TRUE} 0.2178218
                                           {airborne=TRUE} 0.2178218
   [20] {eggs=TRUE,legs=TRUE}
   [21] {milk=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
##
  [22] {predator=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
  [23] {legs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
  [24] {breathes=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.2079208
       {hair=FALSE, predator=FALSE}
                                            {airborne=TRUE} 0.1089109
   [25]
   [26] {aquatic=FALSE, catsize=FALSE}
                                           {airborne=TRUE} 0.1683168
   [27] {hair=FALSE,aquatic=FALSE}
                                           {airborne=TRUE} 0.1287129
   [28] {hair=FALSE,legs=TRUE}
                                           {airborne=TRUE} 0.1782178
##
##
   [29]
       {hair=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1782178
  [30]
       {eggs=TRUE,fins=FALSE}
                                         => {airborne=TRUE} 0.2178218
  [31] {milk=FALSE,fins=FALSE}
                                         => {airborne=TRUE} 0.2178218
   [32]
       {fins=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.2079208
##
   [33]
       {predator=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1683168
   [34]
       {hair=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.1782178
                                           {airborne=TRUE} 0.1683168
  [35] {predator=FALSE,breathes=TRUE}
   [36] {predator=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1683168
##
   [37]
       {eggs=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.1881188
  [38] {eggs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [39] {tail=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.1485149
  [40] {milk=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [41] {milk=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [42] {milk=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
   [43] {predator=FALSE,domestic=FALSE} =>
                                            {airborne=TRUE} 0.1287129
  [44] {hair=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [45] {eggs=TRUE,backbone=TRUE}
                                           {airborne=TRUE} 0.1584158
##
  [46] {milk=FALSE,backbone=TRUE}
                                         => {airborne=TRUE} 0.1584158
        {venomous=FALSE, catsize=FALSE}
  [47]
                                           {airborne=TRUE} 0.1881188
   [48]
##
       {eggs=TRUE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [49]
       {backbone=TRUE, catsize=FALSE}
                                           {airborne=TRUE} 0.1485149
  [50] {hair=FALSE, venomous=FALSE}
                                           {airborne=TRUE} 0.1782178
   [51] {breathes=TRUE,legs=TRUE}
                                           {airborne=TRUE} 0.2376238
##
   [52]
       {aquatic=FALSE,legs=TRUE}
                                           {airborne=TRUE} 0.1881188
  [53] {legs=TRUE,tail=TRUE}
                                           {airborne=TRUE} 0.1782178
## [54] {breathes=TRUE,fins=FALSE}
                                         => {airborne=TRUE} 0.2376238
## [55] {fins=FALSE,legs=TRUE}
                                           {airborne=TRUE} 0.2376238
```

```
## [56] {fins=FALSE,tail=TRUE}
   [57] {aquatic=FALSE}
   [58] {venomous=FALSE}
##
        confidence lift
##
   [1]
        0.9285714 3.9077381
   [2]
##
        0.9285714
                   3.9077381
        0.8000000
   [3]
                   3.3666667
## [4]
        0.8000000
                   3.3666667
##
  [5]
        0.7272727
                   3.0606061
##
   [6]
        0.7142857
                   3.0059524
  [7]
        0.6956522
                   2.9275362
   [8]
##
        0.6666667
                   2.8055556
##
   [9]
        0.6296296
                   2.6496914
  [10] 0.6129032
                   2.5793011
## [11] 0.6111111
                   2.5717593
## [12] 0.5862069
                   2.4669540
  [13] 0.5769231
                   2.4278846
  [14] 0.5769231
                   2.4278846
                   2.3847222
## [15] 0.5666667
## [16] 0.5641026
                   2.3739316
## [17] 0.5641026
                   2.3739316
## [18] 0.555556
                   2.3379630
## [19] 0.5500000
                   2.3145833
## [20] 0.5500000
                   2.3145833
## [21] 0.5500000
                   2.3145833
  [22] 0.5172414
                   2.1767241
## [23] 0.5121951
                   2.1554878
## [24] 0.5121951
                   2.1554878
## [25] 0.5000000
                   2.1041667
                   2.1041667
## [26] 0.5000000
## [27] 0.5000000
                   2.1041667
  [28] 0.5000000
                   2.1041667
  [29] 0.4864865
                   2.0472973
## [30] 0.4782609
                   2.0126812
   [31] 0.4680851
                   1.9698582
## [32] 0.4375000
                   1.8411458
## [33] 0.4358974
                   1.8344017
## [34] 0.4186047
                   1.7616279
  [35] 0.4146341
                   1.7449187
  [36] 0.4146341
##
                   1.7449187
  [37] 0.4130435
                   1.7382246
  [38] 0.4102564
                   1.7264957
   [39] 0.4054054
                   1.7060811
## [40] 0.4000000
                   1.6833333
## [41] 0.3958333
                   1.6657986
## [42] 0.3846154
                   1.6185897
## [43] 0.3823529
                   1.6090686
## [44] 0.3809524
                   1.6031746
## [45] 0.3809524
                   1.6031746
## [46] 0.3809524
                   1.6031746
## [47] 0.3800000
                   1.5991667
## [48] 0.3773585
                   1.5880503
```

## [49] 0.3750000

## [50] 0.3461538 1.4567308

1.5781250

=> {airborne=TRUE} 0.1782178 => {airborne=TRUE} 0.1881188 => {airborne=TRUE} 0.2178218

```
## [51] 0.3287671
                   1.3835616
   [52] 0.3166667
                   1.3326389
   [53] 0.3157895
                   1.3289474
   [54] 0.3157895
                   1.3289474
##
   [55] 0.3116883
                   1.3116883
   [56] 0.3050847
                   1.2838983
##
   [57] 0.2923077
                   1.2301282
##
   [58] 0.2365591
                   0.9955197
##
        lhs
                                              support
                                                         confidence lift
                             rhs
##
  [1]
        {type=fish}
                          => {airborne=FALSE} 0.1287129 1.0000000 1.3116883
   [2]
        {fins=TRUE}
                          => {airborne=FALSE} 0.1683168 1.0000000
                                                                    1.3116883
   [3]
##
        {breathes=FALSE}
                         => {airborne=FALSE} 0.2079208 1.0000000
                                                                    1.3116883
##
   [4]
        {legs=FALSE}
                          => {airborne=FALSE} 0.2277228 1.0000000
                                                                    1.3116883
        {toothed=TRUE}
##
  [5]
                          => {airborne=FALSE} 0.5841584 0.9672131
                                                                    1.2686821
  [6]
##
        {eggs=FALSE}
                          => {airborne=FALSE} 0.3960396 0.9523810
                                                                    1.2492270
##
   [7]
        {milk=TRUE}
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                    1.2477035
##
  [8]
        {type=mammal}
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                    1.2477035
  [9]
        {catsize=TRUE}
                          => {airborne=FALSE} 0.4059406 0.9318182
                                                                    1.2222550
  [10] {predator=TRUE}
                         => {airborne=FALSE} 0.4851485 0.8750000
                                                                    1.1477273
   [11] {aquatic=TRUE}
                          => {airborne=FALSE} 0.3069307 0.8611111
                                                                    1.1295094
##
  [12] {hair=TRUE}
                          => {airborne=FALSE} 0.3663366 0.8604651
                                                                    1.1286620
                          => {airborne=FALSE} 0.6435644 0.7831325
  [13] {backbone=TRUE}
                                                                    1.0272258
## [14] {tail=FALSE}
                          => {airborne=FALSE} 0.1980198 0.7692308
                                                                    1.0089910
##
  [15] {tail=TRUE}
                          => {airborne=FALSE} 0.5643564 0.7600000
                                                                    0.9968831
  [16] {aquatic=FALSE}
                         => {airborne=FALSE} 0.4554455 0.7076923
                                                                    0.9282717
  [17] {hair=FALSE}
                          => {airborne=FALSE} 0.3960396 0.6896552
                                                                    0.9046126
                         => {airborne=FALSE} 0.1188119 0.6666667
  [18] {backbone=FALSE}
                                                                    0.8744589
##
  [19] {milk=FALSE}
                          => {airborne=FALSE} 0.3762376 0.6333333
                                                                    0.8307359
  [20] {eggs=TRUE}
                          => {airborne=FALSE} 0.3663366 0.6271186
                                                                    0.8225842
  [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.6222222
                                                                    0.8161616
##
   [22] {toothed=FALSE}
                         => {airborne=FALSE} 0.1782178 0.4500000
                                                                    0.5902597
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
  [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
   [2] {eggs=TRUE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
   [3] {milk=FALSE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
   [4] {backbone=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
##
       lift
## [1] 3.060606
   [2] 1.603175
##
  [3] 1.603175
  [4] 1.578125
##
       lhs
                                     rhs
                                                     support
                                                                confidence
## [1] {toothed=FALSE,tail=TRUE} =>
                                    {airborne=TRUE} 0.1584158 0.6956522
                                    {airborne=TRUE} 0.1584158 0.4102564
   [2] {eggs=TRUE,tail=TRUE}
  [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                    {airborne=TRUE} 0.1584158 0.4000000
   [5] {hair=FALSE,tail=TRUE}
                                    {airborne=TRUE} 0.1584158 0.3809524
   [6] {legs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1782178 0.3157895
##
   [7] {fins=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1782178 0.3050847
##
       lift
## [1] 2.927536
## [2] 1.726496
## [3] 1.706081
## [4] 1.683333
```

```
## [5] 1.603175
## [6] 1.328947
## [7] 1.283898
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
                                     => {airborne=TRUE} 0.1683168 0.5862069
## [2] {eggs=TRUE,aquatic=FALSE}
## [3] {milk=FALSE, aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5666667
## [4] {aquatic=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
## [5] {hair=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1287129 0.5000000
##
  [6] {aquatic=FALSE,legs=TRUE}
                                     => {airborne=TRUE} 0.1881188 0.3166667
##
       lift
## [1] 2.649691
## [2] 2.466954
## [3] 2.384722
## [4] 2.104167
## [5] 2.104167
## [6] 1.332639
##
       lhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
## [2] {hair=FALSE,aquatic=FALSE} => {airborne=TRUE} 0.1287129 0.5000000
## [3] {hair=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.5000000
## [4] {hair=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.4864865
## [5] {hair=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.1782178 0.4186047
## [6] {hair=FALSE.tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.3809524
## [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
       lift
## [1] 2.104167
## [2] 2.104167
## [3] 2.104167
## [4] 2.047297
## [5] 1.761628
## [6] 1.603175
## [7] 1.456731
##
                                                                 confidence
       lhs
                                                       support
                                      rhs
## [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
                                  => {airborne=TRUE} 0.1683168 0.5666667
## [2] {milk=FALSE,aquatic=FALSE}
## [3] {milk=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5641026
## [4] {milk=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5500000
## [5] {milk=FALSE,fins=FALSE}
                                    => {airborne=TRUE} 0.2178218 0.4680851
## [6] {milk=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.4000000
## [7] {milk=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1881188 0.3958333
## [8] {milk=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
## [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
       lift
## [1] 2.427885
## [2] 2.384722
## [3] 2.373932
## [4] 2.314583
## [5] 1.969858
## [6] 1.683333
## [7] 1.665799
## [8] 1.618590
## [9] 1.603175
##
       lhs
                                     rhs
                                                      support
                                                                confidence
```

```
## [1] {eggs=TRUE,aquatic=FALSE} => {airborne=TRUE} 0.1683168 0.5862069
## [2] {eggs=TRUE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
## [3] {eggs=TRUE,breathes=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5641026
## [4] {eggs=TRUE,legs=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5500000
## [5] {eggs=TRUE,fins=FALSE}
                                  => {airborne=TRUE} 0.2178218 0.4782609
## [6] {eggs=TRUE,catsize=FALSE}
                                  => {airborne=TRUE} 0.1881188 0.4130435
## [7] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
## [8] {eggs=TRUE,backbone=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
##
   [9] {eggs=TRUE,venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
       lift
## [1] 2.466954
## [2] 2.427885
## [3] 2.373932
## [4] 2.314583
## [5] 2.012681
## [6] 1.738225
  [7] 1.726496
  [8] 1.603175
  [9] 1.588050
##
##
       lhs
                                                           support
## [1] {predator=FALSE,toothed=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [2] {eggs=TRUE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
## [3] {milk=FALSE,predator=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [4] {predator=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [5] {hair=FALSE,predator=FALSE}
                                       => {airborne=TRUE} 0.1089109
## [6] {predator=FALSE,legs=TRUE}
                                        => {airborne=TRUE} 0.1683168
  [7] {predator=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.1683168
  [8] {predator=FALSE,fins=FALSE}
                                       => {airborne=TRUE} 0.1683168
  [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
##
       confidence lift
## [1] 0.7142857
                  3.005952
  [2] 0.5769231
                  2.427885
## [3] 0.5769231
                  2.427885
## [4] 0.5172414
                  2.176724
   [5] 0.5000000
                  2.104167
## [6] 0.4358974
                  1.834402
  [7] 0.4146341
                  1.744919
## [8] 0.4146341
                  1.744919
  [9] 0.3823529
                  1.609069
##
##
       lhs
                                          rhs
                                                          support
                                                                    confidence
## [1] {toothed=FALSE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.7272727
## [2] {predator=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1485149 0.7142857
## [3] {toothed=FALSE,tail=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.6956522
## [4] {toothed=FALSE,breathes=TRUE}
                                      => {airborne=TRUE} 0.2178218 0.6666667
## [5] {aquatic=FALSE,toothed=FALSE}
                                      => {airborne=TRUE} 0.1683168 0.6296296
                                      => {airborne=TRUE} 0.1881188 0.6129032
## [6] {toothed=FALSE,catsize=FALSE}
  [7] {toothed=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6111111
  [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
       lift.
## [1] 3.060606
## [2] 3.005952
## [3] 2.927536
## [4] 2.805556
## [5] 2.649691
```

```
[6] 2.579301
   [7] 2.571759
   [8] 2.337963
       "Número de reglas con consecuente negado"
##
##
                                                         support
                                                                   confidence
##
  [1]
        {milk=TRUE, toothed=TRUE}
                                           {eggs=FALSE} 0.3960396 1.0000000
##
   [2]
        {milk=TRUE, aquatic=FALSE}
                                         => {eggs=FALSE} 0.3465347 1.0000000
##
   [3]
        {toothed=TRUE, type=mammal}
                                           {eggs=FALSE} 0.3960396 1.0000000
##
   [4]
        {aquatic=FALSE, type=mammal}
                                            {eggs=FALSE} 0.3465347 1.0000000
##
   [5]
        {hair=TRUE, toothed=TRUE}
                                           {eggs=FALSE} 0.3762376 1.0000000
##
   [6]
        {milk=TRUE}
                                           {eggs=FALSE} 0.3960396 0.9756098
   [7]
##
        {type=mammal}
                                           {eggs=FALSE} 0.3960396 0.9756098
##
   [8]
        {hair=TRUE,backbone=TRUE}
                                           {eggs=FALSE} 0.3762376 0.9743590
##
   [9]
        {hair=TRUE,airborne=FALSE}
                                           {eggs=FALSE} 0.3564356 0.9729730
                                           {eggs=FALSE} 0.3168317 0.9696970
  [10]
       {hair=TRUE,tail=TRUE}
   [11]
        {hair=TRUE,catsize=TRUE}
                                            {eggs=FALSE} 0.2871287 0.9666667
       {hair=TRUE, predator=TRUE}
                                           {eggs=FALSE} 0.1881188 0.9500000
   [12]
   [13] {aquatic=FALSE,toothed=TRUE}
                                            {eggs=FALSE} 0.3465347 0.9210526
   [14] {toothed=TRUE,catsize=TRUE}
                                           {eggs=FALSE} 0.3069307 0.8857143
   [15] {toothed=TRUE,legs=TRUE}
                                           {eggs=FALSE} 0.3663366 0.8809524
##
  [16] {toothed=TRUE,breathes=TRUE}
                                           {eggs=FALSE} 0.3960396 0.8510638
  [17] {toothed=TRUE,fins=FALSE}
                                           {eggs=FALSE} 0.3663366 0.8409091
  [18] {aquatic=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.2574257 0.8387097
   [19] {feathers=FALSE.catsize=TRUE}
                                           {eggs=FALSE} 0.3069307 0.8157895
   [20] {breathes=TRUE, catsize=TRUE}
                                           {eggs=FALSE} 0.3069307 0.7948718
   [21] {predator=FALSE,toothed=TRUE}
                                           {eggs=FALSE} 0.1881188 0.7916667
   [22] {legs=TRUE,catsize=TRUE}
                                           {eggs=FALSE} 0.2772277 0.7567568
   [23] {airborne=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.7560976
  [24] {predator=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.1188119 0.7500000
  [25] {fins=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.2673267 0.7500000
   [26] {airborne=FALSE,aquatic=FALSE}
                                           {eggs=FALSE} 0.3366337 0.7391304
   [27] {feathers=FALSE,aquatic=FALSE}
                                           {eggs=FALSE} 0.3564356 0.7058824
   [28] {toothed=TRUE, venomous=FALSE}
                                           {eggs=FALSE} 0.3960396 0.7017544
   [29] {airborne=FALSE,breathes=TRUE}
                                         => {eggs=FALSE} 0.3861386 0.6964286
   [30] {feathers=FALSE,breathes=TRUE}
                                           {eggs=FALSE} 0.4059406 0.6833333
   [31] {toothed=TRUE,tail=TRUE}
##
                                           {eggs=FALSE} 0.3465347 0.6730769
  [32] {airborne=FALSE,legs=TRUE}
                                           {eggs=FALSE} 0.3564356 0.6666667
  [33] {aquatic=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.6603774
   [34] {feathers=FALSE,legs=TRUE}
                                           {eggs=FALSE} 0.3762376 0.6551724
   [35] {feathers=FALSE,tail=TRUE}
                                           {eggs=FALSE} 0.3564356 0.6545455
   [36] {feathers=FALSE,backbone=TRUE}
                                           {eggs=FALSE} 0.4059406 0.6507937
   [37] {aquatic=FALSE,tail=TRUE}
                                           {eggs=FALSE} 0.3069307 0.6326531
   [38] {aquatic=FALSE, predator=TRUE}
                                           {eggs=FALSE} 0.1683168 0.6296296
   [39] {airborne=FALSE,predator=FALSE}
                                           {eggs=FALSE} 0.1683168 0.6071429
  [40] {airborne=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.3861386 0.6000000
  [41] {airborne=FALSE,fins=FALSE}
                                           {eggs=FALSE} 0.3564356 0.6000000
   [42] {airborne=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3366337 0.5964912
  [43] {feathers=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3762376 0.5937500
  [44] {backbone=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.5797101
   [45] {legs=TRUE,tail=TRUE}
                                           {eggs=FALSE} 0.3267327 0.5789474
  [46] {backbone=TRUE,legs=TRUE}
                                           {eggs=FALSE} 0.3663366 0.5781250
##
  [47] {aquatic=FALSE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3465347 0.5737705
## [48] {breathes=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.5737705
## [49] {predator=TRUE, breathes=TRUE}
                                           {eggs=FALSE} 0.2178218 0.5641026
```

```
## [50] {backbone=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.5606061
  [51] {fins=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3267327 0.5593220
  [52] {feathers=FALSE,predator=FALSE} => {eggs=FALSE} 0.1881188 0.5588235
  [53] {feathers=FALSE,airborne=FALSE} => {eggs=FALSE} 0.3960396 0.5479452
   [54] {feathers=FALSE,venomous=FALSE} => {eggs=FALSE} 0.3960396 0.5479452
  [55] {airborne=FALSE, venomous=FALSE} => {eggs=FALSE} 0.3762376 0.5352113
  [56] {breathes=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5333333
  [57] {predator=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.5277778
   [58] {predator=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.1683168 0.5151515
   [59] {backbone=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5063291
   [60] {venomous=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.5000000
   [61] {backbone=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.4939759
   [62]
       {venomous=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.4675325
##
        lift
## [1]
        2.404762
##
  [2]
        2.404762
##
  [3]
       2.404762
  [4]
        2.404762
  [5]
##
       2.404762
   [6]
        2.346109
##
  [7]
       2.346109
  [8]
       2.343101
## [9]
       2.339768
  [10] 2.331890
## [11] 2.324603
## [12] 2.284524
## [13] 2.214912
## [14] 2.129932
## [15] 2.118481
## [16] 2.046606
## [17] 2.022186
  [18] 2.016897
  [19] 1.961779
## [20] 1.911477
  [21] 1.903770
## [22] 1.819820
## [23] 1.818235
## [24] 1.803571
  [25] 1.803571
  [26] 1.777433
  [27] 1.697479
## [28] 1.687552
  [29] 1.674745
  [30] 1.643254
## [31] 1.618590
## [32] 1.603175
  [33] 1.588050
  [34] 1.575534
  [35] 1.574026
  [36] 1.565004
## [37] 1.521380
## [38] 1.514109
## [39] 1.460034
## [40] 1.442857
```

```
## [41] 1.442857
  [42] 1.434419
  [43] 1.427827
  [44] 1.394065
   [45] 1.392231
  [46] 1.390253
##
  [47] 1.379781
## [48] 1.379781
   [49] 1.356532
  [50] 1.348124
  [51] 1.345036
   [52] 1.343838
##
   [53] 1.317678
  [54] 1.317678
  [55] 1.287056
   [56] 1.282540
##
   [57] 1.269180
   [58] 1.238817
   [59] 1.217601
   [60] 1.202381
##
   [61] 1.187894
   [62] 1.124304
##
##
        lhs
                                                    confidence lift
                             rhs
                                         support
##
  Г17
        {type=fish}
                          => {eggs=TRUE} 0.1287129 1.0000000
                                                               1.7118644
##
   [2]
        {type=bird}
                          => {eggs=TRUE} 0.1980198 1.0000000
                                                               1.7118644
  [3]
        {feathers=TRUE}
                          => {eggs=TRUE} 0.1980198 1.0000000
                                                               1.7118644
   [4]
##
        {toothed=FALSE}
                          => {eggs=TRUE} 0.3861386 0.9750000
                                                               1.6690678
##
   [5]
        {breathes=FALSE}
                         => {eggs=TRUE} 0.1980198 0.9523810
                                                               1.6303471
##
  [6]
        {hair=FALSE}
                          => {eggs=TRUE} 0.5346535 0.9310345
                                                               1.5938048
                                                               1.5692090
  [7]
                          => {eggs=TRUE} 0.2178218 0.9166667
        {airborne=TRUE}
##
  [8]
        {aquatic=TRUE}
                          => {eggs=TRUE} 0.2970297 0.8333333
                                                               1.4265537
##
   [9]
        {legs=FALSE}
                          => {eggs=TRUE} 0.1881188 0.8260870
                                                               1.4141489
   [10] {tail=FALSE}
                          => {eggs=TRUE} 0.1980198 0.7692308
                                                               1.3168188
   [11] {fins=TRUE}
                          => {eggs=TRUE} 0.1287129 0.7647059
                                                               1.3090728
   [12] {predator=TRUE}
                          => {eggs=TRUE} 0.3267327 0.5892857
                                                               1.0087772
##
   [13] {catsize=TRUE}
                          => {eggs=TRUE} 0.1287129 0.2954545
                                                               0.5057781
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
  [1] {hair=TRUE,predator=TRUE}
                                      => {eggs=FALSE} 0.1881188 0.9500000
##
   [2] {aquatic=FALSE,predator=TRUE} => {eggs=FALSE} 0.1683168 0.6296296
   [3] {predator=TRUE,breathes=TRUE} => {eggs=FALSE} 0.2178218 0.5641026
##
       lift
##
   [1] 2.284524
##
##
   [2] 1.514109
##
   [3] 1.356532
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
  [1] {hair=TRUE,catsize=TRUE}
##
                                      => {eggs=FALSE} 0.2871287 0.9666667
   [2] {toothed=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.8857143
   [3] {aquatic=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2574257 0.8387097
   [4] {feathers=FALSE,catsize=TRUE} => {eggs=FALSE} 0.3069307 0.8157895
   [5] {breathes=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.7948718
##
   [6] {legs=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2772277 0.7567568
  [7] {airborne=FALSE,catsize=TRUE} => {eggs=FALSE} 0.3069307 0.7560976
## [8] {predator=FALSE,catsize=TRUE} => {eggs=FALSE} 0.1188119 0.7500000
## [9] {fins=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2673267 0.7500000
```

```
##
       lift
  [1] 2.324603
##
   [2] 2.129932
   [3] 2.016897
##
   [4] 1.961779
##
   [5] 1.911477
   [6] 1.819820
##
   [7] 1.818235
##
   [8] 1.803571
   [9] 1.803571
       "Número de reglas con consecuente negado"
##
                                                         support
                                                                   confidence
##
   [1]
                                            {hair=TRUE} 0.1881188 1.0000000
        {milk=TRUE, predator=FALSE}
        {milk=TRUE, aquatic=FALSE}
##
   [2]
                                            {hair=TRUE} 0.3465347 1.0000000
   [3]
                                            {hair=TRUE} 0.3762376 1.0000000
##
        {milk=TRUE,legs=TRUE}
##
   [4]
        {milk=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.3663366 1.0000000
##
   [5]
        {predator=FALSE, type=mammal}
                                            {hair=TRUE} 0.1881188 1.0000000
   [6]
        {aquatic=FALSE, type=mammal}
                                            {hair=TRUE} 0.3465347 1.0000000
##
   [7]
        {legs=TRUE, type=mammal}
                                            {hair=TRUE} 0.3762376 1.0000000
##
   [8]
        {fins=FALSE, type=mammal}
                                            {hair=TRUE} 0.3663366 1.0000000
##
   [9]
        {eggs=FALSE,predator=FALSE}
                                            {hair=TRUE} 0.1881188 1.0000000
                                             {hair=TRUE} 0.3663366 0.9736842
  [10] {eggs=FALSE,legs=TRUE}
   [11] {eggs=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3465347 0.9722222
##
##
   [12] {milk=TRUE}
                                            {hair=TRUE} 0.3861386 0.9512195
##
   [13] {type=mammal}
                                            {hair=TRUE} 0.3861386 0.9512195
   [14] {eggs=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.9500000
   [15] {eggs=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3564356 0.9473684
   [16] {eggs=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.9268293
   [17] {aquatic=FALSE,toothed=TRUE}
                                            {hair=TRUE} 0.3465347 0.9210526
                                            {hair=TRUE} 0.3762376 0.9047619
  [18] {eggs=FALSE}
   [19]
       {toothed=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3663366 0.8809524
   [20]
       {aquatic=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2574257 0.8387097
   [21] {toothed=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2871287 0.8285714
   [22] {toothed=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.3564356 0.8181818
        {toothed=TRUE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.8085106
##
   [24] {predator=FALSE,toothed=TRUE}
                                            {hair=TRUE} 0.1881188 0.7916667
   [25] {feathers=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2970297 0.7894737
   [26] {legs=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2871287 0.7837838
   [27] {fins=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2772277 0.7777778
   [28] {breathes=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2970297 0.7692308
   [29] {feathers=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3861386 0.7647059
   [30] {predator=FALSE, catsize=TRUE}
                                            {hair=TRUE} 0.1188119 0.7500000
   [31] {feathers=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.7241379
   [32] {airborne=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3267327 0.7173913
  [33] {feathers=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.4257426 0.7166667
   [34] {feathers=FALSE,predator=FALSE}
                                         =>
                                            {hair=TRUE} 0.2277228 0.6764706
   [35]
       {toothed=TRUE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.6666667
   [36] {airborne=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3564356 0.6666667
   [37]
       {airborne=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3663366 0.6607143
        {aquatic=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3465347 0.6603774
   [39]
        {aquatic=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3861386 0.6500000
##
  [40] {feathers=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.4059406 0.6406250
  [41] {toothed=TRUE}
                                            {hair=TRUE} 0.3762376 0.6229508
## [42] {feathers=FALSE,backbone=TRUE}
                                         =>
                                            {hair=TRUE} 0.3861386 0.6190476
```

```
## [43] {aquatic=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.2970297 0.6122449
  [44] {aquatic=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.6093750
  [45] {airborne=FALSE, predator=FALSE} =>
                                            {hair=TRUE} 0.1683168 0.6071429
                                            {hair=TRUE} 0.3663366 0.6065574
  [46] {aquatic=FALSE, venomous=FALSE}
  [47] {feathers=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.6000000
  [48] {backbone=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3762376 0.5937500
##
  [49] {predator=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.2277228 0.5897436
  [50] {airborne=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3465347 0.5833333
   [51] {legs=TRUE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.5789474
   [52] {breathes=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.5753425
   [53] {airborne=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3663366 0.5692308
   [54] {backbone=TRUE, breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.5652174
   [55]
       {feathers=FALSE, venomous=FALSE} =>
                                            {hair=TRUE} 0.4059406 0.5616438
       {predator=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.2277228 0.5609756
                                         => {hair=TRUE} 0.2277228 0.5609756
  [57]
       {predator=FALSE,fins=FALSE}
   [58]
        {backbone=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.3663366 0.5606061
   [59]
       {breathes=TRUE, venomous=FALSE}
                                         => {hair=TRUE} 0.4059406 0.5466667
   [60] {airborne=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.3069307 0.5438596
   [61] {fins=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.3168317 0.5423729
   [62] {breathes=TRUE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.5409836
##
  [63] {venomous=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3960396 0.5405405
  [64] {breathes=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.4059406 0.5394737
  [65] {predator=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.1881188 0.5277778
       {airborne=FALSE, venomous=FALSE}
##
   [66]
                                            {hair=TRUE} 0.3663366 0.5211268
   [67]
       {predator=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.1683168 0.5151515
   [68] {predator=FALSE}
                                            {hair=TRUE} 0.2277228 0.5111111
   [69] {venomous=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.3861386 0.5064935
   [70] {backbone=TRUE, venomous=FALSE}
                                         => {hair=TRUE} 0.3861386 0.4936709
  [71] {backbone=TRUE}
                                         => {hair=TRUE} 0.3861386 0.4698795
  [72] {venomous=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.3267327 0.4647887
                                         => {hair=TRUE} 0.3366337 0.3863636
##
   [73] {domestic=FALSE}
##
        lift
##
  [1]
        2.3488372
   [2]
##
        2.3488372
   [3]
        2.3488372
##
   [4]
##
        2.3488372
  [5]
        2.3488372
  [6]
        2.3488372
##
   [7]
##
        2.3488372
##
  [8]
        2.3488372
  [9]
        2.3488372
   [10] 2.2870257
   [11] 2.2835917
##
  [12] 2.2342598
## [13] 2.2342598
## [14] 2.2313953
  [15] 2.2252142
  [16] 2.1769711
  [17] 2.1634027
  [18] 2.1251384
## [19] 2.0692137
## [20] 1.9699925
## [21] 1.9461794
## [22] 1.9217759
```

```
## [23] 1.8990599
## [24] 1.8594961
## [25] 1.8543452
## [26] 1.8409805
## [27] 1.8268734
## [28] 1.8067979
## [29] 1.7961696
## [30] 1.7616279
## [31] 1.7008821
## [32] 1.6850354
## [33] 1.6833333
## [34] 1.5889193
## [35] 1.5658915
## [36] 1.5658915
## [37] 1.5519103
## [38] 1.5511189
## [39] 1.5267442
## [40] 1.5047238
## [41] 1.4632101
## [42] 1.4540421
## [43] 1.4380636
## [44] 1.4313227
## [45] 1.4260797
## [46] 1.4247045
## [47] 1.4093023
## [48] 1.3946221
## [49] 1.3852117
## [50] 1.3701550
## [51] 1.3598531
## [52] 1.3513858
## [53] 1.3370304
## [54] 1.3276036
## [55] 1.3192099
## [56] 1.3176404
## [57] 1.3176404
## [58] 1.3167724
## [59] 1.2840310
## [60] 1.2774378
## [61] 1.2739456
## [62] 1.2706824
## [63] 1.2696417
## [64] 1.2671359
## [65] 1.2396641
  [66] 1.2240419
## [67] 1.2100070
## [68] 1.2005168
## [69] 1.1896708
## [70] 1.1595525
## [71] 1.1036705
## [72] 1.0917131
##
  [73] 0.9075053
##
        lhs
                                          support
                                                    confidence lift
## [1]
        {type=fish}
                         => {hair=FALSE} 0.1287129 1.0000000 1.7413793
        {breathes=FALSE} => {hair=FALSE} 0.2079208 1.0000000 1.7413793
## [2]
```

```
[3]
        {legs=FALSE}
                          => {hair=FALSE} 0.2178218 0.9565217
##
                                                                1.6656672
##
   [4]
                          => {hair=FALSE} 0.3168317 0.8888889
        {aquatic=TRUE}
                                                                1.5478927
                          => {hair=FALSE} 0.3465347 0.8750000
##
  [5]
        {toothed=FALSE}
                                                                1.5237069
  [6]
        {backbone=FALSE} => {hair=FALSE} 0.1386139 0.7777778
##
                                                                1.3544061
##
   [7]
        {catsize=FALSE}
                          => {hair=FALSE} 0.4356436 0.7719298
                                                                1.3442226
##
   [8]
        {airborne=TRUE}
                          => {hair=FALSE} 0.1782178 0.7500000
                                                                1.3060345
##
  [9]
        {predator=TRUE}
                          => {hair=FALSE} 0.3564356 0.6428571
                                                                1.1194581
##
  [10]
       {tail=FALSE}
                          => {hair=FALSE} 0.1584158 0.6153846
                                                                1.0716180
##
  [11] {backbone=TRUE}
                          => {hair=FALSE} 0.4356436 0.5301205
                                                                0.9231408
   [12] {breathes=TRUE}
                          => {hair=FALSE} 0.3663366 0.4625000
                                                                0.8053879
  [13] {legs=TRUE}
                          => {hair=FALSE} 0.3564356 0.4615385
                                                                0.8037135
                         => {hair=FALSE} 0.2574257 0.4000000
##
   [14] {aquatic=FALSE}
                                                                0.6965517
##
       lhs
                                          rhs
                                                                 confidence
                                                       support
##
  [1] {aquatic=FALSE,backbone=TRUE} => {hair=TRUE} 0.3465347 0.6603774
   [2] {feathers=FALSE,backbone=TRUE} => {hair=TRUE} 0.3861386 0.6190476
   [3] {backbone=TRUE,legs=TRUE}
                                       => {hair=TRUE} 0.3762376 0.5937500
  [4] {airborne=FALSE,backbone=TRUE} => {hair=TRUE} 0.3663366 0.5692308
  [5] {backbone=TRUE,breathes=TRUE} => {hair=TRUE} 0.3861386 0.5652174
  [6] {backbone=TRUE,fins=FALSE}
                                       => {hair=TRUE} 0.3663366 0.5606061
   [7] {predator=FALSE,backbone=TRUE} => {hair=TRUE} 0.1881188 0.5277778
   [8] {backbone=TRUE,venomous=FALSE} => {hair=TRUE} 0.3861386 0.4936709
##
##
       lift.
## [1] 1.551119
   [2] 1.454042
##
  [3] 1.394622
##
  [4] 1.337030
##
   [5] 1.327604
##
   [6] 1.316772
##
   [7] 1.239664
##
  [8] 1.159553
##
        lhs
                                                        support
                                                                  confidence
##
  [1]
        {eggs=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3762376 0.9268293
##
   [2]
        {toothed=TRUE,breathes=TRUE}
                                        => {hair=TRUE} 0.3762376 0.8085106
  [3]
##
        {breathes=TRUE,catsize=TRUE}
                                        => {hair=TRUE} 0.2970297 0.7692308
   [4]
        {feathers=FALSE,breathes=TRUE} => {hair=TRUE} 0.4257426 0.7166667
##
##
   [5]
        {airborne=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3663366 0.6607143
   [6]
        {aquatic=FALSE, breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6093750
  [7]
        {breathes=TRUE,legs=TRUE}
                                        => {hair=TRUE} 0.4158416 0.5753425
##
   [8]
        {backbone=TRUE,breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.5652174
##
        {predator=FALSE,breathes=TRUE} => {hair=TRUE} 0.2277228 0.5609756
##
   [9]
  [10] {breathes=TRUE, venomous=FALSE} => {hair=TRUE} 0.4059406 0.5466667
   [11] {breathes=TRUE,tail=TRUE}
                                        => {hair=TRUE} 0.3267327 0.5409836
##
   Γ12]
       {breathes=TRUE,fins=FALSE}
                                        => {hair=TRUE} 0.4059406 0.5394737
##
        lift
## [1]
        2.176971
  [2]
##
        1.899060
##
   [3]
        1.806798
##
   [4]
        1.683333
##
   [5]
        1.551910
##
   [6]
        1.431323
##
   [7]
        1.351386
## [8]
        1.327604
## [9]
        1.317640
## [10] 1.284031
```

```
## [11] 1.270682
   [12] 1.267136
##
##
        lhs
                                                    support
                                                               confidence
##
  [1]
                                       {hair=TRUE} 0.3762376 1.0000000
        {milk=TRUE,legs=TRUE}
##
   [2]
        {legs=TRUE, type=mammal}
                                     => {hair=TRUE} 0.3762376 1.0000000
   [3]
        {eggs=FALSE,legs=TRUE}
##
                                     => {hair=TRUE} 0.3663366 0.9736842
   [4]
        {toothed=TRUE,legs=TRUE}
##
                                       {hair=TRUE} 0.3663366 0.8809524
##
   [5]
        {legs=TRUE,catsize=TRUE}
                                     =>
                                       {hair=TRUE} 0.2871287 0.7837838
##
   [6]
        {feathers=FALSE,legs=TRUE} =>
                                        {hair=TRUE} 0.4158416 0.7241379
   [7]
##
        {airborne=FALSE,legs=TRUE} => {hair=TRUE} 0.3564356 0.6666667
   [8]
        {aquatic=FALSE,legs=TRUE}
                                    => {hair=TRUE} 0.3861386 0.6500000
   [9]
        {backbone=TRUE,legs=TRUE}
##
                                    => {hair=TRUE} 0.3762376 0.5937500
##
   [10] {predator=FALSE,legs=TRUE} => {hair=TRUE} 0.2277228 0.5897436
   [11] {legs=TRUE,tail=TRUE}
                                    => {hair=TRUE} 0.3267327 0.5789474
   [12] {breathes=TRUE,legs=TRUE} => {hair=TRUE} 0.4158416 0.5753425
   [13] {venomous=FALSE,legs=TRUE} => {hair=TRUE} 0.3960396 0.5405405
##
        lift
##
   [1]
        2.348837
   [2]
        2.348837
##
##
   [3]
        2.287026
##
   [4]
        2.069214
   [5]
        1.840981
##
   [6]
##
        1.700882
   [7]
##
        1.565891
   [8]
##
        1.526744
   [9]
        1.394622
   [10]
##
       1.385212
##
   [11] 1.359853
##
   [12] 1.351386
##
   [13] 1.269642
##
        lhs
                                                        support
                                                                   confidence
##
   [1]
        {milk=TRUE,aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 1.0000000
##
   [2]
        {aquatic=FALSE, type=mammal}
                                         => {hair=TRUE} 0.3465347 1.0000000
   [3]
##
        {eggs=FALSE,aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 0.9722222
   [4]
        {aquatic=FALSE,toothed=TRUE}
                                            {hair=TRUE} 0.3465347 0.9210526
##
   [5]
                                         => {hair=TRUE} 0.2574257 0.8387097
##
        {aquatic=FALSE, catsize=TRUE}
   [6]
        {feathers=FALSE,aquatic=FALSE} => {hair=TRUE} 0.3861386 0.7647059
   [7]
        {airborne=FALSE,aquatic=FALSE} => {hair=TRUE} 0.3267327 0.7173913
##
   [8]
        {aquatic=FALSE,backbone=TRUE}
                                         => {hair=TRUE} 0.3465347 0.6603774
##
        {aquatic=FALSE,legs=TRUE}
                                         => {hair=TRUE} 0.3861386 0.6500000
##
   [9]
   [10] {aquatic=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.2970297 0.6122449
   [11] {aquatic=FALSE,breathes=TRUE} => {hair=TRUE} 0.3861386 0.6093750
       {aquatic=FALSE, venomous=FALSE} => {hair=TRUE} 0.3663366 0.6065574
##
##
        lift
  [1]
##
        2.348837
   [2]
        2.348837
##
##
   [3]
        2.283592
   [4]
##
        2.163403
##
   [5]
        1.969992
##
   [6]
        1.796170
   [7]
##
        1.685035
##
  [8]
        1.551119
## [9]
        1.526744
## [10] 1.438064
```

```
[11] 1.431323
   [12] 1.424705
   [1] "Número de reglas con consecuente negado"
##
                                           rhs
                                                         support
                                                                   confidence
##
   [1]
        {type=fish}
                                           {legs=FALSE} 0.1287129 1.0000000
##
   [2]
                                           {legs=FALSE} 0.1485149 1.0000000
        {hair=FALSE,fins=TRUE}
##
   [3]
        {eggs=TRUE,fins=TRUE}
                                           {legs=FALSE} 0.1287129 1.0000000
##
  [4]
        {milk=FALSE,fins=TRUE}
                                           {legs=FALSE} 0.1287129 1.0000000
##
   [5]
        {toothed=TRUE, breathes=FALSE}
                                           {legs=FALSE} 0.1386139 1.0000000
##
   [6]
        {breathes=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1386139 1.0000000
   [7]
        {backbone=TRUE, breathes=FALSE}
                                           {legs=FALSE} 0.1386139 1.0000000
##
   [8]
        {fins=TRUE}
                                           {legs=FALSE} 0.1584158 0.9411765
        {hair=FALSE,toothed=TRUE}
##
   [9]
                                        => {legs=FALSE} 0.1782178 0.7826087
##
  [10]
       {breathes=FALSE}
                                           {legs=FALSE} 0.1584158 0.7619048
                                           {legs=FALSE} 0.1584158 0.7619048
  [11]
       {milk=FALSE,toothed=TRUE}
        {eggs=TRUE,toothed=TRUE}
                                           {legs=FALSE} 0.1485149 0.7500000
   [12]
       {aquatic=TRUE, toothed=TRUE}
                                         => {legs=FALSE} 0.1683168 0.7391304
  [13]
  [14] {aquatic=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1584158 0.6153846
  [15] {feathers=FALSE, aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.6000000
  [16] {airborne=FALSE,aquatic=TRUE}
                                           {legs=FALSE} 0.1782178 0.5806452
##
  [17] {hair=FALSE,feathers=FALSE}
                                        => {legs=FALSE} 0.2178218 0.5789474
  [18] {hair=FALSE,airborne=FALSE}
                                           {legs=FALSE} 0.2178218 0.5500000
  [19] {hair=FALSE,aquatic=TRUE}
                                           {legs=FALSE} 0.1683168 0.5312500
##
  [20] {milk=FALSE,airborne=FALSE}
                                           {legs=FALSE} 0.1980198 0.5263158
  [21] {eggs=TRUE,airborne=FALSE}
                                           {legs=FALSE} 0.1881188 0.5135135
  [22] {feathers=FALSE,milk=FALSE}
                                           {legs=FALSE} 0.1980198 0.5000000
  [23] {feathers=FALSE,eggs=TRUE}
                                           {legs=FALSE} 0.1881188 0.4871795
  [24] {toothed=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.4615385
  [25] {hair=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1584158 0.4444444
                                           {legs=FALSE} 0.1584158 0.4444444
## [26] {airborne=FALSE, catsize=FALSE}
  [27]
       {hair=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1782178 0.4285714
  [28]
       {milk=FALSE,predator=TRUE}
                                        => {legs=FALSE} 0.1386139 0.4117647
       {hair=FALSE,backbone=TRUE}
                                           {legs=FALSE} 0.1782178 0.4090909
  [29]
  [30] {predator=TRUE,toothed=TRUE}
                                           {legs=FALSE} 0.1485149 0.4054054
   [31] {milk=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1584158 0.4000000
##
  [32] {eggs=TRUE,predator=TRUE}
                                           {legs=FALSE} 0.1287129 0.3939394
  [33] {hair=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.2079208 0.3888889
  [34] {eggs=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1485149 0.3846154
  [35] {milk=FALSE,backbone=TRUE}
##
                                           {legs=FALSE} 0.1584158 0.3809524
  [36] {feathers=FALSE,catsize=FALSE}
                                           {legs=FALSE} 0.1584158 0.3720930
##
  [37] {feathers=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3617021
   [38] {eggs=TRUE,backbone=TRUE}
                                           {legs=FALSE} 0.1485149 0.3571429
  [39] {airborne=FALSE,predator=TRUE}
                                        => {legs=FALSE} 0.1683168 0.3469388
  [40] {toothed=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3461538
## [41] {milk=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.1881188 0.3454545
  [42] {predator=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1386139 0.3333333
  [43] {eggs=TRUE,domestic=FALSE}
                                        => {legs=FALSE} 0.1782178 0.3333333
  [44] {feathers=FALSE,tail=TRUE}
                                        => {legs=FALSE} 0.1782178 0.3272727
  [45] {tail=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3243243
   [46] {airborne=FALSE,domestic=FALSE}
                                        => {legs=FALSE} 0.2178218 0.3235294
  [47] {airborne=FALSE,toothed=TRUE}
                                        => {legs=FALSE} 0.1881188 0.3220339
## [48] {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
## [49] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
## [50] {feathers=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3098592
```

```
## [51] {predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3035714
  [52] {feathers=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3015873
  [53] {backbone=TRUE, catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
## [54] {domestic=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1485149 0.3000000
   [55] {tail=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1683168 0.2615385
   [56] {backbone=TRUE,domestic=FALSE}
                                        => {legs=FALSE} 0.1782178 0.2535211
##
        lift
## [1]
        4.391304
##
  [2]
        4.391304
## [3]
        4.391304
## [4]
        4.391304
## [5]
        4.391304
##
  [6]
        4.391304
## [7]
        4.391304
## [8]
        4.132992
## [9]
        3.436673
## [10] 3.345756
## [11] 3.345756
## [12] 3.293478
## [13] 3.245747
## [14] 2.702341
## [15] 2.634783
## [16] 2.549790
## [17] 2.542334
## [18] 2.415217
## [19] 2.332880
## [20] 2.311213
## [21] 2.254994
## [22] 2.195652
## [23] 2.139353
## [24] 2.026756
## [25] 1.951691
## [26] 1.951691
## [27] 1.881988
## [28] 1.808184
## [29] 1.796443
## [30] 1.780259
## [31] 1.756522
## [32] 1.729908
## [33] 1.707729
## [34] 1.688963
## [35] 1.672878
## [36] 1.633974
## [37] 1.588344
## [38] 1.568323
## [39] 1.523514
## [40] 1.520067
## [41] 1.516996
## [42] 1.463768
## [43] 1.463768
## [44] 1.437154
## [45] 1.424207
## [46] 1.420716
## [47] 1.414149
```

```
## [48] 1.386728
   [49] 1.383562
   [50] 1.360686
   [51] 1.333075
##
   [52] 1.324362
   [53] 1.317391
##
   [54] 1.317391
##
   [55] 1.148495
##
   [56] 1.113288
##
        lhs
                             rhs
                                          support
                                                    confidence lift
##
   [1]
        {type=bird}
                          => {legs=TRUE} 0.1980198 1.0000000
                                                                1.2948718
   [2]
##
        {feathers=TRUE}
                          => {legs=TRUE} 0.1980198 1.0000000
                                                                1.2948718
##
   [3]
        {airborne=TRUE}
                          => {legs=TRUE} 0.2376238 1.0000000
                                                                1.2948718
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
##
   [4]
                                                                1.2647585
   [5]
                                                                1.2001251
##
        {milk=TRUE}
                          => {legs=TRUE} 0.3762376 0.9268293
##
   [6]
        {type=mammal}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
##
   [7]
        {domestic=TRUE}
                          => {legs=TRUE} 0.1188119 0.9230769
                                                                1.1952663
   [8]
                          => {legs=TRUE} 0.5940594 0.9230769
        {aquatic=FALSE}
                                                                1.1952663
##
   [9]
                          => {legs=TRUE} 0.3762376 0.9047619
        {eggs=FALSE}
                                                                1.1715507
   [10] {toothed=FALSE}
                          => {legs=TRUE} 0.3564356 0.9000000
                                                                1.1653846
##
   [11] {predator=FALSE}
                          => {legs=TRUE} 0.3861386 0.8666667
                                                                1.122222
                          => {legs=TRUE} 0.3663366 0.8409091
  [12] {catsize=TRUE}
                                                                1.0888695
   [13] {tail=FALSE}
                          => {legs=TRUE} 0.2079208 0.8076923
                                                                1.0458580
   [14] {backbone=FALSE} => {legs=TRUE} 0.1386139 0.7777778
                                                                1.0071225
   [15] {tail=TRUE}
                          => {legs=TRUE} 0.5643564 0.7600000
                                                                0.9841026
   [16] {catsize=FALSE}
                          => {legs=TRUE} 0.4059406 0.7192982
                                                                0.9313990
   [17] {airborne=FALSE} => {legs=TRUE} 0.5346535 0.7012987
                                                                0.9080919
##
   [18] {toothed=TRUE}
                          => {legs=TRUE} 0.4158416 0.6885246
                                                                0.8915511
                          => {legs=TRUE} 0.3960396 0.6779661
   [19] {eggs=TRUE}
                                                                0.8778792
                                                                0.8632479
   [20] {milk=FALSE}
                          => {legs=TRUE} 0.3960396 0.6666667
##
   [21] {aquatic=TRUE}
                          => {legs=TRUE} 0.1782178 0.5000000
                                                                0.6474359
##
        lhs
                                        rhs
                                                     support
                                                                confidence
##
   [1]
        {breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
   [2]
##
        {aquatic=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.6153846
   [3]
        {hair=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1782178 0.4285714
##
##
   [4]
        {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
   [5]
        {eggs=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1485149 0.3846154
   [6]
        {predator=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1386139 0.3333333
##
   [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
##
        {tail=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3243243
##
   [8]
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
       {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
   [10]
##
        lift
##
   [1]
        4.391304
   [2]
##
        2.702341
   [3]
##
        1.881988
##
   [4]
        1.756522
##
   [5]
        1.688963
##
   [6]
        1.463768
##
   [7]
        1.437154
   [8]
##
        1.424207
##
   [9]
        1.386728
##
   「10〕 1.148495
##
       lhs
                                                        support
                                                                   confidence
                                           rhs
```

```
## [1] {toothed=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.4615385
## [2] {airborne=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.4444444
## [3] {feathers=FALSE, catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
## [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
  [5] {backbone=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3000000
   [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
       lift
## [1] 2.026756
## [2] 1.951691
## [3] 1.633974
## [4] 1.424207
## [5] 1.317391
##
   [6] 1.317391
                                                                    confidence
##
        lhs
                                                         support
## [1]
        {airborne=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
## [2]
        {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
## [3]
        {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
## [4]
        {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
  [5]
        {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
  [6]
        {airborne=FALSE, predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
## [7]
        {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
        {airborne=FALSE, toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
        {airborne=FALSE,tail=TRUE}
## [9]
                                         => {legs=FALSE} 0.1782178 0.3157895
  [10] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
##
        lift
## [1]
       2.549790
  [2]
        2.415217
##
##
  [3]
        2.311213
## [4]
        2.254994
## [5]
        1.951691
## [6]
        1.523514
##
  [7]
        1.420716
  [8]
        1.414149
##
  [9]
        1.386728
##
   [10] 1.383562
##
       lhs
                                         rhs
                                                      support
                                                                confidence
## [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
## [2] {hair=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1782178 0.7826087
## [3] {milk=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1584158 0.7619048
## [4] {eggs=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.7500000
## [5] {aquatic=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
## [6] {toothed=TRUE,catsize=FALSE}
                                      => {legs=FALSE} 0.1188119 0.4615385
## [7] {predator=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.4054054
## [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
## [9] {airborne=FALSE,toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
       lift
## [1] 4.391304
## [2] 3.436673
## [3] 3.345756
## [4] 3.293478
## [5] 3.245747
## [6] 2.026756
## [7] 1.780259
## [8] 1.520067
```

```
## [9] 1.414149
##
       lhs
                                                   support
                                     rhs
                                                             confidence
## [1] {eggs=TRUE,fins=TRUE}
                                  => {legs=FALSE} 0.1287129 1.0000000
## [2] {eggs=TRUE,toothed=TRUE}
                                  => {legs=FALSE} 0.1485149 0.7500000
## [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
## [4] {feathers=FALSE,eggs=TRUE} => {legs=FALSE} 0.1881188 0.4871795
## [5] {eggs=TRUE,predator=TRUE} => {legs=FALSE} 0.1287129 0.3939394
## [6] {eggs=TRUE,tail=TRUE}
                                  => {legs=FALSE} 0.1485149 0.3846154
## [7] {eggs=TRUE,backbone=TRUE} => {legs=FALSE} 0.1485149 0.3571429
  [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
       lift
## [1] 4.391304
## [2] 3.293478
## [3] 2.254994
## [4] 2.139353
## [5] 1.729908
## [6] 1.688963
## [7] 1.568323
## [8] 1.463768
##
       lhs
                                                    support
                                                              confidence
## [1] {milk=FALSE,fins=TRUE}
                                   => {legs=FALSE} 0.1287129 1.0000000
## [2] {milk=FALSE,toothed=TRUE}
                                   => {legs=FALSE} 0.1584158 0.7619048
## [3] {milk=FALSE,airborne=FALSE} => {legs=FALSE} 0.1980198 0.5263158
## [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
## [5] {milk=FALSE,predator=TRUE} => {legs=FALSE} 0.1386139 0.4117647
## [6] {milk=FALSE,tail=TRUE}
                                   => {legs=FALSE} 0.1584158 0.4000000
## [7] {milk=FALSE,backbone=TRUE} => {legs=FALSE} 0.1584158 0.3809524
  [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
##
       lift
## [1] 4.391304
## [2] 3.345756
## [3] 2.311213
## [4] 2.195652
## [5] 1.808184
## [6] 1.756522
## [7] 1.672878
## [8] 1.516996
##
       lhs
                                                      support
                                                                confidence
                                        rhs
## [1] {aquatic=TRUE,toothed=TRUE}
                                     => {legs=FALSE} 0.1683168 0.7391304
## [2] {aquatic=TRUE,tail=TRUE}
                                     => {legs=FALSE} 0.1584158 0.6153846
## [3] {feathers=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.6000000
## [4] {airborne=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.5806452
  [5] {hair=FALSE,aquatic=TRUE}
                                     => {legs=FALSE} 0.1683168 0.5312500
##
       lift
## [1] 3.245747
## [2] 2.702341
## [3] 2.634783
## [4] 2.549790
## [5] 2.332880
## [1]
       "Número de reglas con consecuente negado"
##
                                           rhs
        lhs
                                                         support
                                                                   confidence
## [1]
        {type=fish}
                                        => {legs=FALSE} 0.1287129 1.0000000
## [2]
        {hair=FALSE,fins=TRUE}
                                        => {legs=FALSE} 0.1485149 1.0000000
## [3]
       {eggs=TRUE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
```

```
[4]
        {milk=FALSE,fins=TRUE}
                                        => {legs=FALSE} 0.1287129 1.0000000
##
   [5]
        {toothed=TRUE, breathes=FALSE}
                                           {legs=FALSE} 0.1386139 1.0000000
##
   [6]
        {breathes=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1386139 1.0000000
   [7]
        {backbone=TRUE, breathes=FALSE}
##
                                           {legs=FALSE} 0.1386139 1.0000000
##
   [8]
        {fins=TRUE}
                                           {legs=FALSE} 0.1584158 0.9411765
##
   [9]
                                           {legs=FALSE} 0.1782178 0.7826087
        {hair=FALSE,toothed=TRUE}
  Γ107
       {breathes=FALSE}
                                           {legs=FALSE} 0.1584158 0.7619048
  [11]
       {milk=FALSE, toothed=TRUE}
                                           {legs=FALSE} 0.1584158 0.7619048
   [12] {eggs=TRUE,toothed=TRUE}
                                           {legs=FALSE} 0.1485149 0.7500000
##
   [13] {aquatic=TRUE, toothed=TRUE}
                                           {legs=FALSE} 0.1683168 0.7391304
  [14] {aquatic=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.6153846
   [15] {feathers=FALSE, aquatic=TRUE}
                                           {legs=FALSE} 0.1782178 0.6000000
                                        => {legs=FALSE} 0.1782178 0.5806452
   [16] {airborne=FALSE,aquatic=TRUE}
       {hair=FALSE,feathers=FALSE}
                                           {legs=FALSE} 0.2178218 0.5789474
                                           {legs=FALSE} 0.2178218 0.5500000
  [18] {hair=FALSE,airborne=FALSE}
       {hair=FALSE,aquatic=TRUE}
                                           {legs=FALSE} 0.1683168 0.5312500
   Г197
   [20]
       {milk=FALSE,airborne=FALSE}
                                           {legs=FALSE} 0.1980198 0.5263158
   [21] {eggs=TRUE,airborne=FALSE}
                                           {legs=FALSE} 0.1881188 0.5135135
   [22] {feathers=FALSE,milk=FALSE}
                                           {legs=FALSE} 0.1980198 0.5000000
   [23] {feathers=FALSE,eggs=TRUE}
                                           {legs=FALSE} 0.1881188 0.4871795
##
  [24] {toothed=TRUE,catsize=FALSE}
                                           {legs=FALSE} 0.1188119 0.4615385
  [25] {hair=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1584158 0.4444444
  [26] {airborne=FALSE,catsize=FALSE}
                                           {legs=FALSE} 0.1584158 0.4444444
##
  [27] {hair=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1782178 0.4285714
  [28] {milk=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1386139 0.4117647
  [29] {hair=FALSE,backbone=TRUE}
                                           {legs=FALSE} 0.1782178 0.4090909
   [30] {predator=TRUE, toothed=TRUE}
                                           {legs=FALSE} 0.1485149 0.4054054
##
  [31] {milk=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1584158 0.4000000
       {eggs=TRUE,predator=TRUE}
                                           {legs=FALSE} 0.1287129 0.3939394
       {hair=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.2079208 0.3888889
  [33]
   [34]
       {eggs=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1485149 0.3846154
##
   [35]
       {milk=FALSE,backbone=TRUE}
                                           {legs=FALSE} 0.1584158 0.3809524
       {feathers=FALSE, catsize=FALSE}
                                           {legs=FALSE} 0.1584158 0.3720930
       {feathers=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3617021
   [37]
       {eggs=TRUE,backbone=TRUE}
   [38]
                                           {legs=FALSE} 0.1485149 0.3571429
##
   [39]
       {airborne=FALSE, predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3469388
  [40] {toothed=TRUE,domestic=FALSE}
                                           {legs=FALSE} 0.1782178 0.3461538
  [41] {milk=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.1881188 0.3454545
  [42] {predator=TRUE,tail=TRUE}
##
                                           {legs=FALSE} 0.1386139 0.3333333
  [43] {eggs=TRUE,domestic=FALSE}
                                        => {legs=FALSE} 0.1782178 0.3333333
##
  [44] {feathers=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1782178 0.3272727
   [45] {tail=TRUE,catsize=FALSE}
                                           {legs=FALSE} 0.1188119 0.3243243
   [46] {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
  [47] {airborne=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
## [48] {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
  [49]
       {feathers=FALSE,airborne=FALSE} =>
                                           {legs=FALSE} 0.2277228 0.3150685
##
   [50]
       {feathers=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.2178218 0.3098592
   [51] {predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3035714
   [52] {feathers=FALSE,backbone=TRUE}
                                        => {legs=FALSE} 0.1881188 0.3015873
       {backbone=TRUE, catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
##
       {domestic=FALSE,catsize=FALSE}
                                        => {legs=FALSE} 0.1485149 0.3000000
   ſ541
   [55] {tail=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1683168 0.2615385
   [56] {backbone=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.2535211
##
##
        lift
```

- ## [1] 4.391304
- ## [2] 4.391304
- ## [3] 4.391304
- ## [4] 4.391304
- ## [5] 4.391304
- ## [6] 4.391304
- ## [7] 4.391304
- ## [8] 4.132992
- ## [9] 3.436673
- ## [10] 3.345756
- "" [10] 0.010700
- ## [11] 3.345756
- ## [12] 3.293478
- ## [13] 3.245747
- ## [14] 2.702341
- ## [15] 2.634783
- ## [16] 2.549790
- ## [17] 2.542334
- ## [18] 2.415217
- ## [19] 2.332880
- ## [20] 2.311213
- ## [21] 2.254994
- ## [22] 2.195652
- ## [22] 2.195052
- ## [23] 2.139353
- ## [24] 2.026756
- ## [25] 1.951691
- ## [26] 1.951691
- ## [27] 1.881988
- ## [28] 1.808184
- ## [29] 1.796443
- ## [30] 1.780259
- ## [31] 1.756522 ## [32] 1.729908
- ## [33] 1.707729
- ## [34] 1.688963
- ## [35] 1.672878
- ## [36] 1.633974
- ## [37] 1.588344
- ## [38] 1.568323
- ## [39] 1.523514
- ## [40] 1.520067
- ## [41] 1.516996
- ## [42] 1.463768
- ## [43] 1.463768
- ## [44] 1.437154
- ## [45] 1.424207
- ## [46] 1.420716
- ## [47] 1.414149
- ## [48] 1.386728
- ## [49] 1.383562
- ## [50] 1.360686
- ## [51] 1.333075
- ## [52] 1.324362
- ## [53] 1.317391 ## [54] 1.317391

```
[55] 1.148495
##
   [56] 1.113288
##
        lhs
                                         support
                                                    confidence lift
  [1]
                          => {legs=TRUE} 0.1980198 1.0000000
                                                               1.2948718
##
        {type=bird}
##
   [2]
        {feathers=TRUE}
                          => {legs=TRUE} 0.1980198 1.0000000
                                                               1.2948718
   [3]
##
                          => {legs=TRUE} 0.2376238 1.0000000
                                                               1.2948718
        {airborne=TRUE}
##
  [4]
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                               1.2647585
                          => {legs=TRUE} 0.3762376 0.9268293
##
  [5]
        {milk=TRUE}
                                                               1.2001251
##
   [6]
        {type=mammal}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                               1.2001251
##
   [7]
        {domestic=TRUE}
                          => {legs=TRUE} 0.1188119 0.9230769
                                                               1.1952663
  [8]
        {aquatic=FALSE}
                          => {legs=TRUE} 0.5940594 0.9230769
                                                               1.1952663
   [9]
##
        {eggs=FALSE}
                          => {legs=TRUE} 0.3762376 0.9047619
                                                               1.1715507
##
  [10]
       {toothed=FALSE}
                          => {legs=TRUE} 0.3564356 0.9000000
                                                               1.1653846
                         => {legs=TRUE} 0.3861386 0.8666667
       {predator=FALSE}
                                                               1.1222222
  [12] {catsize=TRUE}
                          => {legs=TRUE} 0.3663366 0.8409091
                                                               1.0888695
   [13]
        {tail=FALSE}
                          => {legs=TRUE} 0.2079208 0.8076923
                                                               1.0458580
  [14]
       {backbone=FALSE} => {legs=TRUE} 0.1386139 0.7777778
                                                               1.0071225
                          => {legs=TRUE} 0.5643564 0.7600000
  [15] {tail=TRUE}
                                                               0.9841026
  [16] {catsize=FALSE}
                          => {legs=TRUE} 0.4059406 0.7192982
                                                               0.9313990
   [17] {airborne=FALSE} => {legs=TRUE} 0.5346535 0.7012987
                                                               0.9080919
##
  [18] {toothed=TRUE}
                          => {legs=TRUE} 0.4158416 0.6885246
                                                               0.8915511
  [19] {eggs=TRUE}
                          => {legs=TRUE} 0.3960396 0.6779661
                                                               0.8778792
  [20] {milk=FALSE}
                          => {legs=TRUE} 0.3960396 0.6666667
                                                               0.8632479
##
   [21] {aquatic=TRUE}
                          => {legs=TRUE} 0.1782178 0.5000000
                                                               0.6474359
##
        lhs
                                       rhs
                                                     support
                                                               confidence
  [1]
        {breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
   [2]
        {aquatic=TRUE, tail=TRUE}
##
                                    => {legs=FALSE} 0.1584158 0.6153846
##
   [3]
        {hair=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1782178 0.4285714
##
   [4]
                                    => {legs=FALSE} 0.1584158 0.4000000
        {milk=FALSE,tail=TRUE}
##
   [5]
        {eggs=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1485149 0.3846154
##
   [6]
        {predator=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1386139 0.3333333
##
   [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
##
   [8]
        {tail=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3243243
##
   [9]
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
   [10]
        {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
##
        lift
##
  [1]
        4.391304
##
  [2]
        2.702341
   [3]
##
        1.881988
   [4]
##
        1.756522
   [5]
        1.688963
   [6]
##
        1.463768
##
   [7]
        1.437154
##
   [8]
        1.424207
##
  [9]
        1.386728
  [10] 1.148495
##
##
       lhs
                                          rhs
                                                        support
                                                                  confidence
##
  [1] {toothed=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.4615385
   [2] {airborne=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.4444444
   [3] {feathers=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
   [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
  [5] {backbone=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3000000
  [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
##
       lift
```

```
## [1] 2.026756
  [2] 1.951691
  [3] 1.633974
  [4] 1.424207
##
##
   [5] 1.317391
##
   [6] 1.317391
##
        lhs
                                                                    confidence
                                            rhs
                                                          support
## [1]
        {airborne=FALSE, aquatic=TRUE}
                                            {legs=FALSE} 0.1782178 0.5806452
##
   [2]
        {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
##
   [3]
        {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
  [4]
        {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
##
   [5]
        {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
                                         => {legs=FALSE} 0.1683168 0.3469388
##
   [6]
        {airborne=FALSE, predator=TRUE}
##
  [7]
        {airborne=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.2178218 0.3235294
  [8]
                                         => {legs=FALSE} 0.1881188 0.3220339
##
        {airborne=FALSE,toothed=TRUE}
##
   [9]
        {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
##
   [10] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
        lift
        2.549790
##
  [1]
##
   [2]
        2.415217
##
   [3]
        2.311213
  [4]
##
        2.254994
  [5]
##
        1.951691
##
   [6]
        1.523514
##
  [7]
        1.420716
  [8]
        1.414149
   [9]
##
        1.386728
##
   [10] 1.383562
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
  [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
   [2] {hair=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1782178 0.7826087
##
   [3] {milk=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1584158 0.7619048
  [4] {eggs=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.7500000
  [5] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
   [6] {toothed=TRUE,catsize=FALSE}
                                      => {legs=FALSE} 0.1188119 0.4615385
   [7] {predator=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.4054054
  [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
  [9] {airborne=FALSE,toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
##
       lift
  [1] 4.391304
##
  [2] 3.436673
  [3] 3.345756
##
   [4] 3.293478
##
  [5] 3.245747
  [6] 2.026756
  [7] 1.780259
##
##
  [8] 1.520067
##
  [9] 1.414149
##
       lhs
                                      rhs
                                                    support
                                                              confidence
##
   [1] {eggs=TRUE,fins=TRUE}
                                   => {legs=FALSE} 0.1287129 1.0000000
##
   [2] {eggs=TRUE,toothed=TRUE}
                                   => {legs=FALSE} 0.1485149 0.7500000
  [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
## [4] {feathers=FALSE,eggs=TRUE} => {legs=FALSE} 0.1881188 0.4871795
## [5] {eggs=TRUE,predator=TRUE} => {legs=FALSE} 0.1287129 0.3939394
```

```
## [6] {eggs=TRUE,tail=TRUE}
                                   => {legs=FALSE} 0.1485149 0.3846154
  [7] {eggs=TRUE,backbone=TRUE} => {legs=FALSE} 0.1485149 0.3571429
   [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
       lift.
##
  [1] 4.391304
  [2] 3.293478
##
  [3] 2.254994
  [4] 2.139353
##
  [5] 1.729908
  [6] 1.688963
  [7] 1.568323
##
  [8] 1.463768
##
                                                               confidence
       lhs
                                       rhs
                                                    support
## [1] {milk=FALSE,fins=TRUE}
                                      {legs=FALSE} 0.1287129 1.0000000
## [2] {milk=FALSE,toothed=TRUE}
                                    => {legs=FALSE} 0.1584158 0.7619048
  [3] {milk=FALSE,airborne=FALSE} => {legs=FALSE} 0.1980198 0.5263158
  [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
  [5] {milk=FALSE,predator=TRUE}
                                   => {legs=FALSE} 0.1386139 0.4117647
  [6] {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
   [7] {milk=FALSE,backbone=TRUE}
                                   => {legs=FALSE} 0.1584158 0.3809524
##
   [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
       lift.
## [1] 4.391304
##
  [2] 3.345756
## [3] 2.311213
  [4] 2.195652
  [5] 1.808184
##
   [6] 1.756522
## [7] 1.672878
## [8] 1.516996
##
       lhs
                                                      support
                                                                 confidence
##
  [1] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
  [2] {aquatic=TRUE,tail=TRUE}
                                      => {legs=FALSE} 0.1584158 0.6153846
  [3] {feathers=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.6000000
   [4] {airborne=FALSE,aquatic=TRUE}
                                     => {legs=FALSE} 0.1782178 0.5806452
##
   [5] {hair=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1683168 0.5312500
##
       lift
## [1] 3.245747
  [2] 2.702341
  [3] 2.634783
##
  [4] 2.549790
   [5] 2.332880
       "Número de reglas con consecuente negado"
##
##
        lhs
                                            rhs
                                                          support
                                                                    confidence
## [1]
                                         => {legs=FALSE} 0.1287129 1.0000000
        {type=fish}
## [2]
        {hair=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1485149 1.0000000
##
  [3]
        {eggs=TRUE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
##
  [4]
        {milk=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
  [5]
        {toothed=TRUE, breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
##
   [6]
        {breathes=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1386139 1.0000000
##
  [7]
        {backbone=TRUE, breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
## [8]
        {fins=TRUE}
                                         => {legs=FALSE} 0.1584158 0.9411765
## [9]
        {hair=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1782178 0.7826087
## [10] {breathes=FALSE}
                                         => {legs=FALSE} 0.1584158 0.7619048
```

```
## [11] {milk=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1584158 0.7619048
  [12] {eggs=TRUE,toothed=TRUE}
                                           {legs=FALSE} 0.1485149 0.7500000
  [13] {aquatic=TRUE, toothed=TRUE}
                                           {legs=FALSE} 0.1683168 0.7391304
  [14] {aquatic=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.6153846
##
  [15] {feathers=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.6000000
  [16] {airborne=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
  [17] {hair=FALSE, feathers=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5789474
  [18] {hair=FALSE,airborne=FALSE}
                                           {legs=FALSE} 0.2178218 0.5500000
  [19] {hair=FALSE,aquatic=TRUE}
                                           {legs=FALSE} 0.1683168 0.5312500
  [20] {milk=FALSE,airborne=FALSE}
                                           {legs=FALSE} 0.1980198 0.5263158
  [21] {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
   [22] {feathers=FALSE,milk=FALSE}
                                           {legs=FALSE} 0.1980198 0.5000000
  [23] {feathers=FALSE,eggs=TRUE}
                                           {legs=FALSE} 0.1881188 0.4871795
## [24] {toothed=TRUE,catsize=FALSE}
                                           {legs=FALSE} 0.1188119 0.4615385
                                           {legs=FALSE} 0.1584158 0.4444444
## [25] {hair=FALSE,predator=TRUE}
       {airborne=FALSE, catsize=FALSE}
                                            {legs=FALSE} 0.1584158 0.4444444
   [26]
       {hair=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1782178 0.4285714
  [27]
   [28] {milk=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1386139 0.4117647
  [29] {hair=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4090909
   [30] {predator=TRUE, toothed=TRUE}
                                         => {legs=FALSE} 0.1485149 0.4054054
##
  [31] {milk=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4000000
  [32] {eggs=TRUE,predator=TRUE}
                                         => {legs=FALSE} 0.1287129 0.3939394
  [33] {hair=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.2079208 0.3888889
  [34] {eggs=TRUE,tail=TRUE}
##
                                           {legs=FALSE} 0.1485149 0.3846154
  [35] {milk=FALSE,backbone=TRUE}
                                           {legs=FALSE} 0.1584158 0.3809524
   [36] {feathers=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.3720930
   [37] {feathers=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3617021
##
   [38] {eggs=TRUE,backbone=TRUE}
                                           {legs=FALSE} 0.1485149 0.3571429
  [39] {airborne=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
                                         => {legs=FALSE} 0.1782178 0.3461538
  [40] {toothed=TRUE,domestic=FALSE}
  [41] {milk=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.1881188 0.3454545
##
  [42]
       {predator=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1386139 0.3333333
  [43] {eggs=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3333333
  [44] {feathers=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3272727
   [45] {tail=TRUE,catsize=FALSE}
                                           {legs=FALSE} 0.1188119 0.3243243
##
  [46] {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
  [47] {airborne=FALSE, toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
  [48] {airborne=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1782178 0.3157895
       {feathers=FALSE,airborne=FALSE} =>
  [49]
                                           {legs=FALSE} 0.2277228 0.3150685
  [50] {feathers=FALSE,domestic=FALSE}
##
                                        => {legs=FALSE} 0.2178218 0.3098592
  [51] {predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3035714
   [52] {feathers=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3015873
   [53] {backbone=TRUE, catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
   [54] {domestic=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1485149 0.3000000
  [55] {tail=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1683168 0.2615385
   [56] {backbone=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.2535211
##
##
        lift
##
  [1]
        4.391304
##
   [2]
        4.391304
##
   [3]
        4.391304
   [4]
##
        4.391304
##
  [5]
        4.391304
## [6]
        4.391304
## [7]
        4.391304
```

```
## [8]
        4.132992
##
   [9]
        3.436673
  [10] 3.345756
  [11] 3.345756
  [12] 3.293478
##
  [13] 3.245747
  [14] 2.702341
## [15] 2.634783
   [16] 2.549790
  [17] 2.542334
  [18] 2.415217
  [19] 2.332880
  [20] 2.311213
  [21] 2.254994
## [22] 2.195652
  [23] 2.139353
  [24] 2.026756
   [25] 1.951691
  [26] 1.951691
  [27] 1.881988
## [28] 1.808184
  [29] 1.796443
## [30] 1.780259
  [31] 1.756522
  [32] 1.729908
  [33] 1.707729
  [34] 1.688963
  [35] 1.672878
##
  [36] 1.633974
  [37] 1.588344
  [38] 1.568323
##
   [39] 1.523514
  [40] 1.520067
  [41] 1.516996
   [42] 1.463768
## [43] 1.463768
## [44] 1.437154
## [45] 1.424207
  [46] 1.420716
##
  [47] 1.414149
  [48] 1.386728
  [49] 1.383562
   [50] 1.360686
  [51] 1.333075
  [52] 1.324362
  [53] 1.317391
##
   [54] 1.317391
   [55] 1.148495
##
   [56]
       1.113288
##
        lhs
                                         support
                                                   confidence lift
##
                         => {legs=TRUE} 0.1980198 1.0000000 1.2948718
  [1]
        {type=bird}
                         => {legs=TRUE} 0.1980198 1.0000000 1.2948718
  [2]
        {feathers=TRUE}
## [3]
        {airborne=TRUE}
                         => {legs=TRUE} 0.2376238 1.0000000 1.2948718
                         => {legs=TRUE} 0.4158416 0.9767442 1.2647585
## [4]
        {hair=TRUE}
```

```
## [5]
        {milk=TRUE}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
##
   [6]
        {type=mammal}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
        {domestic=TRUE}
  [7]
                          => {legs=TRUE} 0.1188119 0.9230769
                                                                1.1952663
  [8]
##
        {aquatic=FALSE}
                          => {legs=TRUE} 0.5940594 0.9230769
                                                                1.1952663
##
   [9]
        {eggs=FALSE}
                          => {legs=TRUE} 0.3762376 0.9047619
                                                                1.1715507
  [10] {toothed=FALSE}
                          => {legs=TRUE} 0.3564356 0.9000000
##
                                                               1.1653846
  [11] {predator=FALSE} => {legs=TRUE} 0.3861386 0.8666667
                                                                1.1222222
## [12] {catsize=TRUE}
                          => {legs=TRUE} 0.3663366 0.8409091
                                                               1.0888695
  [13] {tail=FALSE}
                          => {legs=TRUE} 0.2079208 0.8076923
                                                               1.0458580
## [14] {backbone=FALSE}
                          => {legs=TRUE} 0.1386139 0.7777778
                                                               1.0071225
## [15] {tail=TRUE}
                          => {legs=TRUE} 0.5643564 0.7600000
                                                               0.9841026
                          => {legs=TRUE} 0.4059406 0.7192982
## [16] {catsize=FALSE}
                                                               0.9313990
## [17] {airborne=FALSE} => {legs=TRUE} 0.5346535 0.7012987
                                                               0.9080919
## [18] {toothed=TRUE}
                          => {legs=TRUE} 0.4158416 0.6885246
                                                               0.8915511
                                                                0.8778792
## [19] {eggs=TRUE}
                          => {legs=TRUE} 0.3960396 0.6779661
   [20] {milk=FALSE}
                          => {legs=TRUE} 0.3960396 0.6666667
                                                               0.8632479
##
   [21]
       {aquatic=TRUE}
                          => {legs=TRUE} 0.1782178 0.5000000
                                                               0.6474359
##
        lhs
                                       rhs
                                                     support
                                                                confidence
        {breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
##
  [1]
   [2]
        {aquatic=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.6153846
##
   [3]
        {hair=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1782178 0.4285714
  [4]
        {milk=FALSE,tail=TRUE}
##
                                    => {legs=FALSE} 0.1584158 0.4000000
  [5]
        {eggs=TRUE,tail=TRUE}
##
                                    => {legs=FALSE} 0.1485149 0.3846154
        {predator=TRUE, tail=TRUE} => {legs=FALSE} 0.1386139 0.3333333
##
   [6]
##
   [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
        {tail=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3243243
        \label{legs=FALSE} $$\{airborne=FALSE, tail=TRUE\} => \{legs=FALSE\} \ 0.1782178 \ 0.3157895 
##
   [9]
       {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
   [10]
##
        lift
## [1]
        4.391304
##
   [2]
        2.702341
##
   [3]
        1.881988
##
   [4]
        1.756522
   [5]
##
        1.688963
   [6]
##
        1.463768
##
   [7]
        1.437154
   [8]
        1.424207
## [9]
        1.386728
   [10] 1.148495
##
##
                                                                   confidence
       lhs
                                           rhs
                                                        support
  [1] {toothed=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.4615385
   [2] {airborne=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.4444444
   [3] {feathers=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
   [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
## [5] {backbone=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3000000
   [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
##
       lift
## [1] 2.026756
  [2] 1.951691
## [3] 1.633974
##
  [4] 1.424207
## [5] 1.317391
## [6] 1.317391
##
        lhs
                                                          support
                                                                     confidence
                                             rhs
```

```
{airborne=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
##
  [2]
        {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
  [3]
        {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
  [4]
        {eggs=TRUE,airborne=FALSE}
##
                                         => {legs=FALSE} 0.1881188 0.5135135
##
   [5]
        {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
   [6]
        {airborne=FALSE, predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
##
  [7]
        {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
                                         => {legs=FALSE} 0.1881188 0.3220339
##
  [8]
        {airborne=FALSE, toothed=TRUE}
##
   [9]
        {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
##
   [10] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
        lift
##
   [1]
        2.549790
##
   [2]
        2.415217
        2.311213
##
  [3]
  [4]
##
        2.254994
##
   [5]
        1.951691
##
   [6]
        1.523514
   [7]
##
        1.420716
   [8]
##
        1.414149
##
   [9]
        1.386728
##
   [10] 1.383562
##
       lhs
                                                       support
                                                                 confidence
  [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
##
   [2] {hair=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1782178 0.7826087
  [3] {milk=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1584158 0.7619048
  [4] {eggs=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.7500000
   [5] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
   [6] {toothed=TRUE,catsize=FALSE}
                                      => {legs=FALSE} 0.1188119 0.4615385
   [7] {predator=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.4054054
  [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
##
   [9] {airborne=FALSE,toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
       lift
##
  [1] 4.391304
  [2] 3.436673
   [3] 3.345756
##
  [4] 3.293478
  [5] 3.245747
  [6] 2.026756
##
   [7] 1.780259
##
  [8] 1.520067
  [9] 1.414149
##
       lhs
                                                   support
                                                              confidence
## [1] {eggs=TRUE,fins=TRUE}
                                   => {legs=FALSE} 0.1287129 1.0000000
                                   => {legs=FALSE} 0.1485149 0.7500000
  [2] {eggs=TRUE,toothed=TRUE}
## [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
  [4] {feathers=FALSE,eggs=TRUE}
                                   => {legs=FALSE} 0.1881188 0.4871795
   [5] {eggs=TRUE,predator=TRUE}
                                   => {legs=FALSE} 0.1287129 0.3939394
   [6] {eggs=TRUE,tail=TRUE}
                                   => {legs=FALSE} 0.1485149 0.3846154
   [7] {eggs=TRUE,backbone=TRUE}
                                   => {legs=FALSE} 0.1485149 0.3571429
   [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
       lift
## [1] 4.391304
## [2] 3.293478
## [3] 2.254994
```

```
## [4] 2.139353
  [5] 1.729908
  [6] 1.688963
  [7] 1.568323
##
   [8] 1.463768
##
       lhs
                                       rhs
                                                    support
                                                               confidence
## [1] {milk=FALSE,fins=TRUE}
                                    => {legs=FALSE} 0.1287129 1.0000000
## [2] {milk=FALSE, toothed=TRUE}
                                    => {legs=FALSE} 0.1584158 0.7619048
  [3] {milk=FALSE,airborne=FALSE} => {legs=FALSE} 0.1980198 0.5263158
  [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
  [5] {milk=FALSE,predator=TRUE}
                                    => {legs=FALSE} 0.1386139 0.4117647
   [6] {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
   [7] {milk=FALSE,backbone=TRUE}
                                   => {legs=FALSE} 0.1584158 0.3809524
   [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
##
       lift.
##
  [1] 4.391304
##
   [2] 3.345756
  [3] 2.311213
  [4] 2.195652
  [5] 1.808184
##
  [6] 1.756522
  [7] 1.672878
## [8] 1.516996
                                         rhs
                                                      support
                                                                 confidence
  [1] {aquatic=TRUE,toothed=TRUE}
##
                                      => {legs=FALSE} 0.1683168 0.7391304
  [2] {aquatic=TRUE,tail=TRUE}
                                      => {legs=FALSE} 0.1584158 0.6153846
   [3] {feathers=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.6000000
   [4] {airborne=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.5806452
   [5] {hair=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1683168 0.5312500
##
       lift
## [1] 3.245747
   [2] 2.702341
  [3] 2.634783
  [4] 2.549790
   [5] 2.332880
   [1]
##
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                        support
                                                                   confidence
## [1]
        {hair=TRUE,eggs=FALSE}
                                         => {milk=TRUE} 0.3762376 1.0000000
                                           {milk=TRUE} 0.3069307 1.0000000
  [2]
        {eggs=FALSE,catsize=TRUE}
##
  [3]
        {eggs=FALSE,predator=FALSE}
                                         => {milk=TRUE} 0.1881188 1.0000000
  [4]
        {eggs=FALSE, venomous=FALSE}
                                           {milk=TRUE} 0.3960396 1.0000000
  [5]
        {hair=TRUE, catsize=TRUE}
                                            {milk=TRUE} 0.2970297 1.0000000
##
##
   [6]
        {hair=TRUE, predator=TRUE}
                                            {milk=TRUE} 0.1980198 1.0000000
##
  [7]
                                         => {milk=TRUE} 0.3762376 1.0000000
        {hair=TRUE,toothed=TRUE}
        {hair=TRUE,tail=TRUE}
## [8]
                                         => {milk=TRUE} 0.3267327 1.0000000
## [9]
                                         => {milk=TRUE} 0.3663366 1.0000000
        {hair=TRUE,airborne=FALSE}
## [10] {hair=TRUE,backbone=TRUE}
                                         => {milk=TRUE} 0.3861386 1.0000000
  [11] {eggs=FALSE,breathes=TRUE}
                                         => {milk=TRUE} 0.3960396 0.9756098
  [12] {eggs=FALSE,backbone=TRUE}
                                         => {milk=TRUE} 0.3960396 0.9756098
  [13] {eggs=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3663366 0.9736842
## [14] {hair=TRUE, venomous=FALSE}
                                         => {milk=TRUE} 0.3861386 0.9512195
## [15] {aquatic=FALSE, toothed=TRUE}
                                         => {milk=TRUE} 0.3465347 0.9210526
## [16] {hair=TRUE,domestic=FALSE}
                                         => {milk=TRUE} 0.3069307 0.9117647
## [17] {toothed=TRUE,catsize=TRUE}
                                         => {milk=TRUE} 0.3069307 0.8857143
```

```
## [18] {toothed=TRUE,legs=TRUE}
                                         => {milk=TRUE} 0.3663366 0.8809524
   [19] {toothed=TRUE, breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.8510638
   [20] {feathers=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.8421053
                                            {milk=TRUE} 0.2574257 0.8387097
   [21] {aquatic=FALSE,catsize=TRUE}
##
   [22] {breathes=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.8205128
  [23] {toothed=TRUE,fins=FALSE}
##
                                            {milk=TRUE} 0.3564356 0.8181818
  [24] {predator=FALSE,toothed=TRUE}
                                            {milk=TRUE} 0.1881188 0.7916667
  [25] {legs=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2871287 0.7837838
   [26] {airborne=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.7804878
   [27] {fins=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.2772277 0.7777778
   [28] {predator=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.1188119 0.7500000
   [29] {backbone=TRUE, catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
   [30] {venomous=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
   [31] {airborne=FALSE,aquatic=FALSE}
                                           {milk=TRUE} 0.3267327 0.7173913
   [32] {toothed=TRUE, venomous=FALSE}
                                         => {milk=TRUE} 0.3960396 0.7017544
   [33]
        {airborne=FALSE, breathes=TRUE}
                                            {milk=TRUE} 0.3861386 0.6964286
   [34]
       {feathers=FALSE, aquatic=FALSE}
                                            {milk=TRUE} 0.3465347 0.6862745
   [35] {feathers=FALSE, breathes=TRUE}
                                            {milk=TRUE} 0.4059406 0.6833333
   [36] {airborne=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3564356 0.6666667
   [37] {aquatic=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3465347 0.6603774
##
   [38] {toothed=TRUE}
                                            {milk=TRUE} 0.3960396 0.6557377
  [39] {feathers=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.6551724
  [40] {feathers=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.4059406 0.6507937
   [41] {feathers=FALSE,tail=TRUE}
##
                                            {milk=TRUE} 0.3465347 0.6363636
   [42] {aquatic=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.2970297 0.6122449
   [43] {airborne=FALSE, predator=FALSE} =>
                                            {milk=TRUE} 0.1683168 0.6071429
   [44] {airborne=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 0.6000000
   [45] {backbone=TRUE, breathes=TRUE}
                                            {milk=TRUE} 0.4059406 0.5942029
  [46] {backbone=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5937500
   [47] {aquatic=FALSE,predator=TRUE}
                                           {milk=TRUE} 0.1584158 0.5925926
   [48]
       {aquatic=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3465347 0.5833333
##
   [49]
       {airborne=FALSE,fins=FALSE}
                                            {milk=TRUE} 0.3465347 0.5833333
   [50] {airborne=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
   [51] {legs=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
       {feathers=FALSE,fins=FALSE}
                                            {milk=TRUE} 0.3663366 0.5781250
   [53]
##
       {aquatic=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3465347 0.5737705
       {breathes=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3465347 0.5737705
       {predator=TRUE,breathes=TRUE}
                                            {milk=TRUE} 0.2178218 0.5641026
##
   [55]
        {feathers=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.4059406 0.5616438
##
   [56]
       {backbone=TRUE,fins=FALSE}
##
   [57]
                                            {milk=TRUE} 0.3663366 0.5606061
   [58]
       {feathers=FALSE,predator=FALSE} =>
                                            {milk=TRUE} 0.1881188 0.5588235
   [59] {airborne=FALSE, venomous=FALSE} =>
                                            {milk=TRUE} 0.3861386 0.5492958
##
   [60]
       {aquatic=FALSE, breathes=TRUE}
                                            {milk=TRUE} 0.3465347 0.5468750
   [61] {breathes=TRUE, venomous=FALSE}
##
                                           {milk=TRUE} 0.4059406 0.5466667
   [62] {fins=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3168317 0.5423729
                                            {milk=TRUE} 0.3861386 0.5342466
##
   [63]
        {feathers=FALSE,airborne=FALSE} =>
   [64]
##
        {predator=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.1881188 0.5277778
   [65]
       {breathes=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5205479
   [66] {backbone=TRUE, venomous=FALSE}
                                         => {milk=TRUE} 0.4059406 0.5189873
   [67]
        {predator=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.1683168 0.5151515
##
   [68]
       {venomous=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5135135
   [69] {feathers=FALSE}
                                           {milk=TRUE} 0.4059406 0.5061728
  [70] {venomous=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.4929577
## [71] {venomous=FALSE,fins=FALSE}
                                            {milk=TRUE} 0.3663366 0.4805195
```

```
## [72] {predator=FALSE, venomous=FALSE} => {milk=TRUE} 0.1881188 0.4418605
##
   [73] {predator=TRUE}
                                         => {milk=TRUE} 0.2178218 0.3928571
##
        lift
## [1]
        2.463415
##
   [2]
        2.463415
##
   [3]
        2.463415
  ۲4٦
        2.463415
## [5]
        2.463415
## [6]
        2.463415
## [7]
        2.463415
## [8]
        2.463415
## [9]
        2.463415
## [10] 2.463415
## [11] 2.403331
## [12] 2.403331
## [13] 2.398588
## [14] 2.343248
## [15] 2.268935
## [16] 2.246055
## [17] 2.181882
## [18] 2.170151
## [19] 2.096523
## [20] 2.074454
## [21] 2.066090
## [22] 2.021263
## [23] 2.015521
## [24] 1.950203
## [25] 1.930784
## [26] 1.922665
## [27] 1.915989
## [28] 1.847561
## [29] 1.833239
## [30] 1.833239
## [31] 1.767232
## [32] 1.728712
## [33] 1.715592
## [34] 1.690579
## [35] 1.683333
## [36] 1.642276
## [37] 1.626783
## [38] 1.615354
## [39] 1.613961
## [40] 1.603175
## [41] 1.567627
## [42] 1.508213
## [43] 1.495645
## [44] 1.478049
## [45] 1.463768
## [46] 1.462652
## [47] 1.459801
## [48] 1.436992
## [49] 1.436992
## [50] 1.426187
## [51] 1.426187
```

```
## [52] 1.424162
  [53] 1.413435
  [54] 1.413435
  [55] 1.389619
   [56] 1.383562
##
  [57] 1.381005
  [58] 1.376614
  [59] 1.353143
   [60] 1.347180
  [61] 1.346667
  [62] 1.336089
  [63] 1.316071
  [64] 1.300136
  [65] 1.282325
  [66] 1.278481
   [67] 1.269032
##
  [68] 1.264997
   [69] 1.246914
  [70] 1.214359
  [71] 1.183719
##
  [72] 1.088486
  [73] 0.967770
##
        lhs
                             rhs
                                          support
                                                     confidence lift
                          => {milk=FALSE} 0.1287129 1.0000000
##
  Г17
        {type=fish}
                                                                1.6833333
   [2]
        {backbone=FALSE} => {milk=FALSE} 0.1782178 1.0000000
                                                                1.6833333
        {type=bird}
  [3]
                          => {milk=FALSE} 0.1980198 1.0000000
                                                                1.6833333
##
  [4]
                         => {milk=FALSE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                                1.6833333
##
  [5]
        {breathes=FALSE}
                         => {milk=FALSE} 0.2079208 1.0000000
                                                                1.6833333
##
  [6]
        {eggs=TRUE}
                          => {milk=FALSE} 0.5742574 0.9830508
                                                                1.6548023
## [7]
        {hair=FALSE}
                          => {milk=FALSE} 0.5544554 0.9655172
                                                                1.6252874
## [8]
        {airborne=TRUE}
                         => {milk=FALSE} 0.2178218 0.9166667
                                                                1.5430556
##
  [9]
        {legs=FALSE}
                          => {milk=FALSE} 0.1980198 0.8695652
                                                                1.4637681
  [10] {aquatic=TRUE}
                          => {milk=FALSE} 0.2970297 0.8333333
                                                                1.4027778
                          => {milk=FALSE} 0.1980198 0.7692308
                                                                1.2948718
## [11] {tail=FALSE}
  [12] {fins=TRUE}
                          => {milk=FALSE} 0.1287129 0.7647059
                                                                1.2872549
                         => {milk=FALSE} 0.3366337 0.6071429
## [13] {predator=TRUE}
                                                                1.0220238
## [14] {fins=FALSE}
                          => {milk=FALSE} 0.4653465 0.5595238
                                                                0.9418651
## [15] {tail=TRUE}
                          => {milk=FALSE} 0.3960396 0.5333333
                                                                0.8977778
                         => {milk=FALSE} 0.4158416 0.5060241
  [16] {backbone=TRUE}
                                                                0.8518072
  [17] {aquatic=FALSE}
                         => {milk=FALSE} 0.2970297 0.4615385
                                                                0.7769231
  [18] {toothed=TRUE}
                          => {milk=FALSE} 0.2079208 0.3442623
                                                                0.5795082
##
       lhs
                                         rhs
                                                      support
                                                                confidence
## [1] {hair=TRUE,predator=TRUE}
                                      => {milk=TRUE} 0.1980198 1.0000000
   [2] {aquatic=FALSE,predator=TRUE} => {milk=TRUE} 0.1584158 0.5925926
   [3] {predator=TRUE,breathes=TRUE} => {milk=TRUE} 0.2178218 0.5641026
##
       lift
## [1] 2.463415
   [2] 1.459801
##
   [3] 1.389619
##
       lhs
                                                    support
                                                              confidence
## [1] {toothed=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3564356 0.8181818
## [2] {fins=FALSE,catsize=TRUE}
                                    => {milk=TRUE} 0.2772277 0.7777778
## [3] {airborne=FALSE,fins=FALSE} => {milk=TRUE} 0.3465347 0.5833333
## [4] {feathers=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5781250
```

```
## [5] {backbone=TRUE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5606061
                                    => {milk=TRUE} 0.3168317 0.5423729
   [6] {fins=FALSE,tail=TRUE}
   [7] {venomous=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.4805195
##
       lift
##
  [1] 2.015521
##
  [2] 1.915989
  [3] 1.436992
## [4] 1.424162
##
  [5] 1.381005
##
  [6] 1.336089
  [7] 1.183719
##
       lhs
                                                  support
                                                             confidence
## [1] {hair=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 1.0000000
## [2] {feathers=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.6363636
## [3] {aquatic=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.2970297 0.6122449
## [4] {airborne=FALSE,tail=TRUE} => {milk=TRUE} 0.3267327 0.5789474
  [5] {legs=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 0.5789474
  [6] {breathes=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3465347 0.5737705
  [7] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
   [8] {predator=FALSE,tail=TRUE} => {milk=TRUE} 0.1683168 0.5151515
##
   [9] {venomous=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.4929577
##
       lift.
## [1] 2.463415
  [2] 1.567627
##
## [3] 1.508213
  [4] 1.426187
  [5] 1.426187
##
  [6] 1.413435
  [7] 1.336089
## [8] 1.269032
##
  [9] 1.214359
##
        lhs
                                           rhs
                                                       support
                                                                  confidence
##
  [1]
        {hair=TRUE,backbone=TRUE}
                                        => {milk=TRUE} 0.3861386 1.0000000
                                        => {milk=TRUE} 0.3960396 0.9756098
  [2]
##
        {eggs=FALSE,backbone=TRUE}
   [3]
        {backbone=TRUE, catsize=TRUE}
                                        => {milk=TRUE} 0.3168317 0.7441860
##
  [4]
##
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
  [5]
        {feathers=FALSE,backbone=TRUE} => {milk=TRUE} 0.4059406 0.6507937
  [6]
        {airborne=FALSE,backbone=TRUE} => {milk=TRUE} 0.3861386 0.6000000
##
  [7]
        {backbone=TRUE,breathes=TRUE}
                                        => {milk=TRUE} 0.4059406 0.5942029
##
                                        => {milk=TRUE} 0.3762376 0.5937500
##
  [8]
        {backbone=TRUE,legs=TRUE}
  [9]
        {backbone=TRUE,fins=FALSE}
                                        => {milk=TRUE} 0.3663366 0.5606061
   [10] {predator=FALSE,backbone=TRUE} => {milk=TRUE} 0.1881188 0.5277778
##
   [11] {backbone=TRUE,venomous=FALSE} => {milk=TRUE} 0.4059406 0.5189873
##
        lift
## [1]
        2.463415
  [2]
        2.403331
##
##
  [3]
        1.833239
##
  [4]
        1.626783
##
  [5]
        1.603175
##
   [6]
        1.478049
##
  [7]
        1.463768
## [8]
        1.462652
## [9]
        1.381005
## [10] 1.300136
```

```
[11] 1.278481
##
        lhs
                                           rhs
                                                        support
                                                                  confidence
        {aquatic=FALSE, toothed=TRUE}
##
   [1]
                                        => {milk=TRUE} 0.3465347 0.9210526
                                        => {milk=TRUE} 0.2574257 0.8387097
   [2]
        {aquatic=FALSE,catsize=TRUE}
##
   [3]
        {airborne=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3267327 0.7173913
##
   [4]
        {feathers=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3465347 0.6862745
##
   [5]
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
##
   [6]
        {aquatic=FALSE,tail=TRUE}
                                        => {milk=TRUE} 0.2970297 0.6122449
##
   [7]
        {aquatic=FALSE,predator=TRUE}
                                        => {milk=TRUE} 0.1584158 0.5925926
##
   [8]
        {aquatic=FALSE,legs=TRUE}
                                        => {milk=TRUE} 0.3465347 0.5833333
   [9]
        {aquatic=FALSE, venomous=FALSE} => {milk=TRUE} 0.3465347 0.5737705
       {aquatic=FALSE,breathes=TRUE} => {milk=TRUE} 0.3465347 0.5468750
##
   [10]
##
        lift
##
   [1]
        2.268935
   [2]
##
        2.066090
##
   [3]
        1.767232
   [4]
##
        1.690579
   [5]
##
        1.626783
   [6]
##
        1.508213
##
   [7]
        1.459801
##
   [8]
        1.436992
##
  [9]
        1.413435
##
  [10] 1.347180
##
                                                      support
                                                                 confidence
                                          rhs
##
  [1] {hair=TRUE,toothed=TRUE}
                                      => {milk=TRUE} 0.3762376 1.0000000
   [2] {aquatic=FALSE,toothed=TRUE}
                                      => {milk=TRUE} 0.3465347 0.9210526
   [3] {toothed=TRUE,catsize=TRUE}
                                      => {milk=TRUE} 0.3069307 0.8857143
   [4] {toothed=TRUE,legs=TRUE}
                                      => {milk=TRUE} 0.3663366 0.8809524
   [5] {toothed=TRUE,breathes=TRUE}
                                      => {milk=TRUE} 0.3960396 0.8510638
   [6] {toothed=TRUE,fins=FALSE}
                                      => {milk=TRUE} 0.3564356 0.8181818
   [7] {predator=FALSE,toothed=TRUE} => {milk=TRUE} 0.1881188 0.7916667
##
   [8] {toothed=TRUE, venomous=FALSE} => {milk=TRUE} 0.3960396 0.7017544
##
       lift
  [1] 2.463415
##
   [2] 2.268935
   [3] 2.181882
##
   [4] 2.170151
  [5] 2.096523
##
   [6] 2.015521
##
   [7] 1.950203
   [8] 1.728712
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                                                    confidence
                                                         support
##
   [1]
        {hair=TRUE,eggs=FALSE}
                                            {milk=TRUE} 0.3762376 1.0000000
##
  [2]
        {eggs=FALSE,catsize=TRUE}
                                          => {milk=TRUE} 0.3069307 1.0000000
  [3]
##
        {eggs=FALSE,predator=FALSE}
                                            {milk=TRUE} 0.1881188 1.0000000
##
   [4]
        {eggs=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3960396 1.0000000
##
   [5]
        {hair=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2970297 1.0000000
##
   [6]
        {hair=TRUE, predator=TRUE}
                                            {milk=TRUE} 0.1980198 1.0000000
##
   [7]
        {hair=TRUE, toothed=TRUE}
                                             {milk=TRUE} 0.3762376 1.0000000
##
   [8]
        {hair=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 1.0000000
## [9]
        {hair=TRUE,airborne=FALSE}
                                            {milk=TRUE} 0.3663366 1.0000000
## [10] {hair=TRUE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 1.0000000
                                          =>
## [11] {eggs=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.9756098
```

```
## [12] {eggs=FALSE,backbone=TRUE}
                                         => {milk=TRUE} 0.3960396 0.9756098
  [13] {eggs=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3663366 0.9736842
  [14] {hair=TRUE, venomous=FALSE}
                                            {milk=TRUE} 0.3861386 0.9512195
  [15] {aquatic=FALSE, toothed=TRUE}
                                            {milk=TRUE} 0.3465347 0.9210526
   [16] {hair=TRUE,domestic=FALSE}
                                            {milk=TRUE} 0.3069307 0.9117647
   [17] {toothed=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3069307 0.8857143
##
  [18] {toothed=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3663366 0.8809524
  [19] {toothed=TRUE, breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.8510638
   [20] {feathers=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.8421053
   [21] {aquatic=FALSE, catsize=TRUE}
                                            {milk=TRUE} 0.2574257 0.8387097
   [22] {breathes=TRUE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.8205128
   [23] {toothed=TRUE,fins=FALSE}
                                           {milk=TRUE} 0.3564356 0.8181818
   [24]
       {predator=FALSE, toothed=TRUE}
                                            {milk=TRUE} 0.1881188 0.7916667
   [25] {legs=TRUE,catsize=TRUE}
                                           {milk=TRUE} 0.2871287 0.7837838
  [26] {airborne=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7804878
   [27]
        {fins=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.2772277 0.7777778
   [28]
       {predator=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.1188119 0.7500000
   [29] {backbone=TRUE, catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
   [30] {venomous=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
   [31] {airborne=FALSE,aquatic=FALSE}
                                            {milk=TRUE} 0.3267327 0.7173913
##
   [32] {toothed=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.3960396 0.7017544
  [33] {airborne=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.3861386 0.6964286
  [34] {feathers=FALSE, aquatic=FALSE}
                                            {milk=TRUE} 0.3465347 0.6862745
##
   [35] {feathers=FALSE, breathes=TRUE}
                                            {milk=TRUE} 0.4059406 0.6833333
   [36] {airborne=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3564356 0.6666667
   [37] {aquatic=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.3465347 0.6603774
                                            {milk=TRUE} 0.3960396 0.6557377
##
   [38] {toothed=TRUE}
##
   [39] {feathers=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.6551724
  [40] {feathers=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.4059406 0.6507937
  [41] {feathers=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.6363636
   [42]
       {aquatic=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.2970297 0.6122449
##
   [43]
       {airborne=FALSE,predator=FALSE} =>
                                            {milk=TRUE} 0.1683168 0.6071429
       {airborne=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 0.6000000
   [45] {backbone=TRUE,breathes=TRUE}
                                           {milk=TRUE} 0.4059406 0.5942029
   [46] {backbone=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.5937500
##
   [47] {aquatic=FALSE,predator=TRUE}
                                           {milk=TRUE} 0.1584158 0.5925926
  [48] {aquatic=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3465347 0.5833333
  [49] {airborne=FALSE,fins=FALSE}
                                            {milk=TRUE} 0.3465347 0.5833333
   [50] {airborne=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 0.5789474
##
##
   [51] {legs=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 0.5789474
   [52] {feathers=FALSE,fins=FALSE}
                                            {milk=TRUE} 0.3663366 0.5781250
   [53] {aquatic=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3465347 0.5737705
##
   Γ54]
       {breathes=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3465347 0.5737705
   [55] {predator=TRUE, breathes=TRUE}
##
                                           {milk=TRUE} 0.2178218 0.5641026
  [56] {feathers=FALSE, venomous=FALSE}
                                           {milk=TRUE} 0.4059406 0.5616438
        {backbone=TRUE,fins=FALSE}
##
   [57]
                                           {milk=TRUE} 0.3663366 0.5606061
   [58]
##
       {feathers=FALSE, predator=FALSE} =>
                                            {milk=TRUE} 0.1881188 0.5588235
       {airborne=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3861386 0.5492958
   [60] {aquatic=FALSE,breathes=TRUE}
                                           {milk=TRUE} 0.3465347 0.5468750
   [61] {breathes=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.4059406 0.5466667
##
   [62]
       {fins=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3168317 0.5423729
  [63] {feathers=FALSE,airborne=FALSE} =>
                                           {milk=TRUE} 0.3861386 0.5342466
  [64] {predator=FALSE,backbone=TRUE}
                                         =>
                                           {milk=TRUE} 0.1881188 0.5277778
## [65] {breathes=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5205479
```

```
## [66] {backbone=TRUE, venomous=FALSE} => {milk=TRUE} 0.4059406 0.5189873
## [67] {predator=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.1683168 0.5151515
## [68] {venomous=FALSE,legs=TRUE}
                                         => {milk=TRUE} 0.3762376 0.5135135
                                         => {milk=TRUE} 0.4059406 0.5061728
## [69] {feathers=FALSE}
## [70] {venomous=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.3465347 0.4929577
## [71] {venomous=FALSE,fins=FALSE}
                                         => {milk=TRUE} 0.3663366 0.4805195
## [72] {predator=FALSE, venomous=FALSE} => {milk=TRUE} 0.1881188 0.4418605
## [73] {predator=TRUE}
                                         => {milk=TRUE} 0.2178218 0.3928571
##
        lift
## [1]
        2.463415
## [2]
        2.463415
## [3]
        2.463415
##
  [4]
        2.463415
## [5]
        2.463415
## [6]
        2.463415
## [7]
        2.463415
## [8]
        2.463415
## [9]
        2.463415
## [10] 2.463415
## [11] 2.403331
## [12] 2.403331
## [13] 2.398588
## [14] 2.343248
## [15] 2.268935
## [16] 2.246055
## [17] 2.181882
## [18] 2.170151
## [19] 2.096523
## [20] 2.074454
## [21] 2.066090
## [22] 2.021263
## [23] 2.015521
## [24] 1.950203
## [25] 1.930784
## [26] 1.922665
## [27] 1.915989
## [28] 1.847561
## [29] 1.833239
## [30] 1.833239
## [31] 1.767232
## [32] 1.728712
## [33] 1.715592
## [34] 1.690579
## [35] 1.683333
## [36] 1.642276
## [37] 1.626783
## [38] 1.615354
## [39] 1.613961
## [40] 1.603175
## [41] 1.567627
## [42] 1.508213
## [43] 1.495645
## [44] 1.478049
## [45] 1.463768
```

```
## [46] 1.462652
   [47] 1.459801
   [48] 1.436992
   [49] 1.436992
##
   [50] 1.426187
##
   [51] 1.426187
   [52] 1.424162
##
   [53] 1.413435
##
   [54] 1.413435
##
   [55] 1.389619
   [56] 1.383562
##
   [57] 1.381005
##
   [58] 1.376614
##
   [59] 1.353143
   [60] 1.347180
   [61] 1.346667
##
   [62] 1.336089
   [63] 1.316071
   [64] 1.300136
##
   [65] 1.282325
##
   [66] 1.278481
   [67] 1.269032
   [68] 1.264997
##
##
   [69] 1.246914
   [70] 1.214359
   [71] 1.183719
   [72] 1.088486
##
##
   [73]
       0.967770
##
        lhs
                             rhs
                                           support
                                                     confidence lift
##
   [1]
                          => {milk=FALSE} 0.1287129 1.0000000
        {type=fish}
                                                                1.6833333
##
   [2]
        {backbone=FALSE} =>
                             {milk=FALSE} 0.1782178 1.0000000
                                                                 1.6833333
##
   [3]
        {type=bird}
                             {milk=FALSE} 0.1980198 1.0000000
                                                                 1.6833333
##
   [4]
        {feathers=TRUE}
                          => {milk=FALSE} 0.1980198 1.0000000
                                                                 1.6833333
   [5]
##
        {breathes=FALSE} => {milk=FALSE} 0.2079208 1.0000000
                                                                 1.6833333
        {eggs=TRUE}
   [6]
                             {milk=FALSE} 0.5742574 0.9830508
##
                                                                 1.6548023
                          => {milk=FALSE} 0.5544554 0.9655172
##
   [7]
        {hair=FALSE}
                                                                 1.6252874
   [8]
        {airborne=TRUE}
                             {milk=FALSE} 0.2178218 0.9166667
                                                                 1.5430556
   [9]
        {legs=FALSE}
                             {milk=FALSE} 0.1980198 0.8695652
##
                                                                 1.4637681
                             {milk=FALSE} 0.2970297 0.8333333
##
   [10] {aquatic=TRUE}
                                                                 1.4027778
                             {milk=FALSE} 0.1980198 0.7692308
##
   [11] {tail=FALSE}
                                                                 1.2948718
                             {milk=FALSE} 0.1287129 0.7647059
   [12] {fins=TRUE}
                                                                 1.2872549
   [13] {predator=TRUE}
                             {milk=FALSE} 0.3366337 0.6071429
                                                                 1.0220238
   [14] {fins=FALSE}
                             {milk=FALSE} 0.4653465 0.5595238
                                                                 0.9418651
##
                          => {milk=FALSE} 0.3960396 0.5333333
   [15] {tail=TRUE}
                                                                 0.8977778
   [16] {backbone=TRUE}
                          => {milk=FALSE} 0.4158416 0.5060241
                                                                 0.8518072
                          => {milk=FALSE} 0.2970297 0.4615385
   [17] {aquatic=FALSE}
                                                                 0.7769231
##
   [18] {toothed=TRUE}
                          => {milk=FALSE} 0.2079208 0.3442623
                                                                 0.5795082
##
       lhs
                                          rhs
                                                      support
                                                                 confidence
   [1] {hair=TRUE,predator=TRUE}
                                      => {milk=TRUE} 0.1980198 1.0000000
   [2] {aquatic=FALSE,predator=TRUE} => {milk=TRUE} 0.1584158 0.5925926
   [3] {predator=TRUE,breathes=TRUE} => {milk=TRUE} 0.2178218 0.5641026
##
##
       lift
## [1] 2.463415
## [2] 1.459801
```

```
## [3] 1.389619
##
       lhs
                                                   support
                                       rhs
                                                             confidence
  [1] {toothed=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3564356 0.8181818
                                   => {milk=TRUE} 0.2772277 0.7777778
  [2] {fins=FALSE,catsize=TRUE}
  [3] {airborne=FALSE,fins=FALSE} => {milk=TRUE} 0.3465347 0.5833333
  [4] {feathers=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5781250
  [5] {backbone=TRUE.fins=FALSE} => {milk=TRUE} 0.3663366 0.5606061
  [6] {fins=FALSE,tail=TRUE}
                                    => {milk=TRUE} 0.3168317 0.5423729
##
   [7] {venomous=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.4805195
##
       lift
## [1] 2.015521
## [2] 1.915989
  [3] 1.436992
## [4] 1.424162
## [5] 1.381005
  [6] 1.336089
##
  [7] 1.183719
##
       lhs
                                      rhs
                                                  support
                                                            confidence
## [1] {hair=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 1.0000000
  [2] {feathers=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.6363636
## [3] {aquatic=FALSE,tail=TRUE}
                                  => {milk=TRUE} 0.2970297 0.6122449
## [4] {airborne=FALSE,tail=TRUE} => {milk=TRUE} 0.3267327 0.5789474
                                   => {milk=TRUE} 0.3267327 0.5789474
## [5] {legs=TRUE,tail=TRUE}
  [6] {breathes=TRUE,tail=TRUE}
                                  => {milk=TRUE} 0.3465347 0.5737705
  [7] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
  [8] {predator=FALSE,tail=TRUE} => {milk=TRUE} 0.1683168 0.5151515
   [9] {venomous=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.4929577
##
       lift
## [1] 2.463415
## [2] 1.567627
## [3] 1.508213
##
  [4] 1.426187
  [5] 1.426187
## [6] 1.413435
   [7] 1.336089
##
  [8] 1.269032
##
  [9] 1.214359
##
        lhs
                                                                 confidence
                                           rhs
                                                       support
        {hair=TRUE,backbone=TRUE}
                                        => {milk=TRUE} 0.3861386 1.0000000
##
  [1]
                                        => {milk=TRUE} 0.3960396 0.9756098
##
  [2]
        {eggs=FALSE,backbone=TRUE}
  [3]
        {backbone=TRUE, catsize=TRUE}
                                        => {milk=TRUE} 0.3168317 0.7441860
  [4]
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
##
##
   [5]
        {feathers=FALSE,backbone=TRUE} => {milk=TRUE} 0.4059406 0.6507937
##
  [6]
        {airborne=FALSE,backbone=TRUE} => {milk=TRUE} 0.3861386 0.6000000
##
  [7]
        {backbone=TRUE,breathes=TRUE}
                                        => {milk=TRUE} 0.4059406 0.5942029
## [8]
        {backbone=TRUE,legs=TRUE}
                                        => {milk=TRUE} 0.3762376 0.5937500
##
  [9]
        {backbone=TRUE,fins=FALSE}
                                        => {milk=TRUE} 0.3663366 0.5606061
  [10] {predator=FALSE,backbone=TRUE} => {milk=TRUE} 0.1881188 0.5277778
##
   [11] {backbone=TRUE, venomous=FALSE} => {milk=TRUE} 0.4059406 0.5189873
##
        lift
## [1]
        2.463415
## [2]
       2.403331
## [3]
        1.833239
## [4]
       1.626783
```

```
[5]
        1.603175
##
   [6]
        1.478049
##
   [7]
        1.463768
   [8]
##
        1.462652
##
   [9]
        1.381005
   [10] 1.300136
##
##
   [11] 1.278481
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
   [1]
        {aquatic=FALSE, toothed=TRUE}
                                         => {milk=TRUE} 0.3465347 0.9210526
##
   [2]
        {aquatic=FALSE,catsize=TRUE}
                                         => {milk=TRUE} 0.2574257 0.8387097
   [3]
        {airborne=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3267327 0.7173913
   [4]
##
        {feathers=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3465347 0.6862745
##
   [5]
        {aquatic=FALSE, backbone=TRUE}
                                         => {milk=TRUE} 0.3465347 0.6603774
##
   [6]
        {aquatic=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.2970297 0.6122449
   [7]
##
        {aquatic=FALSE,predator=TRUE}
                                        => {milk=TRUE} 0.1584158 0.5925926
##
   [8]
        {aquatic=FALSE,legs=TRUE}
                                         => {milk=TRUE} 0.3465347 0.5833333
##
   [9]
        {aquatic=FALSE, venomous=FALSE} => {milk=TRUE} 0.3465347 0.5737705
        {aquatic=FALSE,breathes=TRUE} => {milk=TRUE} 0.3465347 0.5468750
##
        lift
##
   [1]
        2.268935
##
   [2]
        2.066090
   [3]
##
        1.767232
   [4]
##
        1.690579
##
   [5]
        1.626783
##
   [6]
        1.508213
   [7]
        1.459801
   [8]
##
        1.436992
##
   [9]
        1.413435
   [10] 1.347180
##
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
##
   [1] {hair=TRUE,toothed=TRUE}
                                       => {milk=TRUE} 0.3762376 1.0000000
   [2] {aquatic=FALSE,toothed=TRUE}
                                       => {milk=TRUE} 0.3465347 0.9210526
   [3] {toothed=TRUE,catsize=TRUE}
                                       => {milk=TRUE} 0.3069307 0.8857143
   [4] {toothed=TRUE,legs=TRUE}
                                       => {milk=TRUE} 0.3663366 0.8809524
   [5] {toothed=TRUE,breathes=TRUE}
                                       => {milk=TRUE} 0.3960396 0.8510638
   [6] {toothed=TRUE,fins=FALSE}
                                       => {milk=TRUE} 0.3564356 0.8181818
##
   [7] {predator=FALSE,toothed=TRUE} => {milk=TRUE} 0.1881188 0.7916667
   [8] {toothed=TRUE, venomous=FALSE} => {milk=TRUE} 0.3960396 0.7017544
##
##
       lift
  [1] 2.463415
##
   [2] 2.268935
   [3] 2.181882
   [4] 2.170151
##
   [5] 2.096523
  [6] 2.015521
   [7] 1.950203
##
##
   [8] 1.728712
##
       "Número de reglas con consecuente negado"
##
        lhs
                                             rhs
                                                              support
##
   [1]
        {catsize=FALSE, type=bird}
                                             {airborne=TRUE} 0.1287129
   [2]
##
        {feathers=TRUE,catsize=FALSE}
                                          => {airborne=TRUE} 0.1287129
##
   [3]
        {type=bird}
                                            {airborne=TRUE} 0.1584158
##
  ۲4٦
        {feathers=TRUE}
                                          => {airborne=TRUE} 0.1584158
## [5]
        {toothed=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
```

```
{predator=FALSE, toothed=FALSE}
                                         => {airborne=TRUE} 0.1485149
                                           {airborne=TRUE} 0.1584158
##
   [7]
        {toothed=FALSE,tail=TRUE}
##
  [8]
        {toothed=FALSE, breathes=TRUE}
                                           {airborne=TRUE} 0.2178218
  [9]
        {aquatic=FALSE, toothed=FALSE}
                                           {airborne=TRUE} 0.1683168
##
##
   [10] {toothed=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [11] {toothed=FALSE,legs=TRUE}
                                           {airborne=TRUE} 0.2178218
##
  [12] {eggs=TRUE,aquatic=FALSE}
                                           {airborne=TRUE} 0.1683168
  [13] {eggs=TRUE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
   Γ147
       {milk=FALSE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
   [15] {milk=FALSE,aquatic=FALSE}
                                           {airborne=TRUE} 0.1683168
   [16] {eggs=TRUE,breathes=TRUE}
                                           {airborne=TRUE} 0.2178218
   [17] {milk=FALSE,breathes=TRUE}
                                           {airborne=TRUE} 0.2178218
   [18] {toothed=FALSE, venomous=FALSE}
                                           {airborne=TRUE} 0.1980198
  [19] {toothed=FALSE}
                                           {airborne=TRUE} 0.2178218
                                         => {airborne=TRUE} 0.2178218
  [20] {eggs=TRUE,legs=TRUE}
       {milk=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
   [21]
   [22]
       {predator=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
   [23] {legs=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.2079208
                                           {airborne=TRUE} 0.2079208
   [24] {breathes=TRUE,catsize=FALSE}
   [25] {hair=FALSE,predator=FALSE}
                                            {airborne=TRUE} 0.1089109
##
  [26] {aquatic=FALSE, catsize=FALSE}
                                           {airborne=TRUE} 0.1683168
       {hair=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1287129
  [27]
  [28] {hair=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1782178
##
                                            {airborne=TRUE} 0.1782178
##
  Г291
       {hair=FALSE,breathes=TRUE}
  [30] {eggs=TRUE,fins=FALSE}
                                           {airborne=TRUE} 0.2178218
   [31] {milk=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.2178218
   [32] {fins=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.2079208
##
   [33] {predator=FALSE,legs=TRUE}
                                           {airborne=TRUE} 0.1683168
  [34] {hair=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.1782178
  [35] {predator=FALSE,breathes=TRUE}
                                        => {airborne=TRUE} 0.1683168
   [36]
        {predator=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.1683168
        {eggs=TRUE,catsize=FALSE}
##
   [37]
                                           {airborne=TRUE} 0.1881188
       {eggs=TRUE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
   [39] {tail=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.1485149
   [40] {milk=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
##
  [41] {milk=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.1881188
  [42] {milk=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [43] {predator=FALSE,domestic=FALSE} =>
                                            {airborne=TRUE} 0.1287129
       {hair=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [44]
  [45] {eggs=TRUE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [46] {milk=FALSE,backbone=TRUE}
                                           {airborne=TRUE} 0.1584158
  [47] {venomous=FALSE, catsize=FALSE}
                                           {airborne=TRUE} 0.1881188
  [48] {eggs=TRUE, venomous=FALSE}
                                           {airborne=TRUE} 0.1980198
  [49] {backbone=TRUE, catsize=FALSE}
                                         => {airborne=TRUE} 0.1485149
  [50] {hair=FALSE, venomous=FALSE}
                                         => {airborne=TRUE} 0.1782178
       {breathes=TRUE,legs=TRUE}
   [51]
                                           {airborne=TRUE} 0.2376238
##
   [52]
       {aquatic=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1881188
   [53]
       {legs=TRUE,tail=TRUE}
                                         => {airborne=TRUE} 0.1782178
   [54] {breathes=TRUE,fins=FALSE}
                                         => {airborne=TRUE} 0.2376238
   [55] {fins=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2376238
                                         => {airborne=TRUE} 0.1782178
##
   [56]
       {fins=FALSE,tail=TRUE}
   [57] {aquatic=FALSE}
                                         => {airborne=TRUE} 0.1881188
##
   [58] {venomous=FALSE}
                                         => {airborne=TRUE} 0.2178218
##
        confidence lift
```

```
## [1]
        0.9285714 3.9077381
##
   [2]
        0.9285714
                   3.9077381
   [3]
        0.8000000
                   3.3666667
   [4]
        0.8000000
##
                   3.3666667
##
   [5]
        0.7272727
                    3.0606061
##
   [6]
        0.7142857
                   3.0059524
        0.6956522
##
   [7]
                   2.9275362
##
   [8]
        0.6666667
                   2.8055556
##
   [9]
        0.6296296
                   2.6496914
   [10] 0.6129032
                   2.5793011
   [11] 0.6111111
                   2.5717593
   [12] 0.5862069
                   2.4669540
##
   [13] 0.5769231
                   2.4278846
  [14] 0.5769231
                    2.4278846
## [15] 0.5666667
                   2.3847222
   [16] 0.5641026
                   2.3739316
   [17] 0.5641026
                   2.3739316
   [18] 0.555556
                   2.3379630
   [19] 0.5500000
                   2.3145833
   [20] 0.5500000
                   2.3145833
## [21] 0.5500000
                   2.3145833
  [22] 0.5172414
                   2.1767241
  [23] 0.5121951
                   2.1554878
   [24] 0.5121951
##
                   2.1554878
   [25] 0.5000000
                   2.1041667
   [26] 0.5000000
                   2.1041667
   [27] 0.5000000
                   2.1041667
   [28] 0.5000000
##
                   2.1041667
   [29] 0.4864865
                   2.0472973
  [30] 0.4782609
                   2.0126812
   [31] 0.4680851
                    1.9698582
##
   [32] 0.4375000
                    1.8411458
   [33] 0.4358974
                    1.8344017
   [34] 0.4186047
                    1.7616279
   [35] 0.4146341
                    1.7449187
##
   [36] 0.4146341
                    1.7449187
   [37] 0.4130435
                    1.7382246
  [38] 0.4102564
##
                    1.7264957
   [39] 0.4054054
                    1.7060811
   [40] 0.4000000
##
                    1.6833333
   [41] 0.3958333
                    1.6657986
   [42] 0.3846154
                    1.6185897
   [43] 0.3823529
                    1.6090686
##
  [44] 0.3809524
                    1.6031746
  [45] 0.3809524
                    1.6031746
   [46] 0.3809524
                    1.6031746
##
   [47] 0.3800000
                    1.5991667
   [48] 0.3773585
                    1.5880503
   [49] 0.3750000
                    1.5781250
   [50] 0.3461538
                    1.4567308
##
   [51] 0.3287671
                    1.3835616
## [52] 0.3166667
                    1.3326389
## [53] 0.3157895
                   1.3289474
## [54] 0.3157895 1.3289474
```

```
## [55] 0.3116883
                  1.3116883
   [56] 0.3050847
                   1.2838983
  [57] 0.2923077
                   1.2301282
##
  [58] 0.2365591
                  0.9955197
##
                                              support
                                                        confidence lift
## [1]
                         => {airborne=FALSE} 0.1287129 1.0000000 1.3116883
        {type=fish}
  [2]
                         => {airborne=FALSE} 0.1683168 1.0000000
        {fins=TRUE}
## [3]
        {breathes=FALSE} => {airborne=FALSE} 0.2079208 1.0000000
                                                                   1.3116883
## [4]
        {legs=FALSE}
                         => {airborne=FALSE} 0.2277228 1.0000000
                                                                   1.3116883
##
  [5]
        {toothed=TRUE}
                         => {airborne=FALSE} 0.5841584 0.9672131
                                                                   1.2686821
  [6]
        {eggs=FALSE}
                         => {airborne=FALSE} 0.3960396 0.9523810
                                                                   1.2492270
## [7]
        {milk=TRUE}
                         => {airborne=FALSE} 0.3861386 0.9512195
                                                                   1.2477035
        {type=mammal}
##
  [8]
                         => {airborne=FALSE} 0.3861386 0.9512195
                                                                   1.2477035
## [9]
                         => {airborne=FALSE} 0.4059406 0.9318182
                                                                   1.2222550
        {catsize=TRUE}
                         => {airborne=FALSE} 0.4851485 0.8750000
## [10] {predator=TRUE}
                                                                   1.1477273
## [11]
       {aquatic=TRUE}
                         => {airborne=FALSE} 0.3069307 0.8611111
                                                                   1.1295094
                         => {airborne=FALSE} 0.3663366 0.8604651
## [12] {hair=TRUE}
                                                                   1.1286620
## [13] {backbone=TRUE}
                         => {airborne=FALSE} 0.6435644 0.7831325
                                                                   1.0272258
                         => {airborne=FALSE} 0.1980198 0.7692308
                                                                   1.0089910
## [14] {tail=FALSE}
## [15] {tail=TRUE}
                         => {airborne=FALSE} 0.5643564 0.7600000
                                                                   0.9968831
## [16] {aquatic=FALSE}
                         => {airborne=FALSE} 0.4554455 0.7076923
                                                                   0.9282717
                         => {airborne=FALSE} 0.3960396 0.6896552
## [17] {hair=FALSE}
                                                                   0.9046126
## [18] {backbone=FALSE} => {airborne=FALSE} 0.1188119 0.6666667
                                                                   0.8744589
                         => {airborne=FALSE} 0.3762376 0.6333333
## [19] {milk=FALSE}
                                                                   0.8307359
## [20] {eggs=TRUE}
                         => {airborne=FALSE} 0.3663366 0.6271186
                                                                   0.8225842
  [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.6222222
                                                                   0.8161616
  [22] {toothed=FALSE}
                         => {airborne=FALSE} 0.1782178 0.4500000
                                                                   0.5902597
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
## [2] {eggs=TRUE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
  [3] {milk=FALSE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
##
  [4] {backbone=TRUE, catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift
## [1] 3.060606
   [2] 1.603175
##
  [3] 1.603175
## [4] 1.578125
##
       lhs
                                                     support
                                                               confidence
                                    rhs
## [1] {toothed=FALSE,tail=TRUE} => {airborne=TRUE} 0.1584158 0.6956522
                                  => {airborne=TRUE} 0.1584158 0.4102564
  [2] {eggs=TRUE,tail=TRUE}
## [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4000000
## [5] {hair=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
## [6] {legs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1782178 0.3157895
                                  => {airborne=TRUE} 0.1782178 0.3050847
## [7] {fins=FALSE,tail=TRUE}
##
       lift
## [1] 2.927536
## [2] 1.726496
## [3] 1.706081
## [4] 1.683333
## [5] 1.603175
## [6] 1.328947
## [7] 1.283898
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
```

```
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
                                     => {airborne=TRUE} 0.1683168 0.5862069
## [2] {eggs=TRUE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5666667
## [3] {milk=FALSE,aquatic=FALSE}
## [4] {aquatic=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
  [5] {hair=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1287129 0.5000000
   [6] {aquatic=FALSE,legs=TRUE}
                                     => {airborne=TRUE} 0.1881188 0.3166667
##
       lift
## [1] 2.649691
  [2] 2.466954
## [3] 2.384722
## [4] 2.104167
## [5] 2.104167
##
   [6] 1.332639
##
       lhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
  [2] {hair=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1287129 0.5000000
  [3] {hair=FALSE,legs=TRUE}
                                    => {airborne=TRUE} 0.1782178 0.5000000
## [4] {hair=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.4864865
                                   => {airborne=TRUE} 0.1782178 0.4186047
## [5] {hair=FALSE,fins=FALSE}
  [6] {hair=FALSE,tail=TRUE}
                                    => {airborne=TRUE} 0.1584158 0.3809524
##
  [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
##
       lift.
## [1] 2.104167
  [2] 2.104167
## [3] 2.104167
## [4] 2.047297
## [5] 1.761628
  [6] 1.603175
  [7] 1.456731
##
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
  [2] {milk=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1683168 0.5666667
  [3] {milk=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5641026
## [4] {milk=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5500000
## [5] {milk=FALSE,fins=FALSE}
                                    => {airborne=TRUE} 0.2178218 0.4680851
## [6] {milk=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.4000000
## [7] {milk=FALSE,catsize=FALSE}
                                   => {airborne=TRUE} 0.1881188 0.3958333
## [8] {milk=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
## [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
       lift.
## [1] 2.427885
## [2] 2.384722
## [3] 2.373932
## [4] 2.314583
## [5] 1.969858
## [6] 1.683333
## [7] 1.665799
## [8] 1.618590
##
  [9] 1.603175
##
                                     rhs
       lhs
                                                      support
                                                                confidence
## [1] {eggs=TRUE,aquatic=FALSE}
                                  => {airborne=TRUE} 0.1683168 0.5862069
## [2] {eggs=TRUE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
## [3] {eggs=TRUE,breathes=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5641026
## [4] {eggs=TRUE,legs=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5500000
```

```
## [5] {eggs=TRUE,fins=FALSE}
                                  => {airborne=TRUE} 0.2178218 0.4782609
                                 => {airborne=TRUE} 0.1881188 0.4130435
## [6] {eggs=TRUE,catsize=FALSE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
## [7] {eggs=TRUE,tail=TRUE}
## [8] {eggs=TRUE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
  [9] {eggs=TRUE,venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
       lift
## [1] 2.466954
## [2] 2.427885
## [3] 2.373932
## [4] 2.314583
## [5] 2.012681
## [6] 1.738225
## [7] 1.726496
## [8] 1.603175
## [9] 1.588050
##
       lhs
                                                           support
                                          rhs
## [1] {predator=FALSE, toothed=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [2] {eggs=TRUE,predator=FALSE}
                                       => {airborne=TRUE} 0.1485149
                                       => {airborne=TRUE} 0.1485149
## [3] {milk=FALSE,predator=FALSE}
## [4] {predator=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [5] {hair=FALSE,predator=FALSE}
                                       => {airborne=TRUE} 0.1089109
## [6] {predator=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.1683168
## [7] {predator=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.1683168
## [8] {predator=FALSE,fins=FALSE}
                                       => {airborne=TRUE} 0.1683168
  [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
       confidence lift
## [1] 0.7142857 3.005952
## [2] 0.5769231
                  2.427885
## [3] 0.5769231
                 2.427885
## [4] 0.5172414
                  2.176724
## [5] 0.5000000
                  2.104167
## [6] 0.4358974
                  1.834402
## [7] 0.4146341
                  1.744919
## [8] 0.4146341
                  1.744919
## [9] 0.3823529
                  1.609069
##
       lhs
                                         rhs
                                                         support
                                                                    confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
## [2] {predator=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1485149 0.7142857
## [3] {toothed=FALSE,tail=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.6956522
## [4] {toothed=FALSE,breathes=TRUE} => {airborne=TRUE} 0.2178218 0.6666667
## [5] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
## [6] {toothed=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1881188 0.6129032
## [7] {toothed=FALSE,legs=TRUE}
                                      => {airborne=TRUE} 0.2178218 0.6111111
  [8] {toothed=FALSE,venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
       lift
## [1] 3.060606
## [2] 3.005952
## [3] 2.927536
## [4] 2.805556
## [5] 2.649691
## [6] 2.579301
## [7] 2.571759
## [8] 2.337963
## [1] "Número de reglas con consecuente negado"
```

```
##
                                                         support
                                                                    confidence
##
                                           {tail=FALSE} 0.1386139 1.0000000
  [1]
        {backbone=FALSE, venomous=FALSE} =>
        {backbone=FALSE}
                                           {tail=FALSE} 0.1683168 0.9444444
##
   [2]
  [3]
##
        {feathers=FALSE, toothed=FALSE}
                                         => {tail=FALSE} 0.1683168 0.8500000
##
   [4]
        {airborne=FALSE, toothed=FALSE}
                                           {tail=FALSE} 0.1089109 0.6111111
   [5]
        {feathers=FALSE,eggs=TRUE}
                                         => {tail=FALSE} 0.1980198 0.5128205
##
  [6]
        {feathers=FALSE,milk=FALSE}
                                           {tail=FALSE} 0.1980198 0.5000000
## [7]
        {feathers=FALSE, catsize=FALSE}
                                           {tail=FALSE} 0.1980198 0.4651163
##
  [8]
        {eggs=TRUE,fins=FALSE}
                                           {tail=FALSE} 0.1980198 0.4347826
  [9]
##
        {milk=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4255319
  [10] {hair=FALSE, feathers=FALSE}
                                         => {tail=FALSE} 0.1584158 0.4210526
  [11] {fins=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4166667
  [12] {eggs=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
## [13] {milk=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
## [14] {feathers=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.3906250
  [15] {legs=TRUE,catsize=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3902439
  [16] {airborne=FALSE, catsize=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3888889
  [17] {eggs=TRUE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3793103
  [18] {eggs=TRUE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3783784
  [19] {hair=FALSE,fins=FALSE}
                                            {tail=FALSE} 0.1584158 0.3720930
## [20] {milk=FALSE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3684211
  [21] {milk=FALSE,aquatic=FALSE}
                                           {tail=FALSE} 0.1089109 0.3666667
## [22] {feathers=FALSE,legs=TRUE}
                                           {tail=FALSE} 0.2079208 0.3620690
  [23] {domestic=FALSE,catsize=FALSE}
                                            {tail=FALSE} 0.1782178 0.3600000
  [24] {feathers=FALSE,predator=FALSE} =>
                                           {tail=FALSE} 0.1188119 0.3529412
  [25] {aquatic=FALSE, catsize=FALSE}
                                         => {tail=FALSE} 0.1188119 0.3529412
  [26] {hair=FALSE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3500000
## [27] {hair=FALSE,legs=TRUE}
                                           {tail=FALSE} 0.1188119 0.3333333
## [28] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
## [29] {airborne=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1881188 0.3166667
## [30] {fins=FALSE,domestic=FALSE}
                                         => {tail=FALSE} 0.2178218 0.3055556
  [31] {predator=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1287129 0.3023256
  [32] {fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.2976190
                                         => {tail=FALSE} 0.1089109 0.2820513
  [33] {predator=TRUE,legs=TRUE}
   [34] {airborne=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1485149 0.2777778
  [35] {legs=TRUE,domestic=FALSE}
                                         => {tail=FALSE} 0.1782178 0.2727273
##
  [36] {domestic=FALSE}
                                         => {tail=FALSE} 0.2277228 0.2613636
  [37] {predator=TRUE}
                                         => {tail=FALSE} 0.1386139 0.2500000
##
   [38] {venomous=FALSE}
                                         => {tail=FALSE} 0.2178218 0.2365591
##
##
        lift.
  [1]
        3.8846154
##
   [2]
       3.6688034
##
   [3]
        3.3019231
##
   [4]
        2.3739316
  [5]
##
        1.9921105
  [6]
##
        1.9423077
        1.8067979
##
  [7]
##
  [8]
        1.6889632
  [9]
        1.6530278
  [10]
       1.6356275
## [11] 1.6185897
## [12] 1.5538462
## [13] 1.5538462
## [14] 1.5174279
```

```
## [15] 1.5159475
  [16] 1.5106838
  [17] 1.4734748
  [18] 1.4698545
  [19] 1.4454383
## [20] 1.4311741
  [21] 1.4243590
## [22] 1.4064987
  [23] 1.3984615
  [24] 1.3710407
  [25] 1.3710407
## [26] 1.3596154
## [27] 1.2948718
## [28] 1.2583965
## [29] 1.2301282
## [30] 1.1869658
  [31] 1.1744186
  [32] 1.1561355
  [33] 1.0956607
  [34] 1.0790598
##
  [35] 1.0594406
  [36] 1.0152972
  [37] 0.9711538
   [38] 0.9189413
##
##
        lhs
                             rhs
                                         support
                                                   confidence lift
  [1]
        {type=fish}
                          => {tail=TRUE} 0.1287129 1.0000000
                                                               1.3466667
   [2]
                          => {tail=TRUE} 0.1980198 1.0000000
##
        {type=bird}
                                                               1.3466667
   [3]
        {feathers=TRUE}
                         => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
## [4]
                         => {tail=TRUE} 0.1584158 0.9411765
        {fins=TRUE}
                                                               1.2674510
## [5]
        {catsize=TRUE}
                         => {tail=TRUE} 0.3762376 0.8636364
                                                               1.1630303
## [6]
        {eggs=FALSE}
                         => {tail=TRUE} 0.3564356 0.8571429
                                                               1.1542857
##
  [7]
        {milk=TRUE}
                         => {tail=TRUE} 0.3465347 0.8536585
                                                               1.1495935
  [8]
        {type=mammal}
                          => {tail=TRUE} 0.3465347 0.8536585
                                                               1.1495935
                          => {tail=TRUE} 0.1782178 0.7826087
##
  [9]
        {legs=FALSE}
                                                               1.0539130
  [10] {hair=TRUE}
                          => {tail=TRUE} 0.3267327 0.7674419
                                                               1.0334884
                         => {tail=TRUE} 0.4851485 0.7538462
## [11] {aquatic=FALSE}
                                                               1.0151795
## [12] {airborne=TRUE}
                         => {tail=TRUE} 0.1782178 0.7500000
                                                               1.0100000
## [13] {predator=TRUE}
                         => {tail=TRUE} 0.4158416 0.7500000
                                                               1.0100000
  [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
                                                               0.9946970
  [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                                                               0.9875556
                          => {tail=TRUE} 0.4158416 0.7241379
  [16] {hair=FALSE}
                                                               0.9751724
  [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
                                                               0.9144033
  [18] {eggs=TRUE}
                         => {tail=TRUE} 0.3861386 0.6610169
                                                               0.8901695
   [19] {catsize=FALSE}
                         => {tail=TRUE} 0.3663366 0.6491228
                                                               0.8741520
   [20] {toothed=FALSE}
                         => {tail=TRUE} 0.2277228 0.5750000
                                                               0.7743333
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
  [1] {eggs=TRUE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3793103
   [2] {milk=FALSE, aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3666667
##
   [3] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.473475
## [2] 1.424359
## [3] 1.371041
##
       lhs
                                      rhs
                                                   support
                                                              confidence
```

```
## [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
  [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
##
       lift
## [1] 1.174419
##
  [2] 1.095661
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
## [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
## [3] {fins=FALSE,domestic=FALSE}
                                       => {tail=FALSE} 0.2178218 0.3055556
##
  [4] {legs=TRUE,domestic=FALSE}
                                       => {tail=FALSE} 0.1782178 0.2727273
##
       lift
## [1] 1.398462
## [2] 1.258397
## [3] 1.186966
## [4] 1.059441
##
                                           rhs
                                                        support
                                                                  confidence
##
  [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
  [1] 1.371041
##
##
       lhs
                                                    support
                                                              confidence
## [1] {hair=FALSE,feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
## [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
## [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
## [4] {hair=FALSE,legs=TRUE}
                                   => {tail=FALSE} 0.1188119 0.3333333
##
       lift
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {tail=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE}
                                       => {tail=FALSE} 0.1980198 0.5128205
## [3] {feathers=FALSE,milk=FALSE}
                                       => {tail=FALSE} 0.1980198 0.5000000
                                       => {tail=FALSE} 0.1980198 0.4651163
## [4] {feathers=FALSE,catsize=FALSE}
## [5] {hair=FALSE,feathers=FALSE}
                                       => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                       => {tail=FALSE} 0.2475248 0.3906250
## [7] {feathers=FALSE,legs=TRUE}
                                       => {tail=FALSE} 0.2079208 0.3620690
## [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
## [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
##
       lift
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
## [7] 1.406499
## [8] 1.371041
## [9] 1.258397
##
       lhs
                                     rhs
                                                   support
                                                             confidence
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
## [2] {eggs=TRUE,fins=FALSE}
                                  => {tail=FALSE} 0.1980198 0.4347826
                                  => {tail=FALSE} 0.1584158 0.4000000
## [3] {eggs=TRUE,legs=TRUE}
## [4] {eggs=TRUE,aquatic=FALSE} => {tail=FALSE} 0.1089109 0.3793103
```

```
## [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
       lift.
##
  [1] 1.992110
  [2] 1.688963
   [3] 1.553846
##
  [4] 1.473475
##
  [5] 1.469854
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
   [2] {fins=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4166667
  [3] {legs=TRUE,catsize=FALSE}
                                       => {tail=FALSE} 0.1584158 0.3902439
   [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
   [5] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
   [6] {aquatic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
##
       lift
##
  [1] 1.806798
##
   [2] 1.618590
  [3] 1.515947
  [4] 1.510684
  [5] 1.398462
##
   [6] 1.371041
##
                                          rhs
                                                       support
  [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
   [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
##
       lift
## [1] 3.301923
  [2] 2.373932
##
       "Número de reglas con consecuente negado"
##
                                                         support
                                                                    confidence
## [1]
                                         => {legs=FALSE} 0.1287129 1.0000000
        {type=fish}
## [2]
        {hair=FALSE,fins=TRUE}
                                           {legs=FALSE} 0.1485149 1.0000000
##
  [3]
        {eggs=TRUE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
## [4]
        {milk=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
  [5]
##
        {toothed=TRUE,breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
   [6]
        {breathes=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1386139 1.0000000
##
  [7]
        {backbone=TRUE, breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
## [8]
        {fins=TRUE}
                                         => {legs=FALSE} 0.1584158 0.9411765
## [9]
        {hair=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1782178 0.7826087
## [10] {breathes=FALSE}
                                         => {legs=FALSE} 0.1584158 0.7619048
## [11] {milk=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1584158 0.7619048
## [12] {eggs=TRUE,toothed=TRUE}
                                         => {legs=FALSE} 0.1485149 0.7500000
## [13] {aquatic=TRUE, toothed=TRUE}
                                         => {legs=FALSE} 0.1683168 0.7391304
## [14] {aquatic=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.6153846
## [15] {feathers=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.6000000
## [16] {airborne=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
## [17] {hair=FALSE,feathers=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5789474
## [18] {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
## [19] {hair=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1683168 0.5312500
## [20] {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
## [21] {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
## [22] {feathers=FALSE,milk=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5000000
## [23] {feathers=FALSE,eggs=TRUE}
                                         => {legs=FALSE} 0.1881188 0.4871795
## [24] {toothed=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.4615385
## [25] {hair=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4444444
```

```
## [26] {airborne=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
  [27] {hair=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4285714
  [28] {milk=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1386139 0.4117647
  [29] {hair=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4090909
   [30] {predator=TRUE,toothed=TRUE}
##
                                         => {legs=FALSE} 0.1485149 0.4054054
  [31] {milk=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4000000
##
  [32] {eggs=TRUE,predator=TRUE}
                                         => {legs=FALSE} 0.1287129 0.3939394
                                           {legs=FALSE} 0.2079208 0.3888889
  [33] {hair=FALSE,domestic=FALSE}
   [34]
       {eggs=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1485149 0.3846154
   [35]
       {milk=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1584158 0.3809524
  [36] {feathers=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.3720930
   [37] {feathers=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3617021
       {eggs=TRUE,backbone=TRUE}
   [38]
                                         => {legs=FALSE} 0.1485149 0.3571429
       {airborne=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
  [40] {toothed=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3461538
   [41]
       {milk=FALSE,domestic=FALSE}
                                            {legs=FALSE} 0.1881188 0.3454545
   [42] {predator=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1386139 0.3333333
  [43] {eggs=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3333333
  [44] {feathers=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3272727
  [45] {tail=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3243243
  [46] {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
  [47] {airborne=FALSE, toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
  [48] {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
   [49] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
  [50] {feathers=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3098592
   [51] {predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3035714
   [52] {feathers=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3015873
   [53] {backbone=TRUE, catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
   [54] {domestic=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1485149 0.3000000
   [55] {tail=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1683168 0.2615385
##
   [56] {backbone=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.2535211
##
        lift
##
   [1]
        4.391304
   [2]
##
        4.391304
   [3]
##
        4.391304
   [4]
##
        4.391304
##
   [5]
        4.391304
  [6]
        4.391304
##
   [7]
##
        4.391304
##
  [8]
        4.132992
  [9]
        3.436673
   [10] 3.345756
##
   [11] 3.345756
##
  [12] 3.293478
  [13] 3.245747
##
  [14] 2.702341
##
   [15] 2.634783
   [16] 2.549790
  [17] 2.542334
   [18] 2.415217
## [19] 2.332880
## [20] 2.311213
## [21] 2.254994
## [22] 2.195652
```

```
## [23] 2.139353
   [24] 2.026756
   [25] 1.951691
   [26] 1.951691
   [27] 1.881988
   [28] 1.808184
   [29] 1.796443
   [30] 1.780259
   [31] 1.756522
   [32] 1.729908
   [33] 1.707729
   [34] 1.688963
   [35] 1.672878
   [36] 1.633974
   [37] 1.588344
   [38] 1.568323
   [39] 1.523514
   [40] 1.520067
   [41] 1.516996
   [42] 1.463768
##
   [43] 1.463768
   [44] 1.437154
   [45] 1.424207
   [46] 1.420716
   [47] 1.414149
   [48] 1.386728
   [49] 1.383562
   [50] 1.360686
   [51] 1.333075
   [52] 1.324362
   [53] 1.317391
   [54]
       1.317391
   [55] 1.148495
   [56] 1.113288
##
##
                                                    confidence lift
        lhs
                                          support
##
   [1]
        {type=bird}
                          => {legs=TRUE} 0.1980198 1.0000000
                                                               1.2948718
   [2]
        {feathers=TRUE}
                          => {legs=TRUE} 0.1980198 1.0000000
##
   [3]
                          => {legs=TRUE} 0.2376238 1.0000000
        {airborne=TRUE}
                                                               1.2948718
##
   [4]
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                               1.2647585
##
   [5]
        {milk=TRUE}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                               1.2001251
   [6]
                          => {legs=TRUE} 0.3762376 0.9268293
        {type=mammal}
                                                               1.2001251
   [7]
        {domestic=TRUE}
                          => {legs=TRUE} 0.1188119 0.9230769
##
                                                               1.1952663
                                                               1.1952663
##
   [8]
        {aquatic=FALSE}
                          => {legs=TRUE} 0.5940594 0.9230769
##
                          => {legs=TRUE} 0.3762376 0.9047619
   [9]
        {eggs=FALSE}
                                                               1.1715507
   [10] {toothed=FALSE}
                          => {legs=TRUE} 0.3564356 0.9000000
                                                               1.1653846
                         => {legs=TRUE} 0.3861386 0.8666667
   [11]
       {predator=FALSE}
                                                               1.122222
   [12] {catsize=TRUE}
                          => {legs=TRUE} 0.3663366 0.8409091
                                                               1.0888695
   [13] {tail=FALSE}
                          => {legs=TRUE} 0.2079208 0.8076923
                                                               1.0458580
   [14] {backbone=FALSE} => {legs=TRUE} 0.1386139 0.7777778
                                                               1.0071225
   [15] {tail=TRUE}
                          => {legs=TRUE} 0.5643564 0.7600000
                                                               0.9841026
   [16] {catsize=FALSE}
                          => {legs=TRUE} 0.4059406 0.7192982
                                                               0.9313990
                                                               0.9080919
## [17] {airborne=FALSE} => {legs=TRUE} 0.5346535 0.7012987
## [18] {toothed=TRUE}
                          => {legs=TRUE} 0.4158416 0.6885246
                                                               0.8915511
## [19] {eggs=TRUE}
                          => {legs=TRUE} 0.3960396 0.6779661
```

```
## [20] {milk=FALSE}
                         => {legs=TRUE} 0.3960396 0.6666667
                                                               0.8632479
##
   [21] {aquatic=TRUE}
                          => {legs=TRUE} 0.1782178 0.5000000
                                                               0.6474359
##
        lhs
                                       rhs
                                                     support
                                                               confidence
##
  [1]
        {breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
##
   [2]
        {aquatic=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.6153846
                                    => {legs=FALSE} 0.1782178 0.4285714
##
   [3]
        {hair=FALSE,tail=TRUE}
##
  [4]
        {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
##
  [5]
        {eggs=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1485149 0.3846154
##
   [6]
        {predator=TRUE,tail=TRUE} => {legs=FALSE} 0.1386139 0.3333333
##
   [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
  [8]
        {tail=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3243243
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
##
   [9]
       {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
##
        lift
## [1]
        4.391304
##
   [2]
        2.702341
   [3]
##
        1.881988
   [4]
        1.756522
##
  [5]
##
        1.688963
##
   [6]
        1.463768
##
  [7]
        1.437154
  [8]
##
        1.424207
## [9]
        1.386728
##
  Γ10 1.148495
##
       lhs
                                          rhs
                                                        support
                                                                  confidence
## [1] {toothed=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.4615385
  [2] {airborne=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.4444444
  [3] {feathers=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
  [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
## [5] {backbone=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3000000
##
  [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
##
       lift
##
  [1] 2.026756
  [2] 1.951691
   [3] 1.633974
##
  [4] 1.424207
## [5] 1.317391
##
  [6] 1.317391
##
        lhs
                                            rhs
                                                          support
                                                                    confidence
##
  [1]
        {airborne=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
        {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
  [3]
        {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
##
##
   [4]
        {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
##
   [5]
        {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
##
  [6]
        {airborne=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
## [7]
        {airborne=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.2178218 0.3235294
##
  [8]
        {airborne=FALSE, toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
##
   [9]
        {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
##
   [10]
       {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
        lift
        2.549790
## [1]
## [2]
        2.415217
## [3]
        2.311213
## [4]
        2.254994
```

```
[5]
        1.951691
##
   [6]
        1.523514
##
   [7]
        1.420716
   [8]
##
        1.414149
##
   [9]
        1.386728
   [10] 1.383562
##
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
## [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
   [2] {hair=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1782178 0.7826087
   [3] {milk=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1584158 0.7619048
  [4] {eggs=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.7500000
   [5] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
   [6] {toothed=TRUE,catsize=FALSE}
                                      => {legs=FALSE} 0.1188119 0.4615385
   [7] {predator=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.4054054
  [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
   [9] {airborne=FALSE, toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
       lift
##
  [1] 4.391304
##
  [2] 3.436673
   [3] 3.345756
##
  [4] 3.293478
  [5] 3.245747
##
  [6] 2.026756
##
   [7] 1.780259
  [8] 1.520067
##
   [9] 1.414149
##
       lhs
                                      rhs
                                                    support
                                                              confidence
##
  [1] {eggs=TRUE,fins=TRUE}
                                   => {legs=FALSE} 0.1287129 1.0000000
   [2] {eggs=TRUE,toothed=TRUE}
                                   => {legs=FALSE} 0.1485149 0.7500000
  [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
   [4] {feathers=FALSE,eggs=TRUE}
                                  => {legs=FALSE} 0.1881188 0.4871795
   [5] {eggs=TRUE,predator=TRUE}
                                   => {legs=FALSE} 0.1287129 0.3939394
   [6] {eggs=TRUE,tail=TRUE}
                                   => {legs=FALSE} 0.1485149 0.3846154
   [7] {eggs=TRUE,backbone=TRUE}
                                   => {legs=FALSE} 0.1485149 0.3571429
      {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
##
       lift
##
  [1] 4.391304
  [2] 3.293478
##
   [3] 2.254994
##
  [4] 2.139353
  [5] 1.729908
##
   [6] 1.688963
##
   [7] 1.568323
##
   [8] 1.463768
##
       lhs
                                                    support
                                                               confidence
                                       {legs=FALSE} 0.1287129 1.0000000
  [1] {milk=FALSE,fins=TRUE}
##
   [2] {milk=FALSE,toothed=TRUE}
                                      {legs=FALSE} 0.1584158 0.7619048
   [3] {milk=FALSE,airborne=FALSE} =>
                                      {legs=FALSE} 0.1980198 0.5263158
   [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
   [5] {milk=FALSE,predator=TRUE}
                                    => {legs=FALSE} 0.1386139 0.4117647
   [6] {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
  [7] {milk=FALSE,backbone=TRUE}
                                    => {legs=FALSE} 0.1584158 0.3809524
  [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
##
       lift
```

```
[1] 4.391304
   [2] 3.345756
  [3] 2.311213
   [4] 2.195652
   [5] 1.808184
##
   [6] 1.756522
  [7] 1.672878
##
  [8] 1.516996
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
##
  [1] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
   [2] {aquatic=TRUE,tail=TRUE}
                                      => {legs=FALSE} 0.1584158 0.6153846
   [3] {feathers=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1782178 0.6000000
   [4] {airborne=FALSE,aquatic=TRUE}
                                     => {legs=FALSE} 0.1782178 0.5806452
                                      => {legs=FALSE} 0.1683168 0.5312500
##
   [5] {hair=FALSE,aquatic=TRUE}
##
       lift
##
   [1] 3.245747
##
   [2] 2.702341
   [3] 2.634783
   [4] 2.549790
##
   [5]
       2.332880
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                              support
                                            {breathes=FALSE} 0.1287129
##
  [1]
        {type=fish}
##
   [2]
        {eggs=TRUE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
##
   [3]
        {milk=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
   [4]
        {hair=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
   [5]
        {aquatic=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
##
##
   [6]
        {milk=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
   [7]
##
        {eggs=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
##
  [8]
        {legs=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
##
   [9]
        {hair=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
   [10] {predator=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1188119
   [11] {milk=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [12] {feathers=FALSE, aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [13] {milk=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
##
  [14] {aquatic=TRUE,catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
  [15] {eggs=TRUE,toothed=TRUE}
                                            {breathes=FALSE} 0.1287129
  [16] {airborne=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [17] {eggs=TRUE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1881188
   [18] {hair=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
  [19] {aquatic=TRUE, toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
  [20] {hair=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
  [21] {hair=FALSE, feathers=FALSE}
                                            {breathes=FALSE} 0.2079208
  [22] {milk=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
  [23] {eggs=TRUE,airborne=FALSE}
                                            {breathes=FALSE} 0.1980198
  [24] {hair=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
  [25]
       {feathers=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
  [26] {feathers=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
  [27] {milk=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [28] {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
       {hair=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
##
  [29]
  [30] {airborne=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
## [31] {predator=TRUE,catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
## [32] {hair=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
```

```
## [33] {feathers=FALSE,catsize=FALSE}
                                         => {breathes=FALSE} 0.1584158
   [34]
       {hair=FALSE,eggs=TRUE}
                                         => {breathes=FALSE} 0.1980198
                                            {breathes=FALSE} 0.1980198
   [35] {hair=FALSE,domestic=FALSE}
   [36] {hair=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [37]
       {milk=FALSE,domestic=FALSE}
                                             {breathes=FALSE} 0.1980198
   [38] {feathers=FALSE,predator=TRUE}
##
                                            {breathes=FALSE} 0.1683168
   [39] {eggs=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1881188
   [40] {airborne=FALSE,predator=TRUE}
                                         =>
                                             {breathes=FALSE} 0.1683168
   [41] {domestic=FALSE, catsize=FALSE}
                                             {breathes=FALSE} 0.1485149
   [42] {airborne=FALSE,domestic=FALSE} =>
                                            {breathes=FALSE} 0.1980198
   [43] {feathers=FALSE,airborne=FALSE} =>
                                            {breathes=FALSE} 0.2079208
   [44] {feathers=FALSE,domestic=FALSE} =>
                                            {breathes=FALSE} 0.1980198
   [45]
##
       {toothed=TRUE,domestic=FALSE}
                                         => {breathes=FALSE} 0.1287129
##
   [46] {tail=TRUE}
                                         => {breathes=FALSE} 0.1386139
##
        confidence lift
##
   [1]
        1.0000000
                   4.8095238
   [2]
##
        1.0000000
                   4.8095238
   [3]
        1.0000000
                   4.8095238
   [4]
##
        0.8666667
                   4.1682540
##
   [5]
        0.8333333
                   4.0079365
##
   [6]
        0.8000000
                   3.8476190
   [7]
        0.7894737
                   3.7969925
##
   [8]
        0.7500000
                   3.6071429
##
   [9]
        0.7272727
                   3.4978355
   [10] 0.7058824
                   3.3949580
   [11] 0.6666667
                   3.2063492
   [12] 0.6666667
                   3.2063492
##
   [13] 0.6666667
                   3.2063492
   [14] 0.6521739
                   3.1366460
  [15] 0.6500000
                   3.1261905
   [16] 0.6451613
                   3.1029186
##
   [17] 0.6333333
                   3.0460317
   [18] 0.6250000
                   3.0059524
   [19] 0.6086957
                   2.9275362
   [20] 0.6086957
                   2.9275362
##
   [21] 0.5526316
                   2.6578947
   [22] 0.5526316
                   2.6578947
  [23] 0.5405405
                   2.5997426
   [24] 0.5250000
                   2.5250000
   [25] 0.5250000
                   2.5250000
   [26] 0.5128205
                   2.4664225
   [27] 0.5000000
                   2.4047619
   [28] 0.4848485
                   2.3318903
   [29] 0.4722222
                   2.2711640
  [30] 0.444444
                   2.1375661
   [31] 0.4285714
                   2.0612245
##
   [32] 0.3750000
                   1.8035714
   [33] 0.3720930
                   1.7895903
   [34] 0.3703704
                   1.7813051
   [35]
       0.3703704
                   1.7813051
##
   [36] 0.3636364
                   1.7489177
  [37] 0.3636364
                   1.7489177
## [38] 0.3617021
                   1.7396150
## [39] 0.3518519
                   1.6922399
```

```
## [40] 0.3469388
                   1.6686103
   [41] 0.3000000
                   1.4428571
   [42] 0.2941176
                   1.4145658
   [43] 0.2876712
                   1.3835616
   Γ441
       0.2816901
                   1.3547954
##
   [45] 0.2500000
                   1.2023810
##
   [46] 0.1866667
                   0.8977778
##
        lhs
                                             support
                                                        confidence lift
##
  [1]
        {type=bird}
                          => {breathes=TRUE} 0.1980198 1.0000000
                                                                   1.2625000
   [2]
##
        {feathers=TRUE}
                             {breathes=TRUE} 0.1980198 1.0000000
                                                                   1.2625000
  [3]
        {airborne=TRUE}
                         => {breathes=TRUE} 0.2376238 1.0000000
                                                                   1.2625000
   [4]
##
        {milk=TRUE}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                   1.2625000
##
   [5]
        {type=mammal}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                   1.2625000
        {hair=TRUE}
##
   [6]
                             {breathes=TRUE} 0.4257426 1.0000000
                                                                   1.2625000
  [7]
                             {breathes=TRUE} 0.6336634 0.9846154
##
        {aquatic=FALSE}
                                                                   1.2430769
##
   [8]
        {eggs=FALSE}
                             {breathes=TRUE} 0.4059406 0.9761905
                                                                   1.2324405
##
   [9]
        {legs=TRUE}
                             {breathes=TRUE} 0.7227723 0.9358974
                                                                   1.1815705
   [10] {domestic=TRUE}
                          => {breathes=TRUE} 0.1188119 0.9230769
                                                                   1.1653846
                         => {breathes=TRUE} 0.4059406 0.9111111
   [11] {predator=FALSE}
                                                                   1.1502778
   [12] {catsize=TRUE}
                             {breathes=TRUE} 0.3861386 0.8863636
                                                                   1.1190341
##
  [13] {toothed=FALSE}
                         => {breathes=TRUE} 0.3267327 0.8250000
                                                                   1.0415625
                          => {breathes=TRUE} 0.6039604 0.8133333
  [14] {tail=TRUE}
                                                                   1.0268333
  [15] {domestic=FALSE} => {breathes=TRUE} 0.6732673 0.7727273
                                                                   0.9755682
   [16] {tail=FALSE}
                             {breathes=TRUE} 0.1881188 0.7307692
                                                                   0.9225962
  [17] {airborne=FALSE} => {breathes=TRUE} 0.5544554 0.7272727
                                                                   0.9181818
  [18] {catsize=FALSE}
                         => {breathes=TRUE} 0.4059406 0.7192982
                                                                   0.9081140
   [19] {predator=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6964286
                                                                   0.8792411
##
   [20] {eggs=TRUE}
                          => {breathes=TRUE} 0.3861386 0.6610169
                                                                   0.8345339
                          => {breathes=TRUE} 0.3861386 0.6500000
##
   [21] {milk=FALSE}
                                                                   0.8206250
##
   [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
                                                                   0.7715278
##
       lhs
                                           rhs
                                                             support
##
   [1] {hair=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
   [2] {milk=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
   [3] {eggs=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1881188
   [4] {domestic=FALSE, catsize=FALSE}
                                        => {breathes=FALSE} 0.1485149
##
   [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
##
  [7] {toothed=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1287129
##
       confidence lift
##
  [1] 0.3703704 1.781305
   [2] 0.3636364
                  1.748918
   [3] 0.3518519
                  1.692240
   [4] 0.3000000
                  1.442857
##
   [5] 0.2941176
                  1.414566
  [6] 0.2816901
                  1.354795
##
  [7] 0.2500000
                  1.202381
##
       lhs
                                           rhs
                                                             support
##
  [1] {airborne=FALSE,aquatic=TRUE}
                                           {breathes=FALSE} 0.1980198
   [2] {milk=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
   [3] {eggs=TRUE,airborne=FALSE}
                                        => {breathes=FALSE} 0.1980198
##
   [4] {hair=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
  [5] {airborne=FALSE, catsize=FALSE}
                                        => {breathes=FALSE} 0.1584158
  [6] {airborne=FALSE,predator=TRUE}
                                        => {breathes=FALSE} 0.1683168
## [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
```

```
[8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
##
       confidence lift
  [1] 0.6451613 3.102919
##
  [2] 0.5526316
                  2.657895
   [3] 0.5405405
                  2.599743
  [4] 0.5250000
                  2.525000
  [5] 0.444444
                  2.137566
   [6] 0.3469388
                  1.668610
   [7] 0.2941176
                  1.414566
##
  [8] 0.2876712 1.383562
##
       lhs
                                          rhs
                                                           support
##
  [1] {legs=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
   [2] {aquatic=TRUE, catsize=FALSE}
                                      => {breathes=FALSE} 0.1485149
  [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
  [4] {predator=TRUE,catsize=FALSE} => {breathes=FALSE} 0.1188119
   [5] {feathers=FALSE, catsize=FALSE} => {breathes=FALSE} 0.1584158
   [6] {hair=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1584158
   [7] {domestic=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1485149
##
       confidence lift
##
  [1] 0.7500000
                  3.607143
##
  [2] 0.6521739
                  3.136646
  [3] 0.444444
                  2.137566
  [4] 0.4285714
                  2.061224
##
   [5] 0.3720930
                  1.789590
  [6] 0.3636364
                  1.748918
   [7] 0.3000000
                 1.442857
##
       lhs
                                          rhs
                                                           support
##
  [1] {predator=TRUE,legs=FALSE}
                                      => {breathes=FALSE} 0.1188119
   [2] {milk=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
  [3] {eggs=TRUE,predator=TRUE}
                                      => {breathes=FALSE} 0.1584158
  [4] {hair=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
   [5] {predator=TRUE, catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
   [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
       confidence lift
##
## [1] 0.7058824 3.394958
  [2] 0.5000000 2.404762
  [3] 0.4848485
                  2.331890
  [4] 0.4722222
                  2.271164
  [5] 0.4285714
                  2.061224
  [6] 0.3617021
                  1.739615
  [7] 0.3469388
##
                  1.668610
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
  [1] {eggs=TRUE,fins=TRUE}
                                  => {breathes=FALSE} 0.1287129 1.0000000
##
  [2] {eggs=TRUE,legs=FALSE}
                                  => {breathes=FALSE} 0.1485149 0.7894737
  [3] {eggs=TRUE,toothed=TRUE}
                                  => {breathes=FALSE} 0.1287129 0.6500000
   [4] {eggs=TRUE,aquatic=TRUE}
                                  => {breathes=FALSE} 0.1881188 0.6333333
   [5] {eggs=TRUE,airborne=FALSE} => {breathes=FALSE} 0.1980198 0.5405405
  [6] {feathers=FALSE,eggs=TRUE} => {breathes=FALSE} 0.1980198 0.5128205
   [7] {eggs=TRUE,predator=TRUE}
                                  => {breathes=FALSE} 0.1584158 0.4848485
   [8] {hair=FALSE,eggs=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.3703704
##
   [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
       lift
## [1] 4.809524
```

```
[2] 3.796992
   [3] 3.126190
   [4] 3.046032
   [5] 2.599743
##
   [6]
       2.466422
   [7] 2.331890
##
   [8] 1.781305
   [9] 1.692240
##
##
       lhs
                                       rhs
                                                         support
                                                                    confidence
##
   [1] {milk=FALSE,fins=TRUE}
                                    => {breathes=FALSE} 0.1287129 1.0000000
   [2] {milk=FALSE,legs=FALSE}
                                    => {breathes=FALSE} 0.1584158 0.8000000
                                       {breathes=FALSE} 0.1980198 0.6666667
   [3] {milk=FALSE,aquatic=TRUE}
   [4] {milk=FALSE, toothed=TRUE}
                                       {breathes=FALSE} 0.1386139 0.6666667
   [5] {milk=FALSE,airborne=FALSE}
                                       {breathes=FALSE} 0.2079208 0.5526316
                                       {breathes=FALSE} 0.2079208 0.5250000
   [6] {feathers=FALSE,milk=FALSE} =>
   [7] {milk=FALSE,predator=TRUE}
                                       {breathes=FALSE} 0.1683168 0.5000000
                                    => {breathes=FALSE} 0.2079208 0.3750000
   [8] {hair=FALSE,milk=FALSE}
   [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
       lift
##
   [1] 4.809524
##
   [2] 3.847619
   [3] 3.206349
##
   [4] 3.206349
##
   [5] 2.657895
##
   [6] 2.525000
   [7] 2.404762
##
   [8] 1.803571
##
   [9]
       1.748918
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                             rhs
                                                              support
##
   [1]
        {type=fish}
                                            {breathes=FALSE} 0.1287129
##
   [2]
        {eggs=TRUE,fins=TRUE}
                                             {breathes=FALSE} 0.1287129
##
   [3]
        {milk=FALSE,fins=TRUE}
                                             {breathes=FALSE} 0.1287129
   [4]
##
        {hair=FALSE,fins=TRUE}
                                             {breathes=FALSE} 0.1287129
   [5]
        {aquatic=TRUE,legs=FALSE}
                                             {breathes=FALSE} 0.1485149
##
##
   [6]
        {milk=FALSE,legs=FALSE}
                                             {breathes=FALSE} 0.1584158
##
   [7]
        {eggs=TRUE,legs=FALSE}
                                             {breathes=FALSE} 0.1485149
   [8]
        {legs=FALSE,catsize=FALSE}
                                             {breathes=FALSE} 0.1188119
##
        {hair=FALSE,legs=FALSE}
                                             {breathes=FALSE} 0.1584158
##
   [9]
   [10] {predator=TRUE,legs=FALSE}
                                             {breathes=FALSE} 0.1188119
##
   [11] {milk=FALSE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1980198
   [12] {feathers=FALSE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1980198
   [13] {milk=FALSE,toothed=TRUE}
                                             {breathes=FALSE} 0.1386139
   [14] {aquatic=TRUE, catsize=FALSE}
                                             {breathes=FALSE} 0.1485149
   [15] {eggs=TRUE,toothed=TRUE}
                                             {breathes=FALSE} 0.1287129
       {airborne=FALSE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1980198
       {eggs=TRUE,aquatic=TRUE}
##
   [17]
                                             {breathes=FALSE} 0.1881188
       {hair=FALSE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1980198
   [19] {aquatic=TRUE, toothed=TRUE}
                                             {breathes=FALSE} 0.1386139
   [20] {hair=FALSE,toothed=TRUE}
                                             {breathes=FALSE} 0.1386139
##
   [21] {hair=FALSE,feathers=FALSE}
                                             {breathes=FALSE} 0.2079208
   [22] {milk=FALSE,airborne=FALSE}
                                             {breathes=FALSE} 0.2079208
  [23] {eggs=TRUE,airborne=FALSE}
                                            {breathes=FALSE} 0.1980198
## [24] {hair=FALSE,airborne=FALSE}
                                             {breathes=FALSE} 0.2079208
```

```
## [25] {feathers=FALSE,milk=FALSE}
                                         => {breathes=FALSE} 0.2079208
                                            {breathes=FALSE} 0.1980198
   [26] {feathers=FALSE,eggs=TRUE}
  [27] {milk=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
  [28] {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
  [29] {hair=FALSE,predator=TRUE}
                                             {breathes=FALSE} 0.1683168
  [30] {airborne=FALSE, catsize=FALSE}
##
                                            {breathes=FALSE} 0.1584158
  [31] {predator=TRUE, catsize=FALSE}
                                             {breathes=FALSE} 0.1188119
  [32] {hair=FALSE,milk=FALSE}
                                             {breathes=FALSE} 0.2079208
   [33]
       {feathers=FALSE, catsize=FALSE}
                                             {breathes=FALSE} 0.1584158
   [34]
       {hair=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
   [35] {hair=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
   [36] {hair=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [37]
        {milk=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
       {feathers=FALSE, predator=TRUE}
                                         => {breathes=FALSE} 0.1683168
       {eggs=TRUE,domestic=FALSE}
                                         => {breathes=FALSE} 0.1881188
  [39]
        {airborne=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
       {domestic=FALSE,catsize=FALSE}
   [41]
                                            {breathes=FALSE} 0.1485149
       {airborne=FALSE,domestic=FALSE} =>
                                            {breathes=FALSE} 0.1980198
   [43] {feathers=FALSE,airborne=FALSE} =>
                                            {breathes=FALSE} 0.2079208
   [44] {feathers=FALSE,domestic=FALSE} =>
                                            {breathes=FALSE} 0.1980198
##
   [45] {toothed=TRUE,domestic=FALSE}
                                         => {breathes=FALSE} 0.1287129
                                         => {breathes=FALSE} 0.1386139
   [46] {tail=TRUE}
##
        confidence lift
##
   [1]
        1.0000000
                   4.8095238
   [2]
                   4.8095238
##
        1.0000000
   [3]
        1.0000000
                   4.8095238
   [4]
##
        0.8666667
                   4.1682540
##
   [5]
        0.8333333
                   4.0079365
##
   [6]
        0.8000000
                   3.8476190
##
  [7]
        0.7894737
                   3.7969925
##
   [8]
        0.7500000
                   3.6071429
##
   [9]
        0.7272727
                   3.4978355
   [10] 0.7058824
                   3.3949580
  [11] 0.6666667
                   3.2063492
        0.6666667
   [12]
                   3.2063492
                   3.2063492
##
  [13] 0.6666667
  [14] 0.6521739
                   3.1366460
  [15] 0.6500000
                   3.1261905
   [16] 0.6451613
                   3.1029186
  [17] 0.6333333
                   3.0460317
  [18] 0.6250000
                   3.0059524
   [19] 0.6086957
                   2.9275362
   [20] 0.6086957
                   2.9275362
  [21] 0.5526316
                   2.6578947
  [22] 0.5526316
                   2.6578947
  [23] 0.5405405
                   2.5997426
   [24] 0.5250000
                   2.5250000
  [25] 0.5250000
                   2.5250000
  [26] 0.5128205
                   2.4664225
  [27]
        0.5000000
                   2.4047619
                   2.3318903
##
  [28]
       0.4848485
## [29] 0.4722222
                   2.2711640
## [30] 0.444444
                   2.1375661
## [31] 0.4285714 2.0612245
```

```
[32] 0.3750000
                   1.8035714
   [33] 0.3720930
                   1.7895903
   [34] 0.3703704
                   1.7813051
   [35] 0.3703704
                   1.7813051
##
   [36] 0.3636364
                   1.7489177
##
   [37] 0.3636364
                   1.7489177
   [38] 0.3617021
                   1.7396150
   [39] 0.3518519
                   1.6922399
   [40] 0.3469388
                   1.6686103
   [41] 0.3000000
                   1.4428571
   [42] 0.2941176
                   1.4145658
   [43] 0.2876712
                   1.3835616
##
   [44] 0.2816901
                   1.3547954
##
   [45] 0.2500000
                   1.2023810
   [46] 0.1866667
                   0.8977778
##
##
        lhs
                                                        confidence lift
                                             support
                          => {breathes=TRUE} 0.1980198 1.0000000
##
  [1]
        {type=bird}
                                                                   1.2625000
        {feathers=TRUE}
                          => {breathes=TRUE} 0.1980198 1.0000000
                                                                   1.2625000
   [3]
                          => {breathes=TRUE} 0.2376238 1.0000000
##
        {airborne=TRUE}
                                                                   1.2625000
##
   [4]
        {milk=TRUE}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                   1.2625000
##
   [5]
        {type=mammal}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                   1.2625000
  [6]
                             {breathes=TRUE} 0.4257426 1.0000000
##
        {hair=TRUE}
                                                                   1.2625000
  [7]
                             {breathes=TRUE} 0.6336634 0.9846154
##
        {aquatic=FALSE}
                                                                   1.2430769
                          =>
##
   [8]
        {eggs=FALSE}
                             {breathes=TRUE} 0.4059406 0.9761905
                                                                   1.2324405
##
  [9]
        {legs=TRUE}
                             {breathes=TRUE} 0.7227723 0.9358974
                                                                   1.1815705
  [10] {domestic=TRUE}
                          => {breathes=TRUE} 0.1188119 0.9230769
                                                                   1.1653846
                             {breathes=TRUE} 0.4059406 0.9111111
   [11] {predator=FALSE} =>
                                                                   1.1502778
   [12] {catsize=TRUE}
                             {breathes=TRUE} 0.3861386 0.8863636
                                                                   1.1190341
                             {breathes=TRUE} 0.3267327 0.8250000
  [13] {toothed=FALSE}
                                                                   1.0415625
  [14] {tail=TRUE}
                          => {breathes=TRUE} 0.6039604 0.8133333
                                                                   1.0268333
  [15]
        {domestic=FALSE} =>
                             {breathes=TRUE} 0.6732673 0.7727273
                                                                   0.9755682
##
   [16]
       {tail=FALSE}
                             {breathes=TRUE} 0.1881188 0.7307692
                                                                   0.9225962
       {airborne=FALSE} => {breathes=TRUE} 0.5544554 0.7272727
                                                                   0.9181818
                          => {breathes=TRUE} 0.4059406 0.7192982
  [18] {catsize=FALSE}
                                                                   0.9081140
   [19] {predator=TRUE}
                             {breathes=TRUE} 0.3861386 0.6964286
                                                                   0.8792411
##
  [20] {eggs=TRUE}
                          => {breathes=TRUE} 0.3861386 0.6610169
                                                                   0.8345339
  [21] {milk=FALSE}
                          => {breathes=TRUE} 0.3861386 0.6500000
##
  [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
                                                                   0.7715278
##
                                           rhs
       lhs
                                                             support
##
   [1] {hair=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
   [2] {milk=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
   [3] {eggs=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1881188
   [4] {domestic=FALSE, catsize=FALSE}
                                        => {breathes=FALSE} 0.1485149
   [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
  [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [7] {toothed=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1287129
##
##
       confidence lift
##
  [1] 0.3703704
                  1.781305
   [2] 0.3636364
                  1.748918
   [3] 0.3518519
                  1.692240
##
   [4] 0.3000000
                  1.442857
  [5] 0.2941176
                  1.414566
## [6] 0.2816901
                  1.354795
## [7] 0.2500000
                  1.202381
```

```
##
                                          rhs
                                                            support
## [1] {airborne=FALSE,aquatic=TRUE}
                                       => {breathes=FALSE} 0.1980198
  [2] {milk=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
## [3] {eggs=TRUE,airborne=FALSE}
                                       => {breathes=FALSE} 0.1980198
## [4] {hair=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
## [5] {airborne=FALSE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1584158
## [6] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
## [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
  [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
##
       confidence lift
## [1] 0.6451613 3.102919
## [2] 0.5526316
                  2.657895
## [3] 0.5405405
                  2.599743
## [4] 0.5250000
                  2.525000
## [5] 0.444444
                  2.137566
## [6] 0.3469388
                  1.668610
  [7] 0.2941176
                  1.414566
  [8] 0.2876712 1.383562
##
       lhs
                                         rhs
                                                           support
## [1] {legs=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
## [2] {aquatic=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1485149
## [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
## [4] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
## [5] {feathers=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
## [6] {hair=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1584158
  [7] {domestic=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1485149
##
       confidence lift
## [1] 0.7500000
                  3.607143
## [2] 0.6521739
                  3.136646
## [3] 0.444444
                  2.137566
## [4] 0.4285714
                  2.061224
## [5] 0.3720930
                  1.789590
## [6] 0.3636364
                  1.748918
## [7] 0.3000000
                  1.442857
##
       lhs
                                                           support
## [1] {predator=TRUE,legs=FALSE}
                                      => {breathes=FALSE} 0.1188119
## [2] {milk=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
## [3] {eggs=TRUE,predator=TRUE}
                                      => {breathes=FALSE} 0.1584158
## [4] {hair=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
## [5] {predator=TRUE,catsize=FALSE} => {breathes=FALSE} 0.1188119
  [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
  [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
##
       confidence lift
## [1] 0.7058824 3.394958
## [2] 0.5000000
                  2.404762
## [3] 0.4848485
                  2.331890
## [4] 0.472222
                  2.271164
## [5] 0.4285714
                  2.061224
## [6] 0.3617021
                  1.739615
## [7] 0.3469388
                  1.668610
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
## [1] {eggs=TRUE,fins=TRUE}
                                  => {breathes=FALSE} 0.1287129 1.0000000
## [2] {eggs=TRUE,legs=FALSE}
                                  => {breathes=FALSE} 0.1485149 0.7894737
## [3] {eggs=TRUE,toothed=TRUE}
                                  => {breathes=FALSE} 0.1287129 0.6500000
```

```
## [4] {eggs=TRUE,aquatic=TRUE}
                                  => {breathes=FALSE} 0.1881188 0.6333333
## [5] {eggs=TRUE,airborne=FALSE} => {breathes=FALSE} 0.1980198 0.5405405
  [6] {feathers=FALSE,eggs=TRUE} => {breathes=FALSE} 0.1980198 0.5128205
  [7] {eggs=TRUE,predator=TRUE} => {breathes=FALSE} 0.1584158 0.4848485
   [8] {hair=FALSE,eggs=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.3703704
   [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
       lift
## [1] 4.809524
  [2] 3.796992
## [3] 3.126190
## [4] 3.046032
## [5] 2.599743
  [6] 2.466422
## [7] 2.331890
## [8] 1.781305
##
  [9] 1.692240
##
       lhs
                                                        support
                                                                  confidence
## [1] {milk=FALSE,fins=TRUE}
                                   => {breathes=FALSE} 0.1287129 1.0000000
  [2] {milk=FALSE,legs=FALSE}
                                   => {breathes=FALSE} 0.1584158 0.8000000
## [3] {milk=FALSE,aquatic=TRUE}
                                    => {breathes=FALSE} 0.1980198 0.6666667
## [4] {milk=FALSE,toothed=TRUE}
                                   => {breathes=FALSE} 0.1386139 0.6666667
## [5] {milk=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208 0.5526316
## [6] {feathers=FALSE,milk=FALSE} => {breathes=FALSE} 0.2079208 0.5250000
  [7] {milk=FALSE,predator=TRUE}
                                   => {breathes=FALSE} 0.1683168 0.5000000
  [8] {hair=FALSE,milk=FALSE}
                                    => {breathes=FALSE} 0.2079208 0.3750000
   [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
       lift
## [1] 4.809524
## [2] 3.847619
## [3] 3.206349
## [4] 3.206349
  [5] 2.657895
## [6] 2.525000
## [7] 2.404762
  [8] 1.803571
##
  [9] 1.748918
  [1] "Número de reglas con consecuente negado"
##
        lhs
                                                             support
                                         => {breathes=FALSE} 0.1287129
## [1]
        {type=fish}
##
  [2]
        {eggs=TRUE,fins=TRUE}
                                         => {breathes=FALSE} 0.1287129
  [3]
        {milk=FALSE,fins=TRUE}
                                         => {breathes=FALSE} 0.1287129
  [4]
        {hair=FALSE,fins=TRUE}
                                         => {breathes=FALSE} 0.1287129
##
##
  [5]
        {aquatic=TRUE,legs=FALSE}
                                         => {breathes=FALSE} 0.1485149
##
  [6]
                                         => {breathes=FALSE} 0.1584158
        {milk=FALSE,legs=FALSE}
## [7]
        {eggs=TRUE,legs=FALSE}
                                         => {breathes=FALSE} 0.1485149
## [8]
        {legs=FALSE,catsize=FALSE}
                                         => {breathes=FALSE} 0.1188119
## [9]
        {hair=FALSE,legs=FALSE}
                                         => {breathes=FALSE} 0.1584158
## [10] {predator=TRUE,legs=FALSE}
                                         => {breathes=FALSE} 0.1188119
## [11] {milk=FALSE,aquatic=TRUE}
                                         => {breathes=FALSE} 0.1980198
## [12] {feathers=FALSE,aquatic=TRUE}
                                         => {breathes=FALSE} 0.1980198
## [13] {milk=FALSE,toothed=TRUE}
                                         => {breathes=FALSE} 0.1386139
## [14] {aquatic=TRUE,catsize=FALSE}
                                         => {breathes=FALSE} 0.1485149
## [15] {eggs=TRUE,toothed=TRUE}
                                         => {breathes=FALSE} 0.1287129
## [16] {airborne=FALSE,aquatic=TRUE}
                                         => {breathes=FALSE} 0.1980198
```

```
## [17] {eggs=TRUE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1881188
                                            {breathes=FALSE} 0.1980198
       {hair=FALSE,aquatic=TRUE}
   [18]
  [19] {aquatic=TRUE, toothed=TRUE}
                                             {breathes=FALSE} 0.1386139
                                             {breathes=FALSE} 0.1386139
   [20] {hair=FALSE,toothed=TRUE}
   [21] {hair=FALSE, feathers=FALSE}
                                             {breathes=FALSE} 0.2079208
##
  [22] {milk=FALSE,airborne=FALSE}
                                             {breathes=FALSE} 0.2079208
  [23] {eggs=TRUE,airborne=FALSE}
                                             {breathes=FALSE} 0.1980198
  [24] {hair=FALSE,airborne=FALSE}
                                             {breathes=FALSE} 0.2079208
   [25]
       {feathers=FALSE,milk=FALSE}
                                             {breathes=FALSE} 0.2079208
   [26] {feathers=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
   [27] {milk=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [28] {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
   [29]
       {hair=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
       {airborne=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
        {predator=TRUE,catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
  [31]
   [32]
        {hair=FALSE,milk=FALSE}
                                             {breathes=FALSE} 0.2079208
   [33]
        {feathers=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
       {hair=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
                                            {breathes=FALSE} 0.1980198
   [35] {hair=FALSE,domestic=FALSE}
   [36]
       {hair=FALSE,catsize=FALSE}
                                             {breathes=FALSE} 0.1584158
##
   [37]
       {milk=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
       {feathers=FALSE,predator=TRUE}
                                             {breathes=FALSE} 0.1683168
   [39] {eggs=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1881188
   [40] {airborne=FALSE,predator=TRUE}
##
                                             {breathes=FALSE} 0.1683168
   [41] {domestic=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
   [42] {airborne=FALSE,domestic=FALSE} =>
                                            {breathes=FALSE} 0.1980198
   [43] {feathers=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
                                         =>
   [44]
       {feathers=FALSE,domestic=FALSE}
                                         =>
                                            {breathes=FALSE} 0.1980198
       {toothed=TRUE,domestic=FALSE}
##
   [45]
                                            {breathes=FALSE} 0.1287129
##
   [46] {tail=TRUE}
                                         => {breathes=FALSE} 0.1386139
##
        confidence lift
##
   [1]
        1.0000000
                   4.8095238
##
   [2]
        1.0000000
                   4.8095238
   [3]
##
        1.0000000
                   4.8095238
   [4]
##
        0.8666667
                   4.1682540
                   4.0079365
##
   [5]
        0.8333333
##
   [6]
        0.8000000
                   3.8476190
  [7]
        0.7894737
                   3.7969925
##
   [8]
##
        0.7500000
                   3.6071429
##
   [9]
        0.7272727
                   3.4978355
   [10] 0.7058824
                   3.3949580
   [11] 0.6666667
                   3.2063492
   [12] 0.6666667
                   3.2063492
##
   [13] 0.6666667
                   3.2063492
  [14] 0.6521739
                   3.1366460
   [15] 0.6500000
                   3.1261905
   [16] 0.6451613
                   3.1029186
   [17] 0.6333333
                   3.0460317
   [18] 0.6250000
                   3.0059524
   [19]
        0.6086957
                   2.9275362
##
  [20] 0.6086957
                   2.9275362
## [21] 0.5526316
                   2.6578947
## [22] 0.5526316
                   2.6578947
## [23] 0.5405405
                   2.5997426
```

```
[24] 0.5250000
                   2.5250000
   [25] 0.5250000
                   2.5250000
   [26] 0.5128205
                   2.4664225
   [27] 0.5000000
                   2.4047619
   [28] 0.4848485
                   2.3318903
   [29] 0.4722222
                   2.2711640
##
   [30] 0.444444
                   2.1375661
   [31] 0.4285714
                   2.0612245
   [32] 0.3750000
                   1.8035714
   [33] 0.3720930
                   1.7895903
   [34] 0.3703704
                   1.7813051
   [35] 0.3703704
                   1.7813051
                   1.7489177
##
   [36] 0.3636364
   [37] 0.3636364
                   1.7489177
   [38] 0.3617021
                   1.7396150
   [39]
        0.3518519
                   1.6922399
##
   [40] 0.3469388
                   1.6686103
   [41] 0.3000000
                   1.4428571
                   1.4145658
   [42] 0.2941176
   [43]
       0.2876712
                   1.3835616
##
   [44] 0.2816901
                   1.3547954
   [45] 0.2500000
                   1.2023810
   [46] 0.1866667
##
                   0.8977778
##
        lhs
                                              support
                                                        confidence lift
                                                                   1.2625000
##
   [1]
        {type=bird}
                          => {breathes=TRUE} 0.1980198 1.0000000
   [2]
        {feathers=TRUE}
                          => {breathes=TRUE} 0.1980198 1.0000000
                                                                    1.2625000
##
   [3]
                             {breathes=TRUE} 0.2376238 1.0000000
        {airborne=TRUE}
                                                                    1.2625000
##
   [4]
        {milk=TRUE}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                    1.2625000
##
   [5]
                             {breathes=TRUE} 0.4059406 1.0000000
        {type=mammal}
                                                                    1.2625000
##
   [6]
        {hair=TRUE}
                             {breathes=TRUE} 0.4257426 1.0000000
                                                                    1.2625000
##
   [7]
        {aquatic=FALSE}
                             {breathes=TRUE} 0.6336634 0.9846154
                                                                    1.2430769
##
   [8]
        {eggs=FALSE}
                             {breathes=TRUE} 0.4059406 0.9761905
                                                                    1.2324405
##
   [9]
        {legs=TRUE}
                             {breathes=TRUE} 0.7227723 0.9358974
                                                                    1.1815705
                             {breathes=TRUE} 0.1188119 0.9230769
##
   [10]
       {domestic=TRUE}
                                                                    1.1653846
       {predator=FALSE}
                             {breathes=TRUE} 0.4059406 0.9111111
   [11]
                                                                    1.1502778
##
   [12]
       {catsize=TRUE}
                             {breathes=TRUE} 0.3861386 0.8863636
                                                                    1.1190341
   [13] {toothed=FALSE}
                             {breathes=TRUE} 0.3267327 0.8250000
                                                                    1.0415625
   [14] {tail=TRUE}
                          => {breathes=TRUE} 0.6039604 0.8133333
##
                                                                    1.0268333
                             {breathes=TRUE} 0.6732673 0.7727273
   [15]
       {domestic=FALSE} =>
                                                                    0.9755682
##
   [16] {tail=FALSE}
                          => {breathes=TRUE} 0.1881188 0.7307692
                                                                    0.9225962
   [17] {airborne=FALSE} => {breathes=TRUE} 0.5544554 0.7272727
                                                                    0.9181818
                          => {breathes=TRUE} 0.4059406 0.7192982
   [18] {catsize=FALSE}
                                                                   0.9081140
##
   [19] {predator=TRUE}
                          => {breathes=TRUE} 0.3861386 0.6964286
                                                                    0.8792411
                          => {breathes=TRUE} 0.3861386 0.6610169
##
   [20] {eggs=TRUE}
                                                                    0.8345339
   [21] {milk=FALSE}
                          => {breathes=TRUE} 0.3861386 0.6500000
                                                                    0.8206250
##
   [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
                                                                    0.7715278
##
       lhs
                                            rhs
                                                              support
##
   [1] {hair=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
   [2] {milk=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
   [3] {eggs=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1881188
##
   [4] {domestic=FALSE,catsize=FALSE}
                                        => {breathes=FALSE} 0.1485149
   [5] {airborne=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
  [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
## [7] {toothed=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1287129
```

```
confidence lift
##
## [1] 0.3703704 1.781305
                 1.748918
  [2] 0.3636364
  [3] 0.3518519
                  1.692240
   [4] 0.3000000
                  1.442857
   [5] 0.2941176
                  1.414566
  [6] 0.2816901
                  1.354795
##
  [7] 0.2500000
                  1.202381
##
       lhs
                                           rhs
                                                            support
##
  [1] {airborne=FALSE,aquatic=TRUE}
                                        => {breathes=FALSE} 0.1980198
  [2] {milk=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
   [3] {eggs=TRUE,airborne=FALSE}
                                        => {breathes=FALSE} 0.1980198
   [4] {hair=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
  [5] {airborne=FALSE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1584158
  [6] {airborne=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
##
   [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
##
       confidence lift
##
  [1] 0.6451613
                 3.102919
   [2] 0.5526316
                  2.657895
##
   [3] 0.5405405
                  2.599743
  [4] 0.5250000
                  2.525000
   [5] 0.444444
                  2.137566
##
   [6] 0.3469388
                  1.668610
   [7] 0.2941176 1.414566
   [8] 0.2876712 1.383562
##
       lhs
                                          rhs
                                                           support
##
   [1] {legs=FALSE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1188119
   [2] {aquatic=TRUE, catsize=FALSE}
                                       => {breathes=FALSE} 0.1485149
   [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
   [4] {predator=TRUE, catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
   [5] {feathers=FALSE, catsize=FALSE} => {breathes=FALSE} 0.1584158
   [6] {hair=FALSE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1584158
##
   [7] {domestic=FALSE, catsize=FALSE} => {breathes=FALSE} 0.1485149
       confidence lift
##
## [1] 0.7500000 3.607143
  [2] 0.6521739
                  3.136646
  [3] 0.444444
##
                  2.137566
   [4] 0.4285714
                  2.061224
  [5] 0.3720930
                  1.789590
  [6] 0.3636364
                  1.748918
   [7] 0.3000000
##
                  1.442857
##
       lhs
                                                           support
  [1] {predator=TRUE,legs=FALSE}
                                         {breathes=FALSE} 0.1188119
  [2] {milk=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
   [3] {eggs=TRUE,predator=TRUE}
                                       => {breathes=FALSE} 0.1584158
   [4] {hair=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
   [5] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
   [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
       confidence lift
##
## [1] 0.7058824 3.394958
## [2] 0.5000000 2.404762
## [3] 0.4848485 2.331890
```

```
[4] 0.4722222
                  2.271164
   [5] 0.4285714
                  2.061224
   [6] 0.3617021
                  1.739615
##
   [7] 0.3469388
                  1.668610
       lhs
                                      rhs
                                                        support
                                                                  confidence
##
  [1] {eggs=TRUE,fins=TRUE}
                                   => {breathes=FALSE} 0.1287129 1.0000000
  [2] {eggs=TRUE,legs=FALSE}
                                   => {breathes=FALSE} 0.1485149 0.7894737
  [3] {eggs=TRUE,toothed=TRUE}
                                   => {breathes=FALSE} 0.1287129 0.6500000
  [4] {eggs=TRUE,aquatic=TRUE}
                                      {breathes=FALSE} 0.1881188 0.6333333
   [5] {eggs=TRUE,airborne=FALSE} =>
                                      {breathes=FALSE} 0.1980198 0.5405405
  [6] {feathers=FALSE,eggs=TRUE} =>
                                      {breathes=FALSE} 0.1980198 0.5128205
   [7] {eggs=TRUE,predator=TRUE}
                                      {breathes=FALSE} 0.1584158 0.4848485
   [8] {hair=FALSE,eggs=TRUE}
                                   => {breathes=FALSE} 0.1980198 0.3703704
##
##
   [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
       lift.
##
   [1] 4.809524
##
   [2] 3.796992
   [3] 3.126190
  [4] 3.046032
   [5] 2.599743
##
   [6] 2.466422
  [7] 2.331890
##
  [8] 1.781305
##
   [9] 1.692240
##
       lhs
                                       rhs
                                                         support
                                                                   confidence
  [1] {milk=FALSE,fins=TRUE}
                                    => {breathes=FALSE} 0.1287129 1.0000000
   [2] {milk=FALSE,legs=FALSE}
                                    => {breathes=FALSE} 0.1584158 0.8000000
  [3] {milk=FALSE,aquatic=TRUE}
                                    => {breathes=FALSE} 0.1980198 0.6666667
  [4] {milk=FALSE,toothed=TRUE}
                                      {breathes=FALSE} 0.1386139 0.6666667
  [5] {milk=FALSE,airborne=FALSE} =>
                                       {breathes=FALSE} 0.2079208 0.5526316
  [6] {feathers=FALSE,milk=FALSE} =>
                                       {breathes=FALSE} 0.2079208 0.5250000
  [7] {milk=FALSE,predator=TRUE}
                                    => {breathes=FALSE} 0.1683168 0.5000000
   [8] {hair=FALSE,milk=FALSE}
                                    => {breathes=FALSE} 0.2079208 0.3750000
   [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
       lift
##
## [1] 4.809524
  [2] 3.847619
  [3] 3.206349
##
   [4] 3.206349
##
  [5] 2.657895
  [6] 2.525000
  [7] 2.404762
##
##
   [8] 1.803571
##
   [9] 1.748918
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                              support
                                            {breathes=FALSE} 0.1287129
##
  [1]
        {type=fish}
##
   [2]
        {eggs=TRUE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
##
  [3]
        {milk=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
##
   [4]
        {hair=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
   [5]
##
        {aquatic=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
##
  [6]
        {milk=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
##
  [7]
        {eggs=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
                                         =>
## [8]
        {legs=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
```

```
{hair=FALSE,legs=FALSE}
                                         => {breathes=FALSE} 0.1584158
                                            {breathes=FALSE} 0.1188119
   [10] {predator=TRUE,legs=FALSE}
  [11] {milk=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
  [12] {feathers=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
##
   [13] {milk=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
  [14] {aquatic=TRUE, catsize=FALSE}
##
                                            {breathes=FALSE} 0.1485149
  [15] {eggs=TRUE,toothed=TRUE}
                                            {breathes=FALSE} 0.1287129
   [16] {airborne=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
##
   Γ17]
       {eggs=TRUE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1881188
   [18]
       {hair=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [19] {aquatic=TRUE, toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
   [20] {hair=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
   [21]
       {hair=FALSE, feathers=FALSE}
                                            {breathes=FALSE} 0.2079208
        {milk=FALSE,airborne=FALSE}
  [22]
                                            {breathes=FALSE} 0.2079208
       {eggs=TRUE,airborne=FALSE}
                                            {breathes=FALSE} 0.1980198
  [23]
   [24]
        {hair=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
   [25]
        {feathers=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
       {feathers=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
                                            {breathes=FALSE} 0.1683168
   [27] {milk=FALSE,predator=TRUE}
   [28]
       {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
##
  [29]
       {hair=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
  [30] {airborne=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [31] {predator=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
       {hair=FALSE.milk=FALSE}
   [32]
                                            {breathes=FALSE} 0.2079208
   [33]
       {feathers=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [34] {hair=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
   [35] {hair=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
##
   [36] {hair=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
       {milk=FALSE,domestic=FALSE}
   [37]
                                            {breathes=FALSE} 0.1980198
       {feathers=FALSE, predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [38]
        {eggs=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1881188
##
   [40]
        {airborne=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
       {domestic=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
   [42] {airborne=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
                                         =>
        {feathers=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
   [44] {feathers=FALSE,domestic=FALSE}
##
                                            {breathes=FALSE} 0.1980198
   [45] {toothed=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1287129
##
   [46] {tail=TRUE}
                                         => {breathes=FALSE} 0.1386139
##
        confidence lift
                   4.8095238
##
  [1]
        1.0000000
   [2]
        1.0000000
                   4.8095238
   [3]
##
        1.0000000
                   4.8095238
##
   [4]
        0.8666667
                   4.1682540
##
   [5]
        0.8333333
                   4.0079365
##
  [6]
        0.8000000
                   3.8476190
   [7]
##
        0.7894737
                   3.7969925
##
   [8]
        0.7500000
                   3.6071429
##
   [9]
        0.7272727
                   3.4978355
   [10]
       0.7058824
                   3.3949580
   [11]
        0.6666667
                   3.2063492
##
   [12]
        0.6666667
                   3.2063492
## [13] 0.6666667
                   3.2063492
## [14] 0.6521739
                   3.1366460
## [15] 0.6500000
                   3.1261905
```

```
## [16] 0.6451613
                   3.1029186
   [17] 0.6333333
                   3.0460317
   [18] 0.6250000
                    3.0059524
   [19] 0.6086957
                    2.9275362
   [20] 0.6086957
                    2.9275362
##
   [21] 0.5526316
                    2.6578947
   [22] 0.5526316
                    2.6578947
   [23] 0.5405405
                    2.5997426
   [24] 0.5250000
                    2.5250000
   [25] 0.5250000
                    2.5250000
   [26] 0.5128205
                    2.4664225
   [27] 0.5000000
                    2.4047619
##
   [28] 0.4848485
                    2.3318903
   [29] 0.4722222
                    2.2711640
   [30] 0.444444
                    2.1375661
   [31] 0.4285714
                    2.0612245
##
   [32] 0.3750000
                    1.8035714
                    1.7895903
   [33] 0.3720930
   [34] 0.3703704
                    1.7813051
   [35] 0.3703704
                    1.7813051
##
   [36] 0.3636364
                    1.7489177
   [37] 0.3636364
                    1.7489177
   [38] 0.3617021
                    1.7396150
##
##
   [39] 0.3518519
                    1.6922399
   [40] 0.3469388
                    1.6686103
   [41] 0.3000000
                    1.4428571
   [42] 0.2941176
                    1.4145658
##
   [43] 0.2876712
                    1.3835616
##
   [44] 0.2816901
                    1.3547954
   [45] 0.2500000
                    1.2023810
##
   [46] 0.1866667
                   0.8977778
##
        lhs
                                                        confidence lift
                             rhs
                                              support
##
   [1]
        {type=bird}
                          => {breathes=TRUE} 0.1980198 1.0000000
                                                                    1.2625000
   [2]
##
                          => {breathes=TRUE} 0.1980198 1.0000000
                                                                    1.2625000
        {feathers=TRUE}
##
   [3]
        {airborne=TRUE}
                             {breathes=TRUE} 0.2376238 1.0000000
                                                                    1.2625000
##
   [4]
        {milk=TRUE}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                    1.2625000
##
   [5]
        {type=mammal}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                    1.2625000
   [6]
        {hair=TRUE}
                             {breathes=TRUE} 0.4257426 1.0000000
##
                                                                    1.2625000
   [7]
                             {breathes=TRUE} 0.6336634 0.9846154
##
        {aquatic=FALSE}
                                                                    1.2430769
                             {breathes=TRUE} 0.4059406 0.9761905
##
   [8]
        {eggs=FALSE}
                                                                    1.2324405
   [9]
        {legs=TRUE}
                             {breathes=TRUE} 0.7227723 0.9358974
                                                                    1.1815705
                             {breathes=TRUE} 0.1188119 0.9230769
   [10]
       {domestic=TRUE}
                                                                    1.1653846
   [11]
       {predator=FALSE}
                             {breathes=TRUE} 0.4059406 0.9111111
                                                                    1.1502778
                             {breathes=TRUE} 0.3861386 0.8863636
   [12]
       {catsize=TRUE}
                                                                    1.1190341
   [13] {toothed=FALSE}
                             {breathes=TRUE} 0.3267327 0.8250000
                                                                    1.0415625
                             {breathes=TRUE} 0.6039604 0.8133333
   [14]
        {tail=TRUE}
                                                                    1.0268333
##
   [15]
        {domestic=FALSE}
                             {breathes=TRUE} 0.6732673 0.7727273
                                                                    0.9755682
   [16]
       {tail=FALSE}
                             {breathes=TRUE} 0.1881188 0.7307692
                                                                    0.9225962
   [17]
       {airborne=FALSE} =>
                             {breathes=TRUE} 0.5544554 0.7272727
                                                                    0.9181818
   [18]
        {catsize=FALSE}
                             {breathes=TRUE} 0.4059406 0.7192982
                                                                    0.9081140
                          =>
                             {breathes=TRUE} 0.3861386 0.6964286
##
   [19]
        {predator=TRUE}
                                                                    0.8792411
  [20] {eggs=TRUE}
                             {breathes=TRUE} 0.3861386 0.6610169
                                                                    0.8345339
## [21] {milk=FALSE}
                          => {breathes=TRUE} 0.3861386 0.6500000
                                                                    0.8206250
## [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
                                                                    0.7715278
```

```
##
                                           rhs
                                                            support
## [1] {hair=FALSE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1980198
                                        => {breathes=FALSE} 0.1980198
  [2] {milk=FALSE,domestic=FALSE}
  [3] {eggs=TRUE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1881188
  [4] {domestic=FALSE, catsize=FALSE}
                                       => {breathes=FALSE} 0.1485149
  [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
  [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
## [7] {toothed=TRUE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1287129
##
       confidence lift
## [1] 0.3703704 1.781305
## [2] 0.3636364
                 1.748918
## [3] 0.3518519
                  1.692240
## [4] 0.3000000
                  1.442857
## [5] 0.2941176
                  1.414566
## [6] 0.2816901
                  1.354795
## [7] 0.2500000
                  1.202381
##
       lhs
                                           rhs
                                                            support
## [1] {airborne=FALSE,aquatic=TRUE}
                                       => {breathes=FALSE} 0.1980198
## [2] {milk=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
## [3] {eggs=TRUE,airborne=FALSE}
                                        => {breathes=FALSE} 0.1980198
## [4] {hair=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
## [5] {airborne=FALSE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1584158
  [6] {airborne=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
  [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
##
  [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
       confidence lift
## [1] 0.6451613 3.102919
## [2] 0.5526316
                  2.657895
## [3] 0.5405405
                  2.599743
## [4] 0.5250000
                  2.525000
## [5] 0.4444444
                  2.137566
  [6] 0.3469388
                  1.668610
## [7] 0.2941176
                  1.414566
##
  [8] 0.2876712 1.383562
##
       lhs
                                                           support
## [1] {legs=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [2] {aquatic=TRUE, catsize=FALSE}
                                      => {breathes=FALSE} 0.1485149
## [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
## [4] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
## [5] {feathers=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
  [6] {hair=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1584158
  [7] {domestic=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1485149
##
       confidence lift
## [1] 0.7500000 3.607143
## [2] 0.6521739
                  3.136646
## [3] 0.444444
                  2.137566
## [4] 0.4285714
                  2.061224
## [5] 0.3720930
                  1.789590
## [6] 0.3636364
                  1.748918
## [7] 0.3000000
                  1.442857
##
       lhs
                                          rhs
                                                           support
## [1] {predator=TRUE,legs=FALSE}
                                       => {breathes=FALSE} 0.1188119
## [2] {milk=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
## [3] {eggs=TRUE,predator=TRUE}
                                       => {breathes=FALSE} 0.1584158
```

```
## [4] {hair=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
## [5] {predator=TRUE,catsize=FALSE} => {breathes=FALSE} 0.1188119
  [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
  [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
       confidence lift
## [1] 0.7058824 3.394958
## [2] 0.5000000 2.404762
                  2.331890
## [3] 0.4848485
## [4] 0.4722222
                  2.271164
## [5] 0.4285714
                  2.061224
## [6] 0.3617021
                 1.739615
##
  [7] 0.3469388
                  1.668610
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
## [1] {eggs=TRUE,fins=TRUE}
                                  => {breathes=FALSE} 0.1287129 1.0000000
                                  => {breathes=FALSE} 0.1485149 0.7894737
## [2] {eggs=TRUE,legs=FALSE}
## [3] {eggs=TRUE,toothed=TRUE}
                                  => {breathes=FALSE} 0.1287129 0.6500000
## [4] {eggs=TRUE,aquatic=TRUE}
                                  => {breathes=FALSE} 0.1881188 0.6333333
## [5] {eggs=TRUE,airborne=FALSE} => {breathes=FALSE} 0.1980198 0.5405405
## [6] {feathers=FALSE,eggs=TRUE} => {breathes=FALSE} 0.1980198 0.5128205
  [7] {eggs=TRUE,predator=TRUE}
                                  => {breathes=FALSE} 0.1584158 0.4848485
## [8] {hair=FALSE,eggs=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.3703704
  [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
       lift.
## [1] 4.809524
## [2] 3.796992
## [3] 3.126190
## [4] 3.046032
## [5] 2.599743
## [6] 2.466422
## [7] 2.331890
## [8] 1.781305
##
  [9] 1.692240
##
       lhs
                                                        support
                                                                  confidence
## [1] {milk=FALSE,fins=TRUE}
                                   => {breathes=FALSE} 0.1287129 1.0000000
  [2] {milk=FALSE,legs=FALSE}
                                   => {breathes=FALSE} 0.1584158 0.8000000
                                   => {breathes=FALSE} 0.1980198 0.6666667
## [3] {milk=FALSE,aquatic=TRUE}
## [4] {milk=FALSE, toothed=TRUE}
                                   => {breathes=FALSE} 0.1386139 0.6666667
## [5] {milk=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208 0.5526316
## [6] {feathers=FALSE,milk=FALSE} => {breathes=FALSE} 0.2079208 0.5250000
## [7] {milk=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168 0.5000000
  [8] {hair=FALSE,milk=FALSE}
                                   => {breathes=FALSE} 0.2079208 0.3750000
  [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
##
       lift
## [1] 4.809524
## [2] 3.847619
## [3] 3.206349
## [4] 3.206349
## [5] 2.657895
## [6] 2.525000
## [7] 2.404762
## [8] 1.803571
## [9] 1.748918
## [1] "Número de reglas con consecuente negado"
##
                                                             support
        lhs
```

```
[1]
        {type=fish}
                                             {breathes=FALSE} 0.1287129
##
                                            {breathes=FALSE} 0.1287129
##
   [2]
        {eggs=TRUE,fins=TRUE}
        {milk=FALSE,fins=TRUE}
                                             {breathes=FALSE} 0.1287129
##
   [3]
   [4]
        {hair=FALSE,fins=TRUE}
                                             {breathes=FALSE} 0.1287129
##
##
   [5]
        {aquatic=TRUE,legs=FALSE}
                                             {breathes=FALSE} 0.1485149
##
   [6]
        {milk=FALSE,legs=FALSE}
                                             {breathes=FALSE} 0.1584158
        {eggs=TRUE,legs=FALSE}
##
   [7]
                                             {breathes=FALSE} 0.1485149
##
  [8]
        {legs=FALSE,catsize=FALSE}
                                             {breathes=FALSE} 0.1188119
##
   [9]
        {hair=FALSE,legs=FALSE}
                                             {breathes=FALSE} 0.1584158
##
   [10] {predator=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1188119
   [11] {milk=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [12] {feathers=FALSE, aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
##
   [13] {milk=FALSE,toothed=TRUE}
                                             {breathes=FALSE} 0.1386139
  [14] {aquatic=TRUE,catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
                                            {breathes=FALSE} 0.1287129
  [15] {eggs=TRUE,toothed=TRUE}
       {airborne=FALSE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1980198
       {eggs=TRUE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1881188
   [17]
       {hair=FALSE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1980198
                                             {breathes=FALSE} 0.1386139
   [19] {aquatic=TRUE, toothed=TRUE}
   [20] {hair=FALSE,toothed=TRUE}
                                             {breathes=FALSE} 0.1386139
##
  [21] {hair=FALSE, feathers=FALSE}
                                             {breathes=FALSE} 0.2079208
  [22] {milk=FALSE,airborne=FALSE}
                                             {breathes=FALSE} 0.2079208
                                             {breathes=FALSE} 0.1980198
  [23] {eggs=TRUE,airborne=FALSE}
       {hair=FALSE,airborne=FALSE}
   [24]
                                             {breathes=FALSE} 0.2079208
   [25] {feathers=FALSE,milk=FALSE}
                                             {breathes=FALSE} 0.2079208
   [26] {feathers=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
   [27] {milk=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
##
   [28] {eggs=TRUE,predator=TRUE}
                                             {breathes=FALSE} 0.1584158
       {hair=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
  [30] {airborne=FALSE, catsize=FALSE}
                                             {breathes=FALSE} 0.1584158
   [31]
        {predator=TRUE, catsize=FALSE}
                                             {breathes=FALSE} 0.1188119
##
   [32]
        {hair=FALSE,milk=FALSE}
                                             {breathes=FALSE} 0.2079208
       {feathers=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [34] {hair=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
        {hair=FALSE,domestic=FALSE}
                                             {breathes=FALSE} 0.1980198
   [35]
##
   [36]
       {hair=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
       {milk=FALSE,domestic=FALSE}
                                             {breathes=FALSE} 0.1980198
       {feathers=FALSE, predator=TRUE}
                                             {breathes=FALSE} 0.1683168
##
   [38]
       {eggs=TRUE,domestic=FALSE}
                                             {breathes=FALSE} 0.1881188
##
   [39]
##
   [40]
       {airborne=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [41] {domestic=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
   [42] {airborne=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
                                         =>
   [43] {feathers=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
   [44] {feathers=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
   [45] {toothed=TRUE,domestic=FALSE}
                                         => {breathes=FALSE} 0.1287129
   [46] {tail=TRUE}
                                         => {breathes=FALSE} 0.1386139
##
##
        confidence lift
##
  [1]
        1.0000000
                   4.8095238
##
   [2]
        1.0000000
                   4.8095238
##
   [3]
        1.0000000
                   4.8095238
   [4]
##
        0.866667
                   4.1682540
##
   [5]
        0.8333333
                   4.0079365
##
  [6]
        0.8000000
                   3.8476190
## [7]
        0.7894737
                   3.7969925
```

```
[8]
        0.7500000
                   3.6071429
##
   [9]
        0.7272727
                    3.4978355
   [10] 0.7058824
                    3.3949580
   [11] 0.6666667
                    3.2063492
   [12] 0.6666667
                    3.2063492
##
   [13] 0.6666667
                    3.2063492
   [14] 0.6521739
                    3.1366460
   [15] 0.6500000
                    3.1261905
   [16] 0.6451613
                    3.1029186
   [17] 0.6333333
                    3.0460317
   [18] 0.6250000
                    3.0059524
   [19] 0.6086957
                    2.9275362
   [20] 0.6086957
                    2.9275362
   [21] 0.5526316
                    2.6578947
                    2.6578947
   [22] 0.5526316
   [23] 0.5405405
                    2.5997426
   [24] 0.5250000
                    2.5250000
   [25] 0.5250000
                    2.5250000
   [26] 0.5128205
                    2.4664225
   [27] 0.5000000
                    2.4047619
##
   [28] 0.4848485
                    2.3318903
   [29] 0.4722222
                    2.2711640
   [30] 0.444444
                    2.1375661
   [31] 0.4285714
                    2.0612245
   [32] 0.3750000
                    1.8035714
   [33] 0.3720930
                    1.7895903
   [34] 0.3703704
                    1.7813051
##
   [35] 0.3703704
                    1.7813051
   [36] 0.3636364
                    1.7489177
   [37] 0.3636364
                    1.7489177
   [38] 0.3617021
                    1.7396150
##
   [39] 0.3518519
                    1.6922399
   [40] 0.3469388
                    1.6686103
   [41] 0.3000000
                    1.4428571
   [42]
        0.2941176
                    1.4145658
##
   [43] 0.2876712
                    1.3835616
   [44] 0.2816901
                    1.3547954
   [45] 0.2500000
                    1.2023810
##
   [46] 0.1866667
                   0.8977778
##
##
        lhs
                                              support
                                                         confidence lift
                          => {breathes=TRUE} 0.1980198 1.0000000
   [1]
        {type=bird}
                                                                    1.2625000
##
   [2]
                          => {breathes=TRUE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                                    1.2625000
##
   [3]
        {airborne=TRUE}
                             {breathes=TRUE} 0.2376238 1.0000000
                                                                    1.2625000
##
   [4]
        {milk=TRUE}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                    1.2625000
   [5]
##
        {type=mammal}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                    1.2625000
        {hair=TRUE}
   [6]
                             {breathes=TRUE} 0.4257426 1.0000000
##
                                                                    1.2625000
                                                                    1.2430769
##
   [7]
        {aquatic=FALSE}
                             {breathes=TRUE} 0.6336634 0.9846154
##
   [8]
        {eggs=FALSE}
                             {breathes=TRUE} 0.4059406 0.9761905
                                                                    1.2324405
   [9]
        {legs=TRUE}
                             {breathes=TRUE} 0.7227723 0.9358974
                                                                    1.1815705
   [10]
       {domestic=TRUE}
                             {breathes=TRUE} 0.1188119 0.9230769
                                                                    1.1653846
                             {breathes=TRUE} 0.4059406 0.9111111
##
       {predator=FALSE}
                          =>
                                                                    1.1502778
   [11]
  [12] {catsize=TRUE}
                             {breathes=TRUE} 0.3861386 0.8863636
                                                                    1.1190341
## [13] {toothed=FALSE}
                          => {breathes=TRUE} 0.3267327 0.8250000
                                                                    1.0415625
                                                                    1.0268333
## [14] {tail=TRUE}
                          => {breathes=TRUE} 0.6039604 0.8133333
```

```
## [15] {domestic=FALSE} => {breathes=TRUE} 0.6732673 0.7727273
                                                                  0.9755682
  [16] {tail=FALSE}
                         => {breathes=TRUE} 0.1881188 0.7307692
                                                                  0.9225962
  [17] {airborne=FALSE} => {breathes=TRUE} 0.5544554 0.7272727
  [18] {catsize=FALSE}
                        => {breathes=TRUE} 0.4059406 0.7192982
                                                                  0.9081140
##
  [19] {predator=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6964286
                                                                  0.8792411
  [20] {eggs=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6610169
##
                                                                  0.8345339
  [21] {milk=FALSE}
                         => {breathes=TRUE} 0.3861386 0.6500000
                                                                  0.8206250
##
  [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
                                                                  0.7715278
##
       lhs
                                           rhs
                                                            support
##
  [1] {hair=FALSE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1980198
  [2] {milk=FALSE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1980198
   [3] {eggs=TRUE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1881188
   [4] {domestic=FALSE, catsize=FALSE}
                                       => {breathes=FALSE} 0.1485149
   [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
  [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [7] {toothed=TRUE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1287129
##
##
       confidence lift
  [1] 0.3703704 1.781305
##
  [2] 0.3636364
                 1.748918
   [3] 0.3518519
                  1.692240
##
  [4] 0.3000000
                  1.442857
  [5] 0.2941176
                  1.414566
##
  [6] 0.2816901
                  1.354795
##
   [7] 0.2500000
                  1.202381
##
       lhs
                                           rhs
                                                            support
  [1] {airborne=FALSE,aquatic=TRUE}
                                       => {breathes=FALSE} 0.1980198
   [2] {milk=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
   [3] {eggs=TRUE,airborne=FALSE}
                                       => {breathes=FALSE} 0.1980198
  [4] {hair=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
  [5] {airborne=FALSE, catsize=FALSE}
                                       => {breathes=FALSE} 0.1584158
   [6] {airborne=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
##
   [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
##
       confidence lift
   [1] 0.6451613
                  3.102919
##
   [2] 0.5526316
                  2.657895
  [3] 0.5405405
                  2.599743
  [4] 0.5250000
##
                  2.525000
   [5] 0.444444
                  2.137566
##
  [6] 0.3469388
                  1.668610
  [7] 0.2941176
                  1.414566
   [8] 0.2876712
##
                  1.383562
##
       lhs
                                          rhs
                                                           support
  [1] {legs=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
##
  [2] {aquatic=TRUE, catsize=FALSE}
                                      => {breathes=FALSE} 0.1485149
  [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
  [4] {predator=TRUE, catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
   [5] {feathers=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
   [6] {hair=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1584158
##
   [7] {domestic=FALSE, catsize=FALSE} => {breathes=FALSE} 0.1485149
##
       confidence lift
## [1] 0.7500000 3.607143
## [2] 0.6521739
                  3.136646
## [3] 0.4444444 2.137566
```

```
## [4] 0.4285714
                  2.061224
  [5] 0.3720930
                  1.789590
  [6] 0.3636364
                  1.748918
  [7] 0.3000000
##
                  1.442857
##
       lhs
                                                           support
## [1] {predator=TRUE,legs=FALSE}
                                       => {breathes=FALSE} 0.1188119
  [2] {milk=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
  [3] {eggs=TRUE,predator=TRUE}
                                       => {breathes=FALSE} 0.1584158
  [4] {hair=FALSE,predator=TRUE}
                                         {breathes=FALSE} 0.1683168
   [5] {predator=TRUE, catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
##
   [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
##
       confidence lift
##
  [1] 0.7058824 3.394958
  [2] 0.5000000
                  2.404762
   [3] 0.4848485
                  2.331890
  [4] 0.4722222
                  2.271164
  [5] 0.4285714
                  2.061224
  [6] 0.3617021
                  1.739615
   [7] 0.3469388
                  1.668610
##
       lhs
                                                                 confidence
                                      rhs
                                                       support
## [1] {eggs=TRUE,fins=TRUE}
                                  => {breathes=FALSE} 0.1287129 1.0000000
                                  => {breathes=FALSE} 0.1485149 0.7894737
  [2] {eggs=TRUE,legs=FALSE}
  [3] {eggs=TRUE,toothed=TRUE}
                                  => {breathes=FALSE} 0.1287129 0.6500000
  [4] {eggs=TRUE,aquatic=TRUE}
                                  => {breathes=FALSE} 0.1881188 0.6333333
  [5] {eggs=TRUE,airborne=FALSE} => {breathes=FALSE} 0.1980198 0.5405405
   [6] {feathers=FALSE,eggs=TRUE} => {breathes=FALSE} 0.1980198 0.5128205
   [7] {eggs=TRUE,predator=TRUE}
                                  => {breathes=FALSE} 0.1584158 0.4848485
   [8] {hair=FALSE,eggs=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.3703704
   [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
##
       lift
##
  [1] 4.809524
   [2] 3.796992
  [3] 3.126190
   [4] 3.046032
##
  [5] 2.599743
  [6] 2.466422
  [7] 2.331890
##
   [8] 1.781305
  [9] 1.692240
##
##
       lhs
                                                        support
                                                                  confidence
                                    => {breathes=FALSE} 0.1287129 1.0000000
  [1] {milk=FALSE,fins=TRUE}
  [2] {milk=FALSE,legs=FALSE}
                                    => {breathes=FALSE} 0.1584158 0.8000000
                                   => {breathes=FALSE} 0.1980198 0.6666667
  [3] {milk=FALSE,aquatic=TRUE}
## [4] {milk=FALSE,toothed=TRUE}
                                    => {breathes=FALSE} 0.1386139 0.6666667
## [5] {milk=FALSE,airborne=FALSE} =>
                                       {breathes=FALSE} 0.2079208 0.5526316
  [6] {feathers=FALSE,milk=FALSE} => {breathes=FALSE} 0.2079208 0.5250000
  [7] {milk=FALSE,predator=TRUE}
                                   => {breathes=FALSE} 0.1683168 0.5000000
   [8] {hair=FALSE,milk=FALSE}
                                   => {breathes=FALSE} 0.2079208 0.3750000
   [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
##
       lift
## [1] 4.809524
## [2] 3.847619
## [3] 3.206349
```

```
[4] 3.206349
   [5] 2.657895
   [6] 2.525000
   [7] 2.404762
##
   [8]
       1.803571
##
   [9] 1.748918
##
       "Número de reglas con consecuente negado"
##
                                                              support
##
   [1]
        {type=fish}
                                            {breathes=FALSE} 0.1287129
   [2]
##
        {eggs=TRUE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
   [3]
        {milk=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
   [4]
##
        {hair=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
##
   [5]
        {aquatic=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
                                            {breathes=FALSE} 0.1584158
##
   [6]
        {milk=FALSE,legs=FALSE}
   [7]
                                            {breathes=FALSE} 0.1485149
##
        {eggs=TRUE,legs=FALSE}
##
   [8]
        {legs=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
##
   [9]
        {hair=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
   [10] {predator=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1188119
                                            {breathes=FALSE} 0.1980198
   [11] {milk=FALSE,aquatic=TRUE}
   [12] {feathers=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
##
  [13] {milk=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
  [14] {aquatic=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
                                            {breathes=FALSE} 0.1287129
   [15] {eggs=TRUE,toothed=TRUE}
                                            {breathes=FALSE} 0.1980198
##
   [16] {airborne=FALSE,aquatic=TRUE}
   [17] {eggs=TRUE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1881188
   [18] {hair=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [19] {aquatic=TRUE, toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
   [20] {hair=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
  [21] {hair=FALSE,feathers=FALSE}
                                            {breathes=FALSE} 0.2079208
  [22] {milk=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
   [23]
        {eggs=TRUE,airborne=FALSE}
                                            {breathes=FALSE} 0.1980198
   [24]
        {hair=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
   [25] {feathers=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
   [26] {feathers=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
       {milk=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [27]
##
   [28]
       {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
  [29] {hair=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
  [30] {airborne=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
##
       {predator=TRUE,catsize=FALSE}
                                             {breathes=FALSE} 0.1188119
   [31]
   [32] {hair=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
   [33] {feathers=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [34] {hair=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
##
   [35] {hair=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
   [36] {hair=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
##
  [37] {milk=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
        {feathers=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [38]
   [39]
##
        {eggs=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1881188
       {airborne=FALSE, predator=TRUE}
                                            {breathes=FALSE} 0.1683168
  [41] {domestic=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
   [42]
        {airborne=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
##
  [43]
       {feathers=FALSE,airborne=FALSE}
                                         =>
                                            {breathes=FALSE} 0.2079208
## [44] {feathers=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
## [45] {toothed=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1287129
## [46] {tail=TRUE}
                                            {breathes=FALSE} 0.1386139
```

```
##
        confidence lift
##
                   4.8095238
   [1]
        1.0000000
   [2]
        1.0000000
                    4.8095238
   [3]
##
        1.0000000
                    4.8095238
##
   [4]
        0.8666667
                    4.1682540
##
   [5]
        0.8333333
                    4.0079365
##
   [6]
        0.8000000
                    3.8476190
##
   [7]
        0.7894737
                    3.7969925
##
   [8]
        0.7500000
                    3.6071429
##
   [9]
        0.7272727
                    3.4978355
   [10] 0.7058824
                    3.3949580
   [11] 0.6666667
                    3.2063492
   [12] 0.6666667
                    3.2063492
   [13] 0.6666667
                    3.2063492
   [14] 0.6521739
                    3.1366460
   [15] 0.6500000
                    3.1261905
   [16] 0.6451613
                    3.1029186
   [17] 0.6333333
                    3.0460317
   [18] 0.6250000
                    3.0059524
   [19] 0.6086957
                    2.9275362
##
   [20] 0.6086957
                    2.9275362
   [21] 0.5526316
                    2.6578947
   [22] 0.5526316
                    2.6578947
   [23] 0.5405405
                    2.5997426
   [24] 0.5250000
                    2.5250000
   [25] 0.5250000
                    2.5250000
   [26] 0.5128205
                    2.4664225
##
   [27] 0.5000000
                    2.4047619
   [28] 0.4848485
                    2.3318903
   [29] 0.4722222
                    2.2711640
   [30] 0.4444444
                    2.1375661
##
   [31] 0.4285714
                    2.0612245
   [32] 0.3750000
                    1.8035714
   [33] 0.3720930
                    1.7895903
   [34] 0.3703704
                    1.7813051
   [35] 0.3703704
##
                    1.7813051
   [36] 0.3636364
                    1.7489177
   [37] 0.3636364
                    1.7489177
   [38] 0.3617021
                    1.7396150
   [39] 0.3518519
                    1.6922399
##
   [40] 0.3469388
                    1.6686103
   [41] 0.3000000
                    1.4428571
   [42] 0.2941176
                    1.4145658
##
   [43] 0.2876712
                    1.3835616
   [44] 0.2816901
                    1.3547954
   [45] 0.2500000
                    1.2023810
##
   [46] 0.1866667
                    0.8977778
##
        lhs
                                              support
                                                         confidence lift
##
   [1]
        {type=bird}
                          => {breathes=TRUE} 0.1980198 1.0000000
                                                                     1.2625000
##
   [2]
        {feathers=TRUE}
                             {breathes=TRUE} 0.1980198 1.0000000
                                                                     1.2625000
                             {breathes=TRUE} 0.2376238 1.0000000
##
   [3]
        {airborne=TRUE}
                          =>
                                                                     1.2625000
##
   [4]
        {milk=TRUE}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                     1.2625000
##
  [5]
        {type=mammal}
                          => {breathes=TRUE} 0.4059406 1.0000000
                                                                     1.2625000
## [6]
        {hair=TRUE}
                          => {breathes=TRUE} 0.4257426 1.0000000
```

```
## [7]
        {aquatic=FALSE}
                         => {breathes=TRUE} 0.6336634 0.9846154
                                                                  1.2430769
  [8]
                         => {breathes=TRUE} 0.4059406 0.9761905
##
        {eggs=FALSE}
                                                                  1.2324405
                         => {breathes=TRUE} 0.7227723 0.9358974
  [9]
        {legs=TRUE}
                         => {breathes=TRUE} 0.1188119 0.9230769
  [10] {domestic=TRUE}
                                                                  1.1653846
  [11] {predator=FALSE}
                         =>
                            {breathes=TRUE} 0.4059406 0.9111111
                                                                  1.1502778
  [12] {catsize=TRUE}
                         => {breathes=TRUE} 0.3861386 0.8863636
                                                                  1.1190341
  [13] {toothed=FALSE}
                         => {breathes=TRUE} 0.3267327 0.8250000
                                                                  1.0415625
## [14] {tail=TRUE}
                         => {breathes=TRUE} 0.6039604 0.8133333
                                                                  1.0268333
  [15] {domestic=FALSE} => {breathes=TRUE} 0.6732673 0.7727273
                                                                  0.9755682
## [16] {tail=FALSE}
                         => {breathes=TRUE} 0.1881188 0.7307692
                                                                  0.9225962
## [17] {airborne=FALSE} => {breathes=TRUE} 0.5544554 0.7272727
                                                                  0.9181818
                         => {breathes=TRUE} 0.4059406 0.7192982
## [18] {catsize=FALSE}
                                                                  0.9081140
  [19] {predator=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6964286
                                                                  0.8792411
  [20] {eggs=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6610169
                                                                  0.8345339
                         => {breathes=TRUE} 0.3861386 0.6500000
## [21] {milk=FALSE}
                                                                  0.8206250
##
  [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
                                                                  0.7715278
##
       lhs
                                           rhs
                                                            support
  [1] {hair=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
##
  [2] {milk=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
   [3] {eggs=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1881188
  [4] {domestic=FALSE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1485149
  [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
  [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [7] {toothed=TRUE.domestic=FALSE}
##
                                       => {breathes=FALSE} 0.1287129
##
       confidence lift
## [1] 0.3703704 1.781305
  [2] 0.3636364
                  1.748918
  [3] 0.3518519
                  1.692240
## [4] 0.300000
                  1.442857
  [5] 0.2941176
                  1.414566
##
  [6] 0.2816901
                  1.354795
##
  [7] 0.2500000
                  1.202381
##
                                                            support
## [1] {airborne=FALSE,aquatic=TRUE}
                                        => {breathes=FALSE} 0.1980198
   [2] {milk=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
  [3] {eggs=TRUE,airborne=FALSE}
                                        => {breathes=FALSE} 0.1980198
  [4] {hair=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
  [5] {airborne=FALSE, catsize=FALSE}
                                        => {breathes=FALSE} 0.1584158
  [6] {airborne=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
##
       confidence lift
## [1] 0.6451613
                  3.102919
  [2] 0.5526316
                  2.657895
## [3] 0.5405405
                  2.599743
## [4] 0.5250000
                  2.525000
##
  [5] 0.444444
                  2.137566
  [6] 0.3469388
                  1.668610
  [7] 0.2941176
                  1.414566
##
   [8] 0.2876712
                  1.383562
##
       lhs
                                          rhs
                                                           support
## [1] {legs=FALSE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1188119
## [2] {aquatic=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1485149
## [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
```

```
## [4] {predator=TRUE,catsize=FALSE} => {breathes=FALSE} 0.1188119
  [5] {feathers=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
  [6] {hair=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1584158
   [7] {domestic=FALSE, catsize=FALSE} => {breathes=FALSE} 0.1485149
       confidence lift
## [1] 0.7500000
                  3.607143
  [2] 0.6521739
                  3.136646
## [3] 0.444444
                  2.137566
  [4] 0.4285714
                  2.061224
  [5] 0.3720930
                  1.789590
  [6] 0.3636364
                  1.748918
##
  [7] 0.3000000
                  1.442857
##
       lhs
                                          rhs
                                                           support
  [1] {predator=TRUE,legs=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [2] {milk=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
  [3] {eggs=TRUE,predator=TRUE}
                                       => {breathes=FALSE} 0.1584158
  [4] {hair=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
  [5] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE, predator=TRUE} => {breathes=FALSE} 0.1683168
##
       confidence lift
## [1] 0.7058824 3.394958
## [2] 0.5000000
                  2.404762
  [3] 0.4848485
                  2.331890
## [4] 0.4722222
                  2.271164
  [5] 0.4285714
                  2.061224
  [6] 0.3617021
                  1.739615
##
   [7] 0.3469388
                  1.668610
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
## [1] {eggs=TRUE,fins=TRUE}
                                  => {breathes=FALSE} 0.1287129 1.0000000
  [2] {eggs=TRUE,legs=FALSE}
                                  => {breathes=FALSE} 0.1485149 0.7894737
  [3] {eggs=TRUE,toothed=TRUE}
                                  => {breathes=FALSE} 0.1287129 0.6500000
  [4] {eggs=TRUE,aquatic=TRUE}
                                  => {breathes=FALSE} 0.1881188 0.6333333
  [5] {eggs=TRUE,airborne=FALSE} => {breathes=FALSE} 0.1980198 0.5405405
   [6] {feathers=FALSE,eggs=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.5128205
  [7] {eggs=TRUE,predator=TRUE}
                                  => {breathes=FALSE} 0.1584158 0.4848485
  [8] {hair=FALSE,eggs=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.3703704
  [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
##
       lift.
## [1] 4.809524
  [2] 3.796992
  [3] 3.126190
  [4] 3.046032
##
  [5] 2.599743
## [6] 2.466422
## [7] 2.331890
##
  [8] 1.781305
##
  [9] 1.692240
##
       lhs
                                                                  confidence
                                                        support
## [1] {milk=FALSE,fins=TRUE}
                                      {breathes=FALSE} 0.1287129 1.0000000
  [2] {milk=FALSE,legs=FALSE}
                                   => {breathes=FALSE} 0.1584158 0.8000000
## [3] {milk=FALSE,aquatic=TRUE}
                                   => {breathes=FALSE} 0.1980198 0.6666667
## [4] {milk=FALSE,toothed=TRUE}
                                   => {breathes=FALSE} 0.1386139 0.6666667
## [5] {milk=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208 0.5526316
```

```
## [6] {feathers=FALSE,milk=FALSE} => {breathes=FALSE} 0.2079208 0.5250000
  [7] {milk=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168 0.5000000
  [8] {hair=FALSE,milk=FALSE}
                                   => {breathes=FALSE} 0.2079208 0.3750000
   [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
       lift.
## [1] 4.809524
  [2] 3.847619
## [3] 3.206349
   [4] 3.206349
  [5] 2.657895
  [6] 2.525000
  [7] 2.404762
##
##
   [8] 1.803571
##
   [9] 1.748918
##
   [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                            support
##
  [1]
        {catsize=FALSE, type=bird}
                                         => {airborne=TRUE} 0.1287129
   [2]
        {feathers=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.1287129
  [3]
        {type=bird}
                                         => {airborne=TRUE} 0.1584158
##
##
   [4]
        {feathers=TRUE}
                                           {airborne=TRUE} 0.1584158
##
   [5]
        {toothed=FALSE,backbone=TRUE}
                                           {airborne=TRUE} 0.1584158
        {predator=FALSE, toothed=FALSE}
                                           {airborne=TRUE} 0.1485149
  [6]
  [7]
##
        {toothed=FALSE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
##
  [8]
        {toothed=FALSE, breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
##
  [9]
        {aquatic=FALSE, toothed=FALSE}
                                         => {airborne=TRUE} 0.1683168
  [10] {toothed=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
                                           {airborne=TRUE} 0.2178218
  [11] {toothed=FALSE,legs=TRUE}
##
  [12] {eggs=TRUE,aquatic=FALSE}
                                           {airborne=TRUE} 0.1683168
  [13] {eggs=TRUE,predator=FALSE}
                                         => {airborne=TRUE} 0.1485149
## [14] {milk=FALSE,predator=FALSE}
                                         => {airborne=TRUE} 0.1485149
  [15] {milk=FALSE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1683168
  [16] {eggs=TRUE,breathes=TRUE}
                                           {airborne=TRUE} 0.2178218
  [17] {milk=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
  [18] {toothed=FALSE, venomous=FALSE}
                                         => {airborne=TRUE} 0.1980198
  [19] {toothed=FALSE}
                                            {airborne=TRUE} 0.2178218
## [20] {eggs=TRUE,legs=TRUE}
                                           {airborne=TRUE} 0.2178218
  [21] {milk=FALSE,legs=TRUE}
                                           {airborne=TRUE} 0.2178218
## [22] {predator=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.1485149
  [23] {legs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
  [24] {breathes=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.2079208
  [25] {hair=FALSE,predator=FALSE}
                                           {airborne=TRUE} 0.1089109
  [26] {aquatic=FALSE, catsize=FALSE}
                                         => {airborne=TRUE} 0.1683168
  [27] {hair=FALSE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1287129
  [28] {hair=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.1782178
## [29] {hair=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.1782178
## [30] {eggs=TRUE,fins=FALSE}
                                         => {airborne=TRUE} 0.2178218
  [31] {milk=FALSE,fins=FALSE}
                                         => {airborne=TRUE} 0.2178218
  [32] {fins=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.2079208
  [33] {predator=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.1683168
  [34] {hair=FALSE,fins=FALSE}
                                         => {airborne=TRUE} 0.1782178
## [35] {predator=FALSE,breathes=TRUE}
                                        => {airborne=TRUE} 0.1683168
## [36] {predator=FALSE,fins=FALSE}
                                         => {airborne=TRUE} 0.1683168
## [37] {eggs=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
## [38] {eggs=TRUE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
```

```
## [39] {tail=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1485149
                                            {airborne=TRUE} 0.1584158
  [40] {milk=FALSE,tail=TRUE}
  [41] {milk=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [42] {milk=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [43]
       {predator=FALSE,domestic=FALSE}
                                            {airborne=TRUE} 0.1287129
  [44] {hair=FALSE,tail=TRUE}
##
                                            {airborne=TRUE} 0.1584158
  [45] {eggs=TRUE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
## [46] {milk=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  Γ47]
        {venomous=FALSE, catsize=FALSE}
                                             {airborne=TRUE} 0.1881188
   [48]
       {eggs=TRUE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [49] {backbone=TRUE, catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
   [50] {hair=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1782178
   [51]
       {breathes=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2376238
       {aquatic=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1881188
  [53] {legs=TRUE,tail=TRUE}
                                         => {airborne=TRUE} 0.1782178
   [54]
        {breathes=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2376238
##
   [55]
        {fins=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2376238
       {fins=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1782178
   [57]
       {aquatic=FALSE}
                                         => {airborne=TRUE} 0.1881188
##
   Γ581
        {venomous=FALSE}
                                         => {airborne=TRUE} 0.2178218
##
        confidence lift
##
  [1]
        0.9285714
                  3.9077381
  [2]
##
        0.9285714
                   3.9077381
   [3]
##
        0.8000000
                   3.3666667
##
  [4]
        0.8000000
                   3.3666667
   [5]
        0.7272727
                   3.0606061
   [6]
        0.7142857
##
                   3.0059524
##
   [7]
        0.6956522
                   2.9275362
##
   [8]
        0.6666667
                   2.8055556
  [9]
        0.6296296
                   2.6496914
  [10] 0.6129032
                   2.5793011
   [11] 0.6111111
                   2.5717593
   [12] 0.5862069
                   2.4669540
  [13] 0.5769231
                   2.4278846
       0.5769231
   Γ147
                   2.4278846
##
  [15] 0.5666667
                   2.3847222
  [16] 0.5641026
                   2.3739316
  [17] 0.5641026
                   2.3739316
  [18] 0.5555556
                   2.3379630
  [19] 0.5500000
                   2.3145833
  [20] 0.5500000
                   2.3145833
  [21] 0.5500000
                   2.3145833
   [22] 0.5172414
                   2.1767241
  [23] 0.5121951
                   2.1554878
                   2.1554878
  [24] 0.5121951
  [25] 0.5000000
                   2.1041667
                   2.1041667
##
   [26] 0.5000000
   [27] 0.5000000
                   2.1041667
  [28] 0.5000000
                   2.1041667
   [29]
        0.4864865
                   2.0472973
##
  [30] 0.4782609
                   2.0126812
## [31] 0.4680851
                   1.9698582
## [32] 0.4375000
                   1.8411458
## [33] 0.4358974
                   1.8344017
```

```
[34] 0.4186047
                   1.7616279
   [35] 0.4146341
                   1.7449187
   [36] 0.4146341
                   1.7449187
   [37] 0.4130435
                   1.7382246
   [38] 0.4102564
                   1.7264957
##
   [39] 0.4054054
                   1.7060811
   [40] 0.4000000
                   1.6833333
   [41] 0.3958333
                   1.6657986
   [42] 0.3846154
                   1.6185897
   [43] 0.3823529
                   1.6090686
   [44] 0.3809524
                   1.6031746
   [45] 0.3809524
                   1.6031746
   [46] 0.3809524
                   1.6031746
   [47] 0.3800000
                   1.5991667
   [48] 0.3773585
                   1.5880503
   [49]
       0.3750000
                   1.5781250
##
   [50] 0.3461538
                   1.4567308
                   1.3835616
   [51] 0.3287671
   [52] 0.3166667
                   1.3326389
   [53] 0.3157895
                   1.3289474
##
   [54] 0.3157895
                   1.3289474
   [55] 0.3116883
                   1.3116883
##
   [56] 0.3050847
                   1.2838983
##
   [57] 0.2923077
                   1.2301282
##
   [58] 0.2365591
                   0.9955197
##
        lhs
                                               support
                                                         confidence lift
##
   [1]
                             {airborne=FALSE} 0.1287129 1.0000000
        {type=fish}
                                                                   1.3116883
   [2]
##
        {fins=TRUE}
                             {airborne=FALSE} 0.1683168 1.0000000
                                                                    1.3116883
##
   [3]
                             {airborne=FALSE} 0.2079208 1.0000000
        {breathes=FALSE}
                                                                    1.3116883
##
   [4]
        {legs=FALSE}
                             {airborne=FALSE} 0.2277228 1.0000000
                                                                     1.3116883
##
   [5]
        {toothed=TRUE}
                             {airborne=FALSE} 0.5841584 0.9672131
                                                                     1.2686821
##
   [6]
        {eggs=FALSE}
                             {airborne=FALSE} 0.3960396 0.9523810
                                                                     1.2492270
##
   [7]
        {milk=TRUE}
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                     1.2477035
   [8]
##
        {type=mammal}
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                     1.2477035
   [9]
        {catsize=TRUE}
                             {airborne=FALSE} 0.4059406 0.9318182
                                                                     1.2222550
                          => {airborne=FALSE} 0.4851485 0.8750000
                                                                     1.1477273
##
   [10]
       {predator=TRUE}
   [11]
       {aquatic=TRUE}
                             {airborne=FALSE} 0.3069307 0.8611111
                                                                     1.1295094
   [12] {hair=TRUE}
                          => {airborne=FALSE} 0.3663366 0.8604651
##
                                                                     1.1286620
                             {airborne=FALSE} 0.6435644 0.7831325
   [13]
       {backbone=TRUE}
                                                                     1.0272258
                             {airborne=FALSE} 0.1980198 0.7692308
##
   [14] {tail=FALSE}
                                                                     1.0089910
                             {airborne=FALSE} 0.5643564 0.7600000
   [15] {tail=TRUE}
                                                                     0.9968831
   [16] {aquatic=FALSE}
                             {airborne=FALSE} 0.4554455 0.7076923
                                                                     0.9282717
   [17] {hair=FALSE}
                             {airborne=FALSE} 0.3960396 0.6896552
                                                                     0.9046126
##
   [18] {backbone=FALSE}
                         => {airborne=FALSE} 0.1188119 0.6666667
                                                                     0.8744589
   [19] {milk=FALSE}
                          => {airborne=FALSE} 0.3762376 0.6333333
                                                                     0.8307359
   [20] {eggs=TRUE}
                          => {airborne=FALSE} 0.3663366 0.6271186
                                                                     0.8225842
                                                                     0.8161616
##
   [21] {predator=FALSE} =>
                             {airborne=FALSE} 0.2772277 0.6222222
##
   [22] {toothed=FALSE}
                         => {airborne=FALSE} 0.1782178 0.4500000
                                                                     0.5902597
##
       lhs
                                          rhs
                                                          support
                                                                     confidence
##
   [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
   [2] {eggs=TRUE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
   [3] {milk=FALSE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
##
   [4] {backbone=TRUE, catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift
```

```
## [1] 3.060606
## [2] 1.603175
## [3] 1.603175
## [4] 1.578125
                                                     support
                                                               confidence
## [1] {toothed=FALSE,tail=TRUE} => {airborne=TRUE} 0.1584158 0.6956522
## [2] {eggs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4102564
## [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4000000
## [5] {hair=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.3809524
## [6] {legs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1782178 0.3157895
## [7] {fins=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1782178 0.3050847
##
       lift
## [1] 2.927536
## [2] 1.726496
## [3] 1.706081
## [4] 1.683333
## [5] 1.603175
## [6] 1.328947
## [7] 1.283898
##
       lhs
                                        rhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
                                     => {airborne=TRUE} 0.1683168 0.5862069
## [2] {eggs=TRUE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5666667
## [3] {milk=FALSE,aquatic=FALSE}
## [4] {aquatic=FALSE, catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
## [5] {hair=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1287129 0.5000000
## [6] {aquatic=FALSE,legs=TRUE}
                                     => {airborne=TRUE} 0.1881188 0.3166667
       lift
## [1] 2.649691
## [2] 2.466954
## [3] 2.384722
## [4] 2.104167
## [5] 2.104167
## [6] 1.332639
                                      rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
## [2] {hair=FALSE,aquatic=FALSE} => {airborne=TRUE} 0.1287129 0.5000000
## [3] {hair=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.5000000
## [4] {hair=FALSE,breathes=TRUE} => {airborne=TRUE} 0.1782178 0.4864865
## [5] {hair=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.1782178 0.4186047
                                   => {airborne=TRUE} 0.1584158 0.3809524
## [6] {hair=FALSE,tail=TRUE}
## [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
       lift
## [1] 2.104167
## [2] 2.104167
## [3] 2.104167
## [4] 2.047297
## [5] 1.761628
## [6] 1.603175
## [7] 1.456731
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
## [2] {milk=FALSE,aquatic=FALSE} => {airborne=TRUE} 0.1683168 0.5666667
## [3] {milk=FALSE,breathes=TRUE} => {airborne=TRUE} 0.2178218 0.5641026
```

```
## [4] {milk=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5500000
                                   => {airborne=TRUE} 0.2178218 0.4680851
## [5] {milk=FALSE,fins=FALSE}
## [6] {milk=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.4000000
## [7] {milk=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1881188 0.3958333
## [8] {milk=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
  [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
       lift
## [1] 2.427885
## [2] 2.384722
## [3] 2.373932
## [4] 2.314583
## [5] 1.969858
## [6] 1.683333
## [7] 1.665799
## [8] 1.618590
## [9] 1.603175
##
       lhs
                                     rhs
                                                      support
                                                                confidence
  [1] {eggs=TRUE,aquatic=FALSE}
                                  => {airborne=TRUE} 0.1683168 0.5862069
  [2] {eggs=TRUE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
## [3] {eggs=TRUE,breathes=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5641026
## [4] {eggs=TRUE,legs=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5500000
                                  => {airborne=TRUE} 0.2178218 0.4782609
## [5] {eggs=TRUE,fins=FALSE}
                                  => {airborne=TRUE} 0.1881188 0.4130435
## [6] {eggs=TRUE,catsize=FALSE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
## [7] {eggs=TRUE,tail=TRUE}
  [8] {eggs=TRUE,backbone=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
  [9] {eggs=TRUE,venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
       lift
## [1] 2.466954
## [2] 2.427885
## [3] 2.373932
## [4] 2.314583
## [5] 2.012681
## [6] 1.738225
## [7] 1.726496
## [8] 1.603175
##
  [9] 1.588050
##
                                                           support
## [1] {predator=FALSE,toothed=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [2] {eggs=TRUE,predator=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [3] {milk=FALSE,predator=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [4] {predator=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [5] {hair=FALSE,predator=FALSE}
                                       => {airborne=TRUE} 0.1089109
## [6] {predator=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.1683168
## [7] {predator=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.1683168
## [8] {predator=FALSE,fins=FALSE}
                                       => {airborne=TRUE} 0.1683168
## [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
##
       confidence lift
## [1] 0.7142857 3.005952
## [2] 0.5769231
                  2.427885
## [3] 0.5769231
                  2.427885
## [4] 0.5172414
                  2.176724
## [5] 0.5000000 2.104167
## [6] 0.4358974 1.834402
## [7] 0.4146341 1.744919
```

```
[8] 0.4146341
                  1.744919
   [9] 0.3823529
##
                  1.609069
##
                                                          support
                                                                    confidence
                                         {airborne=TRUE} 0.1584158 0.7272727
  [1] {toothed=FALSE,backbone=TRUE}
##
##
   [2] {predator=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1485149 0.7142857
   [3] {toothed=FALSE,tail=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.6956522
  [4] {toothed=FALSE,breathes=TRUE}
                                         {airborne=TRUE} 0.2178218 0.6666667
  [5] {aquatic=FALSE, toothed=FALSE}
                                         {airborne=TRUE} 0.1683168 0.6296296
   [6] {toothed=FALSE,catsize=FALSE}
                                         {airborne=TRUE} 0.1881188 0.6129032
   [7] {toothed=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6111111
   [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
       lift
## [1] 3.060606
  [2] 3.005952
## [3] 2.927536
   [4] 2.805556
##
  [5] 2.649691
   [6] 2.579301
  [7] 2.571759
##
   [8] 2.337963
##
   Γ17
       "Número de reglas con consecuente negado"
##
                                                            support
                                         => {airborne=TRUE} 0.1287129
##
  [1]
        {catsize=FALSE, type=bird}
##
   [2]
        {feathers=TRUE, catsize=FALSE}
                                            {airborne=TRUE} 0.1287129
##
  [3]
        {type=bird}
                                         => {airborne=TRUE} 0.1584158
  [4]
        {feathers=TRUE}
                                         => {airborne=TRUE} 0.1584158
   [5]
##
        {toothed=FALSE,backbone=TRUE}
                                           {airborne=TRUE} 0.1584158
##
   [6]
        {predator=FALSE, toothed=FALSE}
                                         => {airborne=TRUE} 0.1485149
  [7]
##
        {toothed=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1584158
  [8]
        {toothed=FALSE, breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
##
  [9]
        {aquatic=FALSE, toothed=FALSE}
                                         => {airborne=TRUE} 0.1683168
  [10]
       {toothed=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
  [11] {toothed=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
  [12] {eggs=TRUE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1683168
   [13] {eggs=TRUE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
  [14] {milk=FALSE,predator=FALSE}
                                           {airborne=TRUE} 0.1485149
## [15] {milk=FALSE,aquatic=FALSE}
                                           {airborne=TRUE} 0.1683168
## [16] {eggs=TRUE,breathes=TRUE}
                                           {airborne=TRUE} 0.2178218
  [17] {milk=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
  [18] {toothed=FALSE, venomous=FALSE}
                                           {airborne=TRUE} 0.1980198
  [19] {toothed=FALSE}
                                           {airborne=TRUE} 0.2178218
  [20] {eggs=TRUE,legs=TRUE}
                                           {airborne=TRUE} 0.2178218
## [21] {milk=FALSE,legs=TRUE}
                                           {airborne=TRUE} 0.2178218
## [22] {predator=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1485149
## [23] {legs=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.2079208
## [24] {breathes=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.2079208
  [25] {hair=FALSE,predator=FALSE}
                                         => {airborne=TRUE} 0.1089109
  [26] {aquatic=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1683168
  [27] {hair=FALSE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1287129
  [28] {hair=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.1782178
## [29]
       {hair=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.1782178
## [30] {eggs=TRUE,fins=FALSE}
                                         => {airborne=TRUE} 0.2178218
## [31] {milk=FALSE,fins=FALSE}
                                         => {airborne=TRUE} 0.2178218
## [32] {fins=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.2079208
```

```
## [33] {predator=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.1683168
                                            {airborne=TRUE} 0.1782178
  [34] {hair=FALSE,fins=FALSE}
  [35] {predator=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1683168
  [36] {predator=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1683168
  [37] {eggs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [38] {eggs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [39] {tail=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
  [40] {milk=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [41] {milk=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [42] {milk=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [43] {predator=FALSE,domestic=FALSE} =>
                                            {airborne=TRUE} 0.1287129
  [44] {hair=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [45]
       {eggs=TRUE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
                                            {airborne=TRUE} 0.1584158
       {milk=FALSE,backbone=TRUE}
       {venomous=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
  [47]
   [48]
        {eggs=TRUE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
   [49]
        {backbone=TRUE, catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
       {hair=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1782178
   [51] {breathes=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2376238
   [52] {aquatic=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1881188
##
  [53] {legs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1782178
  [54] {breathes=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2376238
       {fins=FALSE,legs=TRUE}
  [55]
                                            {airborne=TRUE} 0.2376238
       {fins=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1782178
##
   ſ561
##
   [57]
       {aquatic=FALSE}
                                         => {airborne=TRUE} 0.1881188
   [58]
       {venomous=FALSE}
                                         => {airborne=TRUE} 0.2178218
##
        confidence lift
##
   [1]
        0.9285714
                   3.9077381
##
   [2]
        0.9285714
                   3.9077381
##
  [3]
        0.8000000
                   3.3666667
##
   [4]
        0.8000000
                   3.3666667
##
   [5]
        0.7272727
                   3.0606061
##
   [6]
        0.7142857
                   3.0059524
   [7]
##
        0.6956522
                   2.9275362
   [8]
        0.666667
##
                   2.8055556
##
   [9]
        0.6296296
                   2.6496914
  [10] 0.6129032
                   2.5793011
  [11] 0.6111111
                   2.5717593
  [12] 0.5862069
                   2.4669540
  [13] 0.5769231
                   2.4278846
  [14] 0.5769231
                   2.4278846
                   2.3847222
  [15] 0.5666667
   [16] 0.5641026
                   2.3739316
  [17] 0.5641026
                   2.3739316
  [18] 0.5555556
                   2.3379630
  [19] 0.5500000
                   2.3145833
                   2.3145833
   [20] 0.5500000
  [21] 0.5500000
                   2.3145833
  [22] 0.5172414
                   2.1767241
  [23] 0.5121951
                   2.1554878
##
  [24] 0.5121951
                   2.1554878
## [25] 0.5000000
                   2.1041667
## [26] 0.5000000
                   2.1041667
## [27] 0.5000000
                   2.1041667
```

```
## [28] 0.5000000
                   2.1041667
   [29] 0.4864865
                   2.0472973
                    2.0126812
   [30] 0.4782609
   [31] 0.4680851
                    1.9698582
   [32] 0.4375000
                    1.8411458
##
   [33] 0.4358974
                    1.8344017
   [34] 0.4186047
                    1.7616279
   [35] 0.4146341
                    1.7449187
   [36] 0.4146341
                    1.7449187
   [37] 0.4130435
                    1.7382246
   [38] 0.4102564
                    1.7264957
   [39] 0.4054054
                    1.7060811
   [40] 0.4000000
                    1.6833333
   [41] 0.3958333
                    1.6657986
                    1.6185897
   [42] 0.3846154
   [43] 0.3823529
                    1.6090686
   [44] 0.3809524
                    1.6031746
   [45] 0.3809524
                    1.6031746
   [46] 0.3809524
                    1.6031746
   [47] 0.3800000
                    1.5991667
##
   [48] 0.3773585
                    1.5880503
   [49] 0.3750000
                    1.5781250
   [50] 0.3461538
                    1.4567308
   [51] 0.3287671
                    1.3835616
   [52] 0.3166667
                    1.3326389
   [53] 0.3157895
                    1.3289474
   [54] 0.3157895
                    1.3289474
##
   [55] 0.3116883
                    1.3116883
   [56] 0.3050847
                    1.2838983
       0.2923077
                    1.2301282
   [57]
##
   [58] 0.2365591
                   0.9955197
##
        lhs
                             rhs
                                                         confidence lift
                                               support
##
   [1]
        {type=fish}
                          => {airborne=FALSE} 0.1287129 1.0000000
   [2]
                          => {airborne=FALSE} 0.1683168 1.0000000
##
        {fins=TRUE}
                                                                     1.3116883
##
   [3]
        {breathes=FALSE}
                             {airborne=FALSE} 0.2079208 1.0000000
                                                                     1.3116883
##
   [4]
                          => {airborne=FALSE} 0.2277228 1.0000000
        {legs=FALSE}
                                                                     1.3116883
##
   [5]
        {toothed=TRUE}
                             {airborne=FALSE} 0.5841584 0.9672131
##
   [6]
                          => {airborne=FALSE} 0.3960396 0.9523810
        {eggs=FALSE}
                                                                     1.2492270
   [7]
        {milk=TRUE}
                             {airborne=FALSE} 0.3861386 0.9512195
##
                                                                     1.2477035
   [8]
                             {airborne=FALSE} 0.3861386 0.9512195
##
        {type=mammal}
                                                                     1.2477035
   [9]
        {catsize=TRUE}
                             {airborne=FALSE} 0.4059406 0.9318182
                                                                     1.2222550
                             {airborne=FALSE} 0.4851485 0.8750000
   [10]
       {predator=TRUE}
                                                                     1.1477273
   [11] {aquatic=TRUE}
                             {airborne=FALSE} 0.3069307 0.8611111
                                                                     1.1295094
##
                          => {airborne=FALSE} 0.3663366 0.8604651
   [12]
       {hair=TRUE}
                                                                     1.1286620
   [13] {backbone=TRUE}
                          => {airborne=FALSE} 0.6435644 0.7831325
                                                                     1.0272258
   [14]
       {tail=FALSE}
                             {airborne=FALSE} 0.1980198 0.7692308
                                                                     1.0089910
   [15]
       {tail=TRUE}
                             {airborne=FALSE} 0.5643564 0.7600000
                                                                     0.9968831
   [16] {aquatic=FALSE}
                             {airborne=FALSE} 0.4554455 0.7076923
                                                                     0.9282717
   [17]
       {hair=FALSE}
                             {airborne=FALSE} 0.3960396 0.6896552
                                                                     0.9046126
   [18]
        {backbone=FALSE}
                             {airborne=FALSE} 0.1188119 0.6666667
                                                                     0.8744589
##
   [19]
        {milk=FALSE}
                          => {airborne=FALSE} 0.3762376 0.6333333
                                                                     0.8307359
  [20] {eggs=TRUE}
                          => {airborne=FALSE} 0.3663366 0.6271186
                                                                     0.8225842
## [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.62222222
                                                                     0.8161616
## [22] {toothed=FALSE}
                          => {airborne=FALSE} 0.1782178 0.4500000
```

```
##
                                         rhs
                                                         support
                                                                   confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
  [2] {eggs=TRUE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
  [3] {milk=FALSE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
##
   [4] {backbone=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift
## [1] 3.060606
## [2] 1.603175
  [3] 1.603175
##
  [4] 1.578125
##
       lhs
                                     rhs
                                                     support
                                                               confidence
## [1] {toothed=FALSE,tail=TRUE} => {airborne=TRUE} 0.1584158 0.6956522
  [2] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
## [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4000000
## [5] {hair=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
                                 => {airborne=TRUE} 0.1782178 0.3157895
  [6] {legs=TRUE,tail=TRUE}
   [7] {fins=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1782178 0.3050847
##
       lift
## [1] 2.927536
## [2] 1.726496
## [3] 1.706081
## [4] 1.683333
## [5] 1.603175
## [6] 1.328947
##
  [7] 1.283898
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
                                      => {airborne=TRUE} 0.1683168 0.5862069
  [2] {eggs=TRUE,aquatic=FALSE}
## [3] {milk=FALSE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1683168 0.5666667
  [4] {aquatic=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
  [5] {hair=FALSE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1287129 0.5000000
##
   [6] {aquatic=FALSE,legs=TRUE}
                                      => {airborne=TRUE} 0.1881188 0.3166667
##
       lift
  [1] 2.649691
##
## [2] 2.466954
## [3] 2.384722
## [4] 2.104167
  [5] 2.104167
  [6] 1.332639
##
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
## [2] {hair=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1287129 0.5000000
                                    => {airborne=TRUE} 0.1782178 0.5000000
  [3] {hair=FALSE,legs=TRUE}
## [4] {hair=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.4864865
## [5] {hair=FALSE,fins=FALSE}
                                    => {airborne=TRUE} 0.1782178 0.4186047
  [6] {hair=FALSE,tail=TRUE}
                                    => {airborne=TRUE} 0.1584158 0.3809524
  [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
##
##
       lift.
## [1] 2.104167
## [2] 2.104167
## [3] 2.104167
## [4] 2.047297
## [5] 1.761628
```

```
## [6] 1.603175
##
  [7] 1.456731
##
       lhs
                                                       support
                                                                 confidence
  [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
##
##
   [2] {milk=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1683168 0.5666667
   [3] {milk=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5641026
  [4] {milk=FALSE,legs=TRUE}
                                    => {airborne=TRUE} 0.2178218 0.5500000
  [5] {milk=FALSE,fins=FALSE}
                                    => {airborne=TRUE} 0.2178218 0.4680851
  [6] {milk=FALSE,tail=TRUE}
                                    => {airborne=TRUE} 0.1584158 0.4000000
  [7] {milk=FALSE,catsize=FALSE}
                                   => {airborne=TRUE} 0.1881188 0.3958333
  [8] {milk=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
   [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
##
       lift
## [1] 2.427885
## [2] 2.384722
  [3] 2.373932
##
  [4] 2.314583
  [5] 1.969858
  [6] 1.683333
   [7] 1.665799
##
  [8] 1.618590
##
  [9] 1.603175
##
       lhs
                                      rhs
                                                      support
                                                                confidence
## [1] {eggs=TRUE,aquatic=FALSE}
                                  => {airborne=TRUE} 0.1683168 0.5862069
   [2] {eggs=TRUE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
  [3] {eggs=TRUE,breathes=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5641026
                                  => {airborne=TRUE} 0.2178218 0.5500000
  [4] {eggs=TRUE,legs=TRUE}
  [5] {eggs=TRUE,fins=FALSE}
                                  => {airborne=TRUE} 0.2178218 0.4782609
  [6] {eggs=TRUE,catsize=FALSE}
                                  => {airborne=TRUE} 0.1881188 0.4130435
  [7] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
   [8] {eggs=TRUE,backbone=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
##
   [9] {eggs=TRUE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
       lift
  [1] 2.466954
##
   [2] 2.427885
##
   [3] 2.373932
  [4] 2.314583
  [5] 2.012681
##
  [6] 1.738225
##
  [7] 1.726496
  [8] 1.603175
  [9] 1.588050
##
##
       lhs
                                           rhs
                                                           support
  [1] {predator=FALSE, toothed=FALSE}
                                        => {airborne=TRUE} 0.1485149
## [2] {eggs=TRUE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
## [3] {milk=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [4] {predator=FALSE, catsize=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [5] {hair=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1089109
  [6] {predator=FALSE,legs=TRUE}
                                        => {airborne=TRUE} 0.1683168
  [7] {predator=FALSE,breathes=TRUE}
                                        => {airborne=TRUE} 0.1683168
  [8] {predator=FALSE,fins=FALSE}
                                        => {airborne=TRUE} 0.1683168
  [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
##
       confidence lift
## [1] 0.7142857 3.005952
```

```
[2] 0.5769231
                  2.427885
   [3] 0.5769231
                  2.427885
   [4] 0.5172414
                  2.176724
   [5] 0.5000000
                  2.104167
   [6] 0.4358974
                  1.834402
   [7] 0.4146341
##
                  1.744919
   [8] 0.4146341
                  1.744919
##
   [9] 0.3823529
                  1.609069
##
       lhs
                                          rhs
                                                                     confidence
                                                           support
##
  [1] {toothed=FALSE,backbone=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.7272727
   [2] {predator=FALSE, toothed=FALSE} =>
                                          {airborne=TRUE} 0.1485149 0.7142857
   [3] {toothed=FALSE,tail=TRUE}
                                         {airborne=TRUE} 0.1584158 0.6956522
   [4] {toothed=FALSE,breathes=TRUE}
                                          {airborne=TRUE} 0.2178218 0.6666667
   [5] {aquatic=FALSE,toothed=FALSE}
                                          {airborne=TRUE} 0.1683168 0.6296296
                                          {airborne=TRUE} 0.1881188 0.6129032
  [6] {toothed=FALSE,catsize=FALSE}
   [7] {toothed=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6111111
##
   [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
       lift
  [1] 3.060606
##
   [2] 3.005952
##
   [3] 2.927536
  [4] 2.805556
##
   [5] 2.649691
##
   [6] 2.579301
##
  [7] 2.571759
   [8] 2.337963
##
       "Número de reglas con consecuente negado"
##
                                            rhs
        lhs
                                                             support
##
  [1]
        {catsize=FALSE,type=bird}
                                            {airborne=TRUE} 0.1287129
##
   [2]
        {feathers=TRUE, catsize=FALSE}
                                         => {airborne=TRUE} 0.1287129
##
   [3]
        {type=bird}
                                            {airborne=TRUE} 0.1584158
##
   [4]
        {feathers=TRUE}
                                            {airborne=TRUE} 0.1584158
##
   [5]
        {toothed=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
##
   [6]
        {predator=FALSE, toothed=FALSE}
                                            {airborne=TRUE} 0.1485149
   [7]
        {toothed=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
##
##
   [8]
        {toothed=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
        {aquatic=FALSE, toothed=FALSE}
                                            {airborne=TRUE} 0.1683168
  [10] {toothed=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
   [11] {toothed=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
   [12] {eggs=TRUE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
  [13] {eggs=TRUE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
   [14] {milk=FALSE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
   [15] {milk=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
   [16] {eggs=TRUE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
  [17] {milk=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
  [18] {toothed=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
##
  [19] {toothed=FALSE}
                                            {airborne=TRUE} 0.2178218
  [20] {eggs=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
  [21] {milk=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
   [22] {predator=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
  [23] {legs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
##
## [24] {breathes=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
## [25] {hair=FALSE,predator=FALSE}
                                         => {airborne=TRUE} 0.1089109
## [26] {aquatic=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1683168
```

```
## [27] {hair=FALSE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1287129
                                           {airborne=TRUE} 0.1782178
  [28] {hair=FALSE,legs=TRUE}
  [29] {hair=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1782178
  [30] {eggs=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2178218
  [31] {milk=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.2178218
  [32] {fins=FALSE,catsize=FALSE}
##
                                            {airborne=TRUE} 0.2079208
  [33] {predator=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1683168
## [34] {hair=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1782178
  [35]
       {predator=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1683168
   [36] {predator=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1683168
  [37] {eggs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
   [38] {eggs=TRUE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
   [39] {tail=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
## [40] {milk=FALSE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
                                         => {airborne=TRUE} 0.1881188
## [41] {milk=FALSE,catsize=FALSE}
  [42]
        {milk=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [43]
       {predator=FALSE,domestic=FALSE} =>
                                            {airborne=TRUE} 0.1287129
  [44] {hair=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [45] {eggs=TRUE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [46] {milk=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
## [47] {venomous=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [48] {eggs=TRUE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [49] {backbone=TRUE, catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
       {hair=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1782178
   [50]
  [51]
       {breathes=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2376238
   [52] {aquatic=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1881188
   [53] {legs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1782178
   [54] {breathes=TRUE,fins=FALSE}
                                         => {airborne=TRUE} 0.2376238
   [55] {fins=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2376238
   [56] {fins=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1782178
##
   [57]
        {aquatic=FALSE}
                                         => {airborne=TRUE} 0.1881188
##
   [58]
        {venomous=FALSE}
                                         => {airborne=TRUE} 0.2178218
##
        confidence lift
##
  [1]
        0.9285714
                   3.9077381
##
   [2]
        0.9285714
                   3.9077381
##
   [3]
        0.8000000
                   3.3666667
  [4]
        0.8000000
                   3.3666667
##
  [5]
        0.7272727
                   3.0606061
   [6]
        0.7142857
##
                   3.0059524
##
  [7]
        0.6956522
                   2.9275362
  [8]
        0.6666667
                   2.8055556
   [9]
        0.6296296
                   2.6496914
   [10] 0.6129032
                   2.5793011
  [11] 0.6111111
                   2.5717593
  [12] 0.5862069
                   2.4669540
## [13] 0.5769231
                   2.4278846
  [14] 0.5769231
                   2.4278846
  [15] 0.5666667
                   2.3847222
  [16] 0.5641026
                   2.3739316
   [17]
       0.5641026
                   2.3739316
##
  [18] 0.5555556
                   2.3379630
## [19] 0.5500000
                   2.3145833
## [20] 0.5500000
                   2.3145833
## [21] 0.5500000
                   2.3145833
```

```
## [22] 0.5172414
                   2.1767241
   [23] 0.5121951
                   2.1554878
   [24] 0.5121951
                   2.1554878
   [25] 0.5000000
                   2.1041667
   [26] 0.5000000
                   2.1041667
                   2.1041667
   [27] 0.5000000
   [28] 0.5000000
                   2.1041667
   [29] 0.4864865
                   2.0472973
   [30] 0.4782609
                   2.0126812
   [31] 0.4680851
                   1.9698582
   [32] 0.4375000
                   1.8411458
   [33] 0.4358974
                   1.8344017
   [34] 0.4186047
                   1.7616279
   [35] 0.4146341
                   1.7449187
   [36] 0.4146341
                   1.7449187
   [37] 0.4130435
                   1.7382246
   [38] 0.4102564
                   1.7264957
   [39] 0.4054054
                   1.7060811
   [40] 0.4000000
                   1.6833333
   [41] 0.3958333
                   1.6657986
##
  [42] 0.3846154
                   1.6185897
   [43] 0.3823529
                   1.6090686
   [44] 0.3809524
                   1.6031746
   [45] 0.3809524
                   1.6031746
   [46] 0.3809524
                   1.6031746
   [47] 0.3800000
                   1.5991667
   [48] 0.3773585
                   1.5880503
   [49] 0.3750000
                   1.5781250
   [50] 0.3461538
                   1.4567308
   [51] 0.3287671
                   1.3835616
   [52] 0.3166667
                   1.3326389
##
   [53] 0.3157895
                   1.3289474
   [54] 0.3157895
                   1.3289474
   [55] 0.3116883
                   1.3116883
   [56]
       0.3050847
                   1.2838983
##
   [57]
        0.2923077
                   1.2301282
##
   ſ581
       0.2365591
                   0.9955197
##
        lhs
                                               support
                                                         confidence lift
   [1]
                          => {airborne=FALSE} 0.1287129 1.0000000 1.3116883
##
        {type=fish}
##
   [2]
                          => {airborne=FALSE} 0.1683168 1.0000000
        {fins=TRUE}
                                                                    1.3116883
   [3]
        {breathes=FALSE} => {airborne=FALSE} 0.2079208 1.0000000
   [4]
                             {airborne=FALSE} 0.2277228 1.0000000
##
        {legs=FALSE}
                                                                    1.3116883
##
   [5]
        {toothed=TRUE}
                          => {airborne=FALSE} 0.5841584 0.9672131
                                                                     1.2686821
##
   [6]
                          => {airborne=FALSE} 0.3960396 0.9523810
        {eggs=FALSE}
                                                                     1.2492270
  [7]
        {milk=TRUE}
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                     1.2477035
  [8]
##
        {type=mammal}
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                     1.2477035
##
   [9]
        {catsize=TRUE}
                             {airborne=FALSE} 0.4059406 0.9318182
                                                                     1.2222550
   [10] {predator=TRUE}
                             {airborne=FALSE} 0.4851485 0.8750000
                                                                     1.1477273
   [11] {aquatic=TRUE}
                          => {airborne=FALSE} 0.3069307 0.8611111
                                                                     1.1295094
   [12]
        {hair=TRUE}
                          => {airborne=FALSE} 0.3663366 0.8604651
                                                                     1.1286620
  [13]
       {backbone=TRUE}
                          => {airborne=FALSE} 0.6435644 0.7831325
                                                                     1.0272258
## [14] {tail=FALSE}
                          => {airborne=FALSE} 0.1980198 0.7692308
                          => {airborne=FALSE} 0.5643564 0.7600000
## [15] {tail=TRUE}
                                                                     0.9968831
## [16] {aquatic=FALSE}
                          => {airborne=FALSE} 0.4554455 0.7076923 0.9282717
```

```
## [17] {hair=FALSE}
                         => {airborne=FALSE} 0.3960396 0.6896552
                                                                   0.9046126
## [18] {backbone=FALSE} => {airborne=FALSE} 0.1188119 0.6666667
                                                                   0.8744589
## [19] {milk=FALSE}
                         => {airborne=FALSE} 0.3762376 0.6333333
                                                                   0.8307359
## [20] {eggs=TRUE}
                         => {airborne=FALSE} 0.3663366 0.6271186
                                                                   0.8225842
  [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.6222222
                                                                   0.8161616
   [22] {toothed=FALSE}
                         => {airborne=FALSE} 0.1782178 0.4500000
                                                                   0.5902597
##
       lhs
                                        rhs
                                                         support
                                                                   confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
  [2] {eggs=TRUE,backbone=TRUE}
                                     => {airborne=TRUE} 0.1584158 0.3809524
  [3] {milk=FALSE,backbone=TRUE}
                                     => {airborne=TRUE} 0.1584158 0.3809524
  [4] {backbone=TRUE, catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift
## [1] 3.060606
## [2] 1.603175
## [3] 1.603175
## [4] 1.578125
##
       lhs
                                    rhs
                                                     support
                                                               confidence
## [1] {toothed=FALSE,tail=TRUE} => {airborne=TRUE} 0.1584158 0.6956522
## [2] {eggs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4102564
## [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4000000
## [5] {hair=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.3809524
                                 => {airborne=TRUE} 0.1782178 0.3157895
## [6] {legs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1782178 0.3050847
## [7] {fins=FALSE,tail=TRUE}
##
       lift
## [1] 2.927536
## [2] 1.726496
## [3] 1.706081
## [4] 1.683333
## [5] 1.603175
## [6] 1.328947
## [7] 1.283898
##
       lhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
  [2] {eggs=TRUE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1683168 0.5862069
                                     => {airborne=TRUE} 0.1683168 0.5666667
## [3] {milk=FALSE,aquatic=FALSE}
## [4] {aquatic=FALSE, catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
## [5] {hair=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1287129 0.5000000
## [6] {aquatic=FALSE,legs=TRUE}
                                     => {airborne=TRUE} 0.1881188 0.3166667
##
       lift.
## [1] 2.649691
## [2] 2.466954
## [3] 2.384722
## [4] 2.104167
## [5] 2.104167
## [6] 1.332639
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
## [2] {hair=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1287129 0.5000000
## [3] {hair=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.5000000
                                   => {airborne=TRUE} 0.1782178 0.4864865
## [4] {hair=FALSE,breathes=TRUE}
## [5] {hair=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.1782178 0.4186047
## [6] {hair=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.3809524
## [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
```

```
##
       lift
## [1] 2.104167
  [2] 2.104167
  [3] 2.104167
   [4] 2.047297
   [5] 1.761628
##
  [6] 1.603175
##
  [7] 1.456731
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
##
  [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
  [2] {milk=FALSE,aquatic=FALSE}
                                      {airborne=TRUE} 0.1683168 0.5666667
                                   => {airborne=TRUE} 0.2178218 0.5641026
  [3] {milk=FALSE,breathes=TRUE}
  [4] {milk=FALSE,legs=TRUE}
                                    => {airborne=TRUE} 0.2178218 0.5500000
  [5] {milk=FALSE,fins=FALSE}
                                    => {airborne=TRUE} 0.2178218 0.4680851
                                    => {airborne=TRUE} 0.1584158 0.4000000
## [6] {milk=FALSE,tail=TRUE}
   [7] {milk=FALSE,catsize=FALSE}
                                    => {airborne=TRUE} 0.1881188 0.3958333
   [8] {milk=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
   [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
       lift
## [1] 2.427885
##
  [2] 2.384722
  [3] 2.373932
##
  [4] 2.314583
##
   [5] 1.969858
  [6] 1.683333
##
  [7] 1.665799
##
   [8] 1.618590
##
   [9] 1.603175
##
       lhs
                                      rhs
                                                      support
                                                                 confidence
                                   => {airborne=TRUE} 0.1683168 0.5862069
  [1] {eggs=TRUE,aquatic=FALSE}
   [2] {eggs=TRUE,predator=FALSE} =>
                                      {airborne=TRUE} 0.1485149 0.5769231
   [3] {eggs=TRUE,breathes=TRUE}
                                      {airborne=TRUE} 0.2178218 0.5641026
                                   =>
  [4] {eggs=TRUE,legs=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5500000
  [5] {eggs=TRUE,fins=FALSE}
                                   => {airborne=TRUE} 0.2178218 0.4782609
   [6] {eggs=TRUE,catsize=FALSE}
                                   => {airborne=TRUE} 0.1881188 0.4130435
                                   => {airborne=TRUE} 0.1584158 0.4102564
  [7] {eggs=TRUE,tail=TRUE}
  [8] {eggs=TRUE,backbone=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.3809524
  [9] {eggs=TRUE,venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
##
       lift
  [1] 2.466954
##
  [2] 2.427885
  [3] 2.373932
   [4] 2.314583
##
  [5] 2.012681
  [6] 1.738225
  [7] 1.726496
##
##
  [8] 1.603175
##
  [9] 1.588050
##
       lhs
                                           rhs
                                                           support
##
  [1] {predator=FALSE, toothed=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [2] {eggs=TRUE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [3] {milk=FALSE, predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
## [4] {predator=FALSE,catsize=FALSE}
                                        => {airborne=TRUE} 0.1485149
## [5] {hair=FALSE, predator=FALSE}
                                        => {airborne=TRUE} 0.1089109
```

```
## [6] {predator=FALSE,legs=TRUE}
                                        => {airborne=TRUE} 0.1683168
  [7] {predator=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.1683168
                                        => {airborne=TRUE} 0.1683168
  [8] {predator=FALSE,fins=FALSE}
  [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
       confidence lift
## [1] 0.7142857
                  3.005952
  [2] 0.5769231
                  2.427885
## [3] 0.5769231
                  2.427885
  [4] 0.5172414
                  2.176724
  [5] 0.5000000
                  2.104167
  [6] 0.4358974
                  1.834402
  [7] 0.4146341
                  1.744919
   [8] 0.4146341
                  1.744919
##
  [9] 0.3823529
                  1.609069
##
       lhs
                                          rhs
                                                          support
                                                                    confidence
   [1] {toothed=FALSE,backbone=TRUE}
                                          {airborne=TRUE} 0.1584158 0.7272727
   [2] {predator=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1485149 0.7142857
  [3] {toothed=FALSE,tail=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.6956522
  [4] {toothed=FALSE,breathes=TRUE}
                                      => {airborne=TRUE} 0.2178218 0.6666667
  [5] {aquatic=FALSE, toothed=FALSE}
                                      => {airborne=TRUE} 0.1683168 0.6296296
  [6] {toothed=FALSE,catsize=FALSE}
                                      => {airborne=TRUE} 0.1881188 0.6129032
## [7] {toothed=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6111111
  [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
       lift.
## [1] 3.060606
  [2] 3.005952
  [3] 2.927536
  [4] 2.805556
## [5] 2.649691
## [6] 2.579301
##
  [7] 2.571759
   [8] 2.337963
##
       "Número de reglas con consecuente negado"
##
                                           rhs
                                                                   confidence
                                                        support
   [1]
        {type=fish}
                                        => {milk=FALSE} 0.1287129 1.0000000
##
##
  [2]
        {backbone=FALSE}
                                        => {milk=FALSE} 0.1782178 1.0000000
##
  [3]
        {type=bird}
                                        => {milk=FALSE} 0.1980198 1.0000000
## [4]
        {feathers=TRUE}
                                        => {milk=FALSE} 0.1980198 1.0000000
  [5]
        {breathes=FALSE}
                                        => {milk=FALSE} 0.2079208 1.0000000
##
                                        => {milk=FALSE} 0.1584158 1.0000000
##
  [6]
        {legs=FALSE,catsize=FALSE}
  [7]
        {eggs=TRUE,legs=FALSE}
                                        => {milk=FALSE} 0.1881188 1.0000000
  [8]
        {hair=FALSE,airborne=TRUE}
                                        => {milk=FALSE} 0.1782178 1.0000000
##
##
  [9]
        {hair=FALSE,tail=FALSE}
                                        => {milk=FALSE} 0.1584158 1.0000000
  [10] {aquatic=TRUE,catsize=FALSE}
                                        => {milk=FALSE} 0.2277228 1.0000000
## [11] {toothed=FALSE,catsize=FALSE}
                                        => {milk=FALSE} 0.3069307 1.0000000
                                        => {milk=FALSE} 0.3465347 1.0000000
## [12] {hair=FALSE,toothed=FALSE}
## [13] {hair=FALSE,predator=FALSE}
                                        => {milk=FALSE} 0.2178218 1.0000000
  [14] {hair=FALSE,catsize=FALSE}
                                        => {milk=FALSE} 0.4356436 1.0000000
  [15] {eggs=TRUE,catsize=FALSE}
                                        => {milk=FALSE} 0.4554455 1.0000000
## [16] {hair=FALSE,eggs=TRUE}
                                        => {milk=FALSE} 0.5346535 1.0000000
                                        => {milk=FALSE} 0.2574257 1.0000000
## [17] {hair=FALSE,aquatic=FALSE}
## [18] {hair=FALSE,legs=TRUE}
                                        => {milk=FALSE} 0.3564356 1.0000000
## [19] {hair=FALSE,fins=FALSE}
                                        => {milk=FALSE} 0.4257426 1.0000000
## [20] {eggs=TRUE,toothed=TRUE}
                                        => {milk=FALSE} 0.1980198 1.0000000
```

```
## [21] {eggs=TRUE,aquatic=FALSE}
                                        => {milk=FALSE} 0.2871287 1.0000000
                                        => {milk=FALSE} 0.5742574 0.9830508
##
  [22] {eggs=TRUE}
                                        => {milk=FALSE} 0.5544554 0.9655172
## [23] {hair=FALSE}
## [24] {predator=TRUE,catsize=FALSE}
                                        => {milk=FALSE} 0.2574257 0.9285714
## [25] {airborne=TRUE}
                                        => {milk=FALSE} 0.2178218 0.9166667
                                        => {milk=FALSE} 0.1683168 0.8947368
## [26] {aquatic=TRUE,fins=FALSE}
                                        => {milk=FALSE} 0.1980198 0.8695652
  [27] {legs=FALSE}
## [28] {domestic=FALSE,catsize=FALSE} => {milk=FALSE} 0.4257426 0.8600000
  [29] {aquatic=TRUE}
                                        => {milk=FALSE} 0.2970297 0.8333333
  [30] {tail=FALSE,domestic=FALSE}
                                        => {milk=FALSE} 0.1881188 0.8260870
## [31] {tail=FALSE}
                                        => {milk=FALSE} 0.1980198 0.7692308
                                        => {milk=FALSE} 0.1287129 0.7647059
## [32] {fins=TRUE}
## [33] {predator=TRUE}
                                        => {milk=FALSE} 0.3366337 0.6071429
## [34] {fins=FALSE}
                                        => {milk=FALSE} 0.4653465 0.5595238
## [35] {tail=TRUE}
                                        => {milk=FALSE} 0.3960396 0.5333333
  [36] {backbone=TRUE}
                                        => {milk=FALSE} 0.4158416 0.5060241
                                        => {milk=FALSE} 0.2970297 0.4615385
  [37]
       {aquatic=FALSE}
   [38] {toothed=TRUE}
                                        => {milk=FALSE} 0.2079208 0.3442623
##
        lift
##
  [1]
        1.6833333
##
  [2]
        1.6833333
  [3]
        1.6833333
## [4]
        1.6833333
  [5]
##
        1.6833333
##
  [6]
        1.6833333
  [7]
        1.6833333
  [8]
##
        1.6833333
##
  [9]
        1.6833333
## [10] 1.6833333
## [11] 1.6833333
## [12] 1.6833333
  [13] 1.6833333
## [14] 1.6833333
## [15] 1.6833333
## [16] 1.6833333
## [17] 1.6833333
## [18] 1.6833333
## [19] 1.6833333
## [20] 1.6833333
## [21] 1.6833333
## [22] 1.6548023
## [23] 1.6252874
## [24] 1.5630952
## [25] 1.5430556
## [26] 1.5061404
## [27] 1.4637681
## [28] 1.4476667
## [29] 1.4027778
## [30] 1.3905797
## [31] 1.2948718
## [32] 1.2872549
## [33] 1.0220238
## [34] 0.9418651
## [35] 0.8977778
```

```
[36] 0.8518072
   [37] 0.7769231
   [38] 0.5795082
##
##
       lhs
                           rhs
                                        support
                                                  confidence lift
##
   [1] {toothed=TRUE}
                        => {milk=TRUE} 0.3960396 0.6557377 1.615354
##
   [2] {feathers=FALSE} => {milk=TRUE} 0.4059406 0.5061728 1.246914
##
   [3] {predator=TRUE} => {milk=TRUE} 0.2178218 0.3928571 0.967770
##
                                    rhs
                                                 support
                                                            confidence lift
##
   [1] {eggs=TRUE,toothed=TRUE} => {milk=FALSE} 0.1980198 1
                                                                       1.683333
##
                                         rhs
                                                      support
##
   [1] {predator=TRUE,catsize=FALSE} => {milk=FALSE} 0.2574257 0.9285714
##
       lift
##
   [1] 1.563095
##
   [1] "Número de reglas con consecuente negado"
##
                                                             support
##
   [1]
        {type=bird}
                                            {toothed=FALSE} 0.1980198
   [2]
##
        {feathers=TRUE}
                                            {toothed=FALSE} 0.1980198
   [3]
        {hair=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.1782178
##
   [4]
##
        {eggs=TRUE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
##
   [5]
        {milk=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
##
   [6]
        {milk=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2673267
  [7]
        {eggs=TRUE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2574257
  [8]
##
        {hair=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2277228
##
   [9]
        {eggs=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
  [10] {milk=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
  [11] {hair=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3069307
  [12] {eggs=TRUE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
  [13] {milk=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
  [14] {eggs=TRUE,fins=FALSE}
                                           {toothed=FALSE} 0.3861386
  [15] {milk=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
   [16] {eggs=TRUE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
   [17] {milk=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
  [18] {hair=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3465347
  [19] {hair=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1287129
   [20] {eggs=TRUE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
  [21] {milk=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
  [22] {tail=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1584158
  [23] {hair=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.1683168
  [24] {hair=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.2772277
  [25] {tail=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.1584158
  [26] {aquatic=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1089109
  [27] {aquatic=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.1287129
  [28] {fins=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
                                            {toothed=FALSE} 0.3564356
  [29] {eggs=TRUE, venomous=FALSE}
  [30] {milk=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3465347
   [31] {aquatic=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.1188119
##
   [32] {legs=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
  [33] {tail=FALSE}
                                            {toothed=FALSE} 0.1683168
                                           {toothed=FALSE} 0.3861386
  [34] {milk=FALSE}
   [35] {aquatic=FALSE, catsize=FALSE}
                                            {toothed=FALSE} 0.2178218
  [36]
       {fins=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
  [37] {hair=FALSE, venomous=FALSE}
                                           {toothed=FALSE} 0.3267327
## [38] {hair=FALSE,catsize=FALSE}
                                         => {toothed=FALSE} 0.2673267
## [39] {breathes=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2475248
```

```
## [40] {predator=FALSE,catsize=FALSE}
                                         => {toothed=FALSE} 0.1683168
                                         => {toothed=FALSE} 0.3069307
  [41] {catsize=FALSE}
  [42] {predator=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.2079208
  [43] {predator=FALSE,domestic=FALSE} =>
                                            {toothed=FALSE} 0.1683168
  [44] {fins=FALSE,domestic=FALSE}
                                             {toothed=FALSE} 0.3564356
  [45] {predator=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.1881188
  [46] {legs=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.3168317
   [47] {aquatic=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.2277228
   [48] {breathes=TRUE,domestic=FALSE}
                                         => {toothed=FALSE} 0.2871287
##
   [49] {predator=TRUE}
                                         => {toothed=FALSE} 0.1881188
##
        confidence lift
##
   [1]
        1.0000000
                   2.5250000
##
   [2]
        1.0000000
                   2.5250000
##
   [3]
        1.0000000
                   2.5250000
## [4]
        1.0000000
                   2.5250000
##
   [5]
        1.0000000
                   2.5250000
   [6]
##
        0.9000000
                   2.2725000
   [7]
        0.8965517
                   2.2637931
   [8]
##
        0.8846154
                   2.2336538
   [9]
        0.8750000
                   2.2093750
##
   [10] 0.8750000
                   2.2093750
  [11] 0.8611111
                   2.1743056
  [12] 0.8500000
                   2.1462500
   [13] 0.8500000
                   2.1462500
   [14] 0.8478261
                   2.1407609
   [15] 0.8297872
                   2.0952128
   [16] 0.8205128
                   2.0717949
   [17] 0.8205128
                   2.0717949
  [18] 0.8139535
                   2.0552326
                   2.0515625
  [19] 0.8125000
   [20] 0.8076923
                   2.0394231
   [21] 0.8076923
                   2.0394231
   [22] 0.8000000
                   2.0200000
   [23] 0.7727273
                   1.9511364
   [24] 0.7567568
                   1.9108108
##
   [25] 0.6956522
                   1.7565217
   [26] 0.6875000
                   1.7359375
  [27] 0.6842105
                   1.7276316
   [28] 0.6800000
                   1.7170000
   [29] 0.6792453
                   1.7150943
   [30] 0.6730769
                   1.6995192
   [31] 0.6666667
                   1.6833333
   [32] 0.6585366
                   1.6628049
   [33] 0.6538462
                   1.6509615
  [34] 0.6500000
                   1.6412500
   [35] 0.6470588
                   1.6338235
                   1.6307292
##
   [36] 0.6458333
   [37] 0.6346154
                   1.6024038
   [38] 0.6136364
                   1.5494318
   [39]
       0.6097561
                   1.5396341
##
   [40] 0.5862069
                   1.4801724
## [41] 0.5438596
                   1.3732456
## [42] 0.5121951
                   1.2932927
## [43] 0.5000000
                   1.2625000
```

```
## [44] 0.5000000
                   1.2625000
                   1.2301282
   [45] 0.4871795
   [46] 0.4848485
                   1.2242424
  [47] 0.4339623
                   1.0957547
   [48] 0.4264706
                   1.0768382
   [49] 0.3392857
                   0.8566964
##
##
        lhs
                                                      confidence lift
                             rhs
                                            support
## [1]
        {type=fish}
                         => {toothed=TRUE} 0.1287129 1.0000000
                                                                  1.6557377
##
   [2]
        {fins=TRUE}
                         => {toothed=TRUE} 0.1683168 1.0000000
                                                                  1.6557377
##
   [3]
        {eggs=FALSE}
                          => {toothed=TRUE} 0.4059406 0.9761905
                                                                  1.6163154
  [4]
        {legs=FALSE}
                          => {toothed=TRUE} 0.1881188 0.8260870
                                                                  1.3677833
   [5]
##
        {catsize=TRUE}
                          => {toothed=TRUE} 0.3465347 0.7954545
                                                                  1.3170641
##
   [6]
        {feathers=FALSE} => {toothed=TRUE} 0.6039604 0.7530864
                                                                  1.2469136
##
  [7]
        {tail=TRUE}
                         => {toothed=TRUE} 0.5148515 0.6933333
                                                                  1.1479781
  [8]
        {breathes=FALSE} => {toothed=TRUE} 0.1386139 0.6666667
##
                                                                  1.1038251
##
  [9]
        {predator=TRUE}
                         => {toothed=TRUE} 0.3663366 0.6607143
                                                                  1.0939696
##
  [10] {aquatic=TRUE}
                          => {toothed=TRUE} 0.2277228 0.6388889
                                                                  1.0578324
  [11] {domestic=FALSE} => {toothed=TRUE} 0.5148515 0.5909091
                                                                  0.9783905
                         => {toothed=TRUE} 0.4653465 0.5875000
  [12] {breathes=TRUE}
                                                                  0.9727459
   [13] {predator=FALSE} => {toothed=TRUE} 0.2376238 0.5333333
                                                                  0.8830601
##
  [14] {catsize=FALSE}
                         => {toothed=TRUE} 0.2574257 0.4561404
                                                                  0.7552488
                          => {toothed=TRUE} 0.2277228 0.3965517
  [15] {hair=FALSE}
                                                                  0.6565856
##
  [16] {eggs=TRUE}
                         => {toothed=TRUE} 0.1980198 0.3389831
                                                                  0.5612670
##
                                     rhs
                                                      support
                                                                confidence
##
   [1] {aquatic=TRUE,fins=FALSE} => {toothed=FALSE} 0.1287129 0.6842105
##
   [2] {aquatic=TRUE,legs=TRUE} => {toothed=FALSE} 0.1188119 0.6666667
##
       lift
##
   [1] 1.727632
##
   [2] 1.683333
##
       lhs
                                           rhs
                                                            support
##
  [1] {tail=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.1584158
   [2] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
   [3] {fins=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3564356
   [4] {legs=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3168317
   [5] {aquatic=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2277228
   [6] {breathes=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2871287
##
##
       confidence lift
## [1] 0.6956522 1.756522
   [2] 0.5000000
                  1.262500
##
  [3] 0.5000000
                  1.262500
   [4] 0.4848485
                  1.224242
   [5] 0.4339623
                  1.095755
##
   [6] 0.4264706
                  1.076838
##
       lhs
                                          rhs
                                                           support
                                                                     confidence
## [1] {eggs=TRUE,breathes=TRUE}
                                          {toothed=FALSE} 0.3168317 0.8205128
   [2] {milk=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
   [3] {hair=FALSE,breathes=TRUE}
                                          {toothed=FALSE} 0.2772277 0.7567568
   [4] {breathes=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2475248 0.6097561
##
   [5] {breathes=TRUE,domestic=FALSE} => {toothed=FALSE} 0.2871287 0.4264706
##
       lift
## [1] 2.071795
## [2] 2.071795
## [3] 1.910811
## [4] 1.539634
```

```
## [5] 1.076838
##
       lhs
                                           rhs
                                                           support
## [1] {eggs=TRUE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
## [2] {milk=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
## [3] {hair=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.1683168
## [4] {predator=FALSE,catsize=FALSE}
                                        => {toothed=FALSE} 0.1683168
## [5] {predator=FALSE,fins=FALSE}
                                        => {toothed=FALSE} 0.2079208
## [6] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
##
  [7] {predator=FALSE,legs=TRUE}
                                        => {toothed=FALSE} 0.1881188
##
       confidence lift
## [1] 0.8076923 2.039423
## [2] 0.8076923
                  2.039423
## [3] 0.7727273
                  1.951136
## [4] 0.5862069
                  1.480172
## [5] 0.5121951
                  1.293293
## [6] 0.5000000
                  1.262500
##
  [7] 0.4871795 1.230128
##
       lhs
                                                          support
                                                                    confidence
                                       => {toothed=FALSE} 0.1584158 0.8000000
## [1] {tail=FALSE,catsize=FALSE}
## [2] {legs=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6585366
## [3] {aquatic=FALSE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2178218 0.6470588
## [4] {fins=FALSE, catsize=FALSE}
                                       => {toothed=FALSE} 0.3069307 0.6458333
## [5] {hair=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6136364
## [6] {breathes=TRUE,catsize=FALSE} => {toothed=FALSE} 0.2475248 0.6097561
  [7] {predator=FALSE, catsize=FALSE} => {toothed=FALSE} 0.1683168 0.5862069
       lift
## [1] 2.020000
## [2] 1.662805
## [3] 1.633824
## [4] 1.630729
## [5] 1.549432
## [6] 1.539634
## [7] 1.480172
##
                                                                 confidence
       lhs
                                       rhs
                                                       support
## [1] {hair=FALSE,airborne=TRUE}
                                   => {toothed=FALSE} 0.1782178 1.0000000
                                   => {toothed=FALSE} 0.2277228 0.8846154
## [2] {hair=FALSE,aquatic=FALSE}
## [3] {hair=FALSE,legs=TRUE}
                                    => {toothed=FALSE} 0.3069307 0.8611111
## [4] {hair=FALSE,fins=FALSE}
                                   => {toothed=FALSE} 0.3465347 0.8139535
## [5] {hair=FALSE,tail=FALSE}
                                    => {toothed=FALSE} 0.1287129 0.8125000
## [6] {hair=FALSE,predator=FALSE} => {toothed=FALSE} 0.1683168 0.7727273
## [7] {hair=FALSE,breathes=TRUE} => {toothed=FALSE} 0.2772277 0.7567568
## [8] {hair=FALSE, venomous=FALSE} => {toothed=FALSE} 0.3267327 0.6346154
  [9] {hair=FALSE, catsize=FALSE} => {toothed=FALSE} 0.2673267 0.6136364
##
       lift
## [1] 2.525000
## [2] 2.233654
## [3] 2.174306
## [4] 2.055233
## [5] 2.051563
## [6] 1.951136
## [7] 1.910811
## [8] 1.602404
## [9] 1.549432
##
       lhs
                                     rhs
                                                      support
                                                                confidence
```

```
## [1] {eggs=TRUE,airborne=TRUE}
                                  => {toothed=FALSE} 0.2178218 1.0000000
  [2] {eggs=TRUE,aquatic=FALSE}
                                  => {toothed=FALSE} 0.2574257 0.8965517
  [3] {eggs=TRUE,legs=TRUE}
                                  => {toothed=FALSE} 0.3465347 0.8750000
  [4] {eggs=TRUE,tail=FALSE}
                                  => {toothed=FALSE} 0.1683168 0.8500000
  [5] {eggs=TRUE,fins=FALSE}
                                  => {toothed=FALSE} 0.3861386 0.8478261
  [6] {eggs=TRUE,breathes=TRUE}
                                  => {toothed=FALSE} 0.3168317 0.8205128
  [7] {eggs=TRUE,predator=FALSE} => {toothed=FALSE} 0.2079208 0.8076923
   [8] {eggs=TRUE, venomous=FALSE} => {toothed=FALSE} 0.3564356 0.6792453
##
       lift
##
  [1] 2.525000
   [2] 2.263793
   [3] 2.209375
   [4] 2.146250
  [5] 2.140761
  [6] 2.071795
##
   [7] 2.039423
   [8] 1.715094
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                            support
##
   [1]
        {type=bird}
                                           {feathers=TRUE} 0.1980198
##
   [2]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
        {hair=FALSE,airborne=TRUE}
                                         => {feathers=TRUE} 0.1584158
  [3]
  [4]
##
        {airborne=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1584158
                                            {feathers=TRUE} 0.1584158
##
   [5]
        {airborne=TRUE, backbone=TRUE}
##
  [6]
        {toothed=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
  [7]
        {airborne=TRUE, toothed=FALSE}
                                           {feathers=TRUE} 0.1584158
   [8]
                                           {feathers=TRUE} 0.1584158
##
        {eggs=TRUE,airborne=TRUE}
   [9]
        {milk=FALSE,airborne=TRUE}
                                           {feathers=TRUE} 0.1584158
## [10] {airborne=TRUE, venomous=FALSE}
                                        => {feathers=TRUE} 0.1584158
## [11] {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [12] {hair=FALSE,toothed=FALSE}
                                           {feathers=TRUE} 0.1980198
  [13] {toothed=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
  [14] {toothed=FALSE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
  [15] {hair=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
   [16] {hair=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
## [17] {hair=FALSE,aquatic=FALSE}
                                           {feathers=TRUE} 0.1386139
  [18] {predator=FALSE, toothed=FALSE}
                                           {feathers=TRUE} 0.1089109
## [19] {aquatic=FALSE,toothed=FALSE}
                                           {feathers=TRUE} 0.1386139
  [20] {eggs=TRUE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
  [21] {milk=FALSE,toothed=FALSE}
                                           {feathers=TRUE} 0.1980198
  [22] {eggs=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
  [23] {eggs=TRUE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
## [24] {milk=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1089109
## [25] {hair=FALSE,predator=FALSE}
## [26] {eggs=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [27]
       {milk=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [28]
       {milk=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
  [29] {eggs=TRUE,aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
  [30] {hair=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [31] {eggs=TRUE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [32] {milk=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [33] {milk=FALSE,aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
## [34] {hair=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [35] {hair=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
```

```
[36] {eggs=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1980198
       {milk=FALSE,fins=FALSE}
   [37]
   [38] {eggs=TRUE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [39] {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [40] {hair=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
  [41] {milk=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
  [42] {tail=TRUE.catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
  [43] {eggs=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [44]
       {hair=FALSE,eggs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [45]
        {hair=FALSE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
   [46] {legs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [47]
       {backbone=TRUE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   [48]
       {hair=FALSE}
                                            {feathers=TRUE} 0.1980198
   [49]
       {eggs=TRUE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1386139
   [50] {legs=TRUE,catsize=FALSE}
        {breathes=TRUE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [52]
##
        {fins=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [53] {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
   [54] {breathes=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [55] {backbone=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [56] {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
       {backbone=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
       {fins=FALSE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [58]
        {backbone=TRUE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [59]
   [60]
       {aquatic=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1386139
   [61]
       {predator=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1089109
   [62] {venomous=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [63]
       {venomous=FALSE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [64]
       {breathes=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
       {backbone=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [65]
   [66]
        {venomous=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [67]
        {predator=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1089109
   [68] {predator=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1089109
   [69] {breathes=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [70] {aguatic=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1386139
##
   [71] {breathes=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [72] {fins=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
  [73] {venomous=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
       {legs=TRUE,domestic=FALSE}
                                            {feathers=TRUE} 0.1683168
   [74]
   [75] {predator=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1089109
       {backbone=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
       {aquatic=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1386139
   [77]
##
   [78]
       {aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
##
                                         => {feathers=TRUE} 0.1980198
   [79]
       {venomous=FALSE}
##
   [80] {domestic=FALSE}
                                         => {feathers=TRUE} 0.1683168
##
        confidence lift
##
   [1]
        1.0000000
                   5.0500000
   [2]
##
        0.9090909
                   4.5909091
##
   [3]
        0.888889
                   4.4888889
##
   [4]
        0.888889
                   4.4888889
   [5]
##
        0.888889
                   4.4888889
##
   [6]
        0.8695652
                   4.3913043
##
  [7]
        0.7272727
                   3.6727273
## [8]
        0.7272727
                   3.6727273
```

```
## [9] 0.7272727
                   3.6727273
  [10] 0.7272727
                   3.6727273
  [11] 0.6060606
                   3.0606061
  [12] 0.5714286
                   2.8857143
  [13] 0.5555556
                   2.8055556
## [14] 0.555556
                   2.8055556
## [15] 0.555556
                   2.8055556
## [16] 0.5405405
                   2.7297297
  [17] 0.5384615
                   2.7192308
  [18] 0.5238095
                   2.6452381
  [19] 0.5185185
                   2.6185185
  [20] 0.5128205
                   2.5897436
  [21] 0.5128205
                   2.5897436
  [22] 0.5128205
                   2.5897436
## [23] 0.5128205
                   2.5897436
  [24] 0.5128205
                   2.5897436
   [25] 0.5000000
                   2.5250000
   [26] 0.5000000
                   2.5250000
  [27] 0.5000000
                   2.5250000
  [28] 0.5000000
                   2.5250000
## [29] 0.4827586
                   2.4379310
## [30] 0.4761905
                   2.4047619
  [31] 0.4761905
                   2.4047619
   [32] 0.4761905
##
                   2.4047619
  [33] 0.4666667
                   2.3566667
  [34] 0.4651163
                   2.3488372
  [35] 0.4545455
                   2.2954545
##
  [36] 0.4347826
                   2.1956522
  [37] 0.4255319
                   2.1489362
                   2.1365385
  [38] 0.4230769
  [39] 0.4230769
                   2.1365385
##
   [40] 0.3846154
                   1.9423077
  [41] 0.3846154
                   1.9423077
  [42] 0.3783784
                   1.9108108
   [43] 0.3773585
                   1.9056604
## [44] 0.3703704
                   1.8703704
## [45] 0.3571429
                   1.8035714
## [46] 0.3508772
                   1.7719298
  [47] 0.3500000
                   1.7675000
  [48] 0.3448276
                   1.7413793
  [49] 0.3448276
                   1.7413793
   [50] 0.3414634
                   1.7243902
   [51] 0.3414634
                   1.7243902
##
  [52] 0.3389831
                   1.7118644
  [53] 0.3333333
                   1.6833333
  [54] 0.3278689
                   1.6557377
                   1.5781250
##
   [55] 0.3125000
   [56] 0.3055556
                   1.5430556
  [57] 0.3030303
                   1.5303030
   [58] 0.2916667
                   1.4729167
##
  [59] 0.2898551
                   1.4637681
## [60] 0.2857143
                   1.4428571
## [61] 0.2820513
                   1.4243590
## [62] 0.2816901 1.4225352
```

```
[63] 0.2800000
                   1.4140000
   [64] 0.2739726
                   1.3835616
   [65] 0.2702703
                   1.3648649
  [66] 0.2702703
                   1.3648649
##
   [67] 0.2682927
                   1.3548780
##
   [68] 0.2682927
                   1.3548780
   [69] 0.2666667
                   1.3466667
  [70] 0.2641509
                   1.3339623
   [71] 0.2631579
                   1.3289474
   [72] 0.2597403
                   1.3116883
  [73] 0.2597403
                   1.3116883
   [74] 0.2575758
                   1.3007576
   [75] 0.2558140
                   1.2918605
  [76] 0.2531646
                   1.2784810
  [77] 0.2295082
                   1.1590164
   [78] 0.2153846
                   1.0876923
   [79] 0.2150538
                   1.0860215
   [80] 0.1931818
                   0.9755682
##
        lhs
                                              support
                                                         confidence lift
##
  [1]
        {type=fish}
                         => {feathers=FALSE} 0.1287129 1.0000000
##
  [2]
        {fins=TRUE}
                         => {feathers=FALSE} 0.1683168 1.0000000
                                                                    1.2469136
  [3]
        {backbone=FALSE} => {feathers=FALSE} 0.1782178 1.0000000
  [4]
##
        {breathes=FALSE} => {feathers=FALSE} 0.2079208 1.0000000
                                                                    1.2469136
                         => {feathers=FALSE} 0.2277228 1.0000000
##
  [5]
        {legs=FALSE}
                                                                    1.2469136
##
  [6]
        {tail=FALSE}
                         => {feathers=FALSE} 0.2574257 1.0000000
                                                                    1.2469136
  [7]
        {eggs=FALSE}
                         => {feathers=FALSE} 0.4158416 1.0000000
                                                                    1.2469136
   [8]
                         => {feathers=FALSE} 0.4257426 1.0000000
##
        {hair=TRUE}
                                                                    1.2469136
   [9]
        {airborne=FALSE}
                         => {feathers=FALSE} 0.7227723 0.9480519
                                                                    1.1821388
                         => {feathers=FALSE} 0.3762376 0.8636364
  [10] {catsize=TRUE}
                                                                    1.0768799
  [11] {predator=TRUE}
                         => {feathers=FALSE} 0.4653465 0.8392857
                                                                    1.0465168
  [12]
       {aquatic=TRUE}
                         => {feathers=FALSE} 0.2970297 0.8333333
                                                                    1.0390947
##
  [13]
       {aquatic=FALSE}
                         => {feathers=FALSE} 0.5049505 0.7846154
                                                                    0.9783476
  [14] {predator=FALSE}
                         => {feathers=FALSE} 0.3366337 0.7555556
                                                                    0.9421125
  [15] {catsize=FALSE}
                         => {feathers=FALSE} 0.4257426 0.7543860
                                                                    0.9406541
   [16] {breathes=TRUE}
                         => {feathers=FALSE} 0.5940594 0.7500000
                                                                    0.9351852
##
  [17] {legs=TRUE}
                         => {feathers=FALSE} 0.5742574 0.7435897
                                                                    0.9271921
  [18] {milk=FALSE}
                         => {feathers=FALSE} 0.3960396 0.6666667
                                                                    0.8312757
                         => {feathers=FALSE} 0.3861386 0.6610169
  [19] {eggs=TRUE}
                                                                    0.8242310
                         => {feathers=FALSE} 0.3762376 0.6551724
  [20] {hair=FALSE}
                                                                    0.8169434
##
  [21] {toothed=FALSE}
                         => {feathers=FALSE} 0.1980198 0.5000000
                                                                    0.6234568
##
       lhs
                                                          support
                                                                     confidence
  [1] {hair=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5384615
   [2] {aquatic=FALSE,toothed=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5185185
                                       => {feathers=TRUE} 0.1386139 0.4827586
  [3] {eggs=TRUE,aquatic=FALSE}
## [4] {milk=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
   [5] {aquatic=FALSE,tail=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2857143
   [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
   [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
##
       lift
## [1] 2.719231
   [2] 2.618519
## [3] 2.437931
## [4] 2.356667
## [5] 1.442857
```

```
[6] 1.333962
##
   [7] 1.159016
##
        lhs
                                                              support
##
        {predator=FALSE, toothed=FALSE}
                                          =>
                                             {feathers=TRUE} 0.1089109
   [1]
##
   [2]
        {hair=FALSE, predator=FALSE}
                                             {feathers=TRUE} 0.1089109
##
   [3]
        {eggs=TRUE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [4]
        {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [5]
        {predator=FALSE,tail=TRUE}
                                             {feathers=TRUE} 0.1089109
##
   [6]
        {predator=FALSE,backbone=TRUE}
                                             {feathers=TRUE} 0.1089109
##
   [7]
        {predator=FALSE,legs=TRUE}
                                             {feathers=TRUE} 0.1089109
   [8]
        {predator=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [9]
        {predator=FALSE,fins=FALSE}
                                          => {feathers=TRUE} 0.1089109
##
       {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
        confidence lift
##
   [1]
        0.5238095
                   2.645238
##
   [2]
        0.5000000
                   2.525000
   [3]
##
        0.4230769
                   2.136538
   [4]
        0.4230769
                   2.136538
##
   [5]
        0.3333333
                   1.683333
##
   [6]
        0.3055556
                    1.543056
##
   [7]
        0.2820513
                    1.424359
   [8]
        0.2682927
                    1.354878
##
   [9]
        0.2682927
                    1.354878
##
   [10] 0.2558140
                   1.291860
##
       lhs
                                           rhs
                                                            support
                                                                      confidence
  [1] {tail=TRUE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.3783784
   [2] {backbone=TRUE, catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.3500000
   [3] {legs=TRUE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.3414634
   [4] {breathes=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
   [5] {fins=FALSE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.2916667
##
   [6] {venomous=FALSE, catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
       lift
##
   [1] 1.910811
   [2] 1.767500
   [3] 1.724390
   [4] 1.724390
##
   [5] 1.472917
##
   [6] 1.414000
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
        {hair=FALSE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [3]
        {eggs=TRUE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
##
   [4]
        {milk=FALSE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [5]
        {breathes=TRUE, catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
##
   [6]
        {breathes=TRUE, tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [7]
##
        {backbone=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [8]
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [9]
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
        {breathes=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198
##
        {breathes=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
        confidence lift
## [1]
        0.6060606 3.060606
## [2]
        0.5405405
                   2.729730
## [3]
        0.5128205 2.589744
```

```
[4]
        0.5128205
                    2.589744
##
   [5]
        0.3414634
                    1.724390
        0.3278689
   [6]
                    1.655738
   [7]
##
        0.2898551
                    1.463768
##
   [8]
        0.2739726
                    1.383562
##
   [9]
        0.2682927
                    1.354878
   Γ10 ] 0.2666667
                    1.346667
##
   [11] 0.2631579
                   1.328947
##
        lhs
                                        rhs
                                                         support
                                                                   confidence
##
   [1]
        {toothed=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5555556
        {hair=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5555556
   [3]
        {eggs=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
##
   [4]
        {milk=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
        {legs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3508772
   [6]
        {legs=TRUE,catsize=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.3414634
##
##
   [7]
        {backbone=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3125000
##
   [8]
        {predator=FALSE,legs=TRUE} => {feathers=TRUE} 0.1089109 0.2820513
        {breathes=TRUE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.2739726
   [10] {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
   [11] {fins=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2597403
   [12]
##
       {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
##
        lift.
  [1]
        2.805556
##
   [2]
##
        2.805556
##
   [3]
        2.525000
   [4]
        2.525000
   [5]
##
        1.771930
##
   [6]
        1.724390
   [7]
##
        1.578125
##
   [8]
        1.424359
##
   [9]
        1.383562
##
   [10] 1.364865
   [11] 1.311688
##
   [12] 1.300758
                                         rhs
##
        lhs
                                                          support
                                                                    confidence
##
  Г17
        {milk=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.7272727
        {milk=FALSE, toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
   [3]
        {milk=FALSE,breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
##
   [4]
        {milk=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
        {milk=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
   [6]
        {milk=FALSE,backbone=TRUE}
   [7]
        {milk=FALSE, aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.4666667
##
##
   [8]
        {milk=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4255319
        {milk=FALSE,predator=FALSE}
                                     => {feathers=TRUE} 0.1089109 0.4230769
##
   [9]
  [10] {milk=FALSE, venomous=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3846154
                                      => {feathers=TRUE} 0.1980198 0.3571429
        {hair=FALSE,milk=FALSE}
   [11]
       {eggs=TRUE,milk=FALSE}
##
   [12]
                                      => {feathers=TRUE} 0.1980198 0.3448276
##
        lift
##
  [1]
        3.672727
##
   [2]
        2.589744
   [3]
##
        2.589744
##
  [4]
        2.525000
## [5]
        2.525000
## [6]
        2.404762
```

```
[7]
        2.356667
##
   [8]
        2.148936
   [9]
        2.136538
   [10] 1.942308
##
   [11] 1.803571
   [12] 1.741379
##
##
        lhs
                                        rhs
                                                         support
                                                                   confidence
## [1]
        {eggs=TRUE,airborne=TRUE}
                                    => {feathers=TRUE} 0.1584158 0.7272727
##
   [2]
        {eggs=TRUE,toothed=FALSE}
                                       {feathers=TRUE} 0.1980198 0.5128205
##
   [3]
        {eggs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
   [4]
        {eggs=TRUE,breathes=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
   [5]
        {eggs=TRUE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5000000
##
##
   [6]
        {eggs=TRUE,aquatic=FALSE}
                                        {feathers=TRUE} 0.1386139 0.4827586
##
   [7]
        {eggs=TRUE,backbone=TRUE}
                                       {feathers=TRUE} 0.1980198 0.4761905
   [8]
                                       {feathers=TRUE} 0.1980198 0.4347826
##
        {eggs=TRUE,fins=FALSE}
##
   [9]
        {eggs=TRUE,predator=FALSE} =>
                                        {feathers=TRUE} 0.1089109 0.4230769
   [10] {eggs=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3773585
##
   [11] {hair=FALSE,eggs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.3703704
   [12] {eggs=TRUE,milk=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.3448276
##
##
        lift
##
   [1]
        3.672727
   [2]
        2.589744
   [3]
        2.589744
##
   [4]
##
        2.589744
##
   [5]
        2.525000
   [6]
        2.437931
   [7]
##
        2.404762
##
   [8]
        2.195652
   [9]
##
        2.136538
   [10] 1.905660
##
   [11] 1.870370
##
   [12] 1.741379
##
        lhs
                                                          support
                                                                    confidence
##
   [1]
        {hair=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.8888889
##
   [2]
        {hair=FALSE,toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5714286
##
   [3]
                                      => {feathers=TRUE} 0.1980198 0.5555556
        {hair=FALSE,legs=TRUE}
   [4]
        {hair=FALSE,breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5405405
   [5]
        {hair=FALSE,aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.5384615
##
   [6]
        {hair=FALSE, predator=FALSE}
                                         {feathers=TRUE} 0.1089109 0.5000000
##
                                      => {feathers=TRUE} 0.1980198 0.4761905
##
   [7]
        {hair=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4651163
   [8]
        {hair=FALSE,fins=FALSE}
   [9]
        {hair=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4545455
##
   Γ107
       {hair=FALSE, venomous=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3846154
                                      => {feathers=TRUE} 0.1980198 0.3703704
       {hair=FALSE,eggs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.3571429
##
   [12] {hair=FALSE,milk=FALSE}
##
        lift
##
  [1]
        4.488889
   [2]
##
        2.885714
##
   [3]
        2.805556
##
   [4]
        2.729730
   [5]
        2.719231
##
##
   [6]
        2.525000
## [7]
        2.404762
## [8]
        2.348837
```

```
[9]
        2.295455
   [10] 1.942308
   [11] 1.870370
##
   [12] 1.803571
##
        lhs
                                            rhs
                                                             support
                                           {feathers=TRUE} 0.1980198
##
   [1]
        {toothed=FALSE,backbone=TRUE}
   [2]
        {toothed=FALSE.tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [3]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
##
   [4]
        {toothed=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [5]
        {hair=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [6]
        {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [7]
##
        {toothed=FALSE, venomous=FALSE}
                                        => {feathers=TRUE} 0.1980198
##
   [8]
        {predator=FALSE, toothed=FALSE}
                                        => {feathers=TRUE} 0.1089109
        {aquatic=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1386139
##
   [9]
                                         => {feathers=TRUE} 0.1980198
   [10]
       {eggs=TRUE,toothed=FALSE}
##
        {milk=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
        confidence lift
##
   [1]
        0.9090909
                   4.590909
   [2]
                   4.391304
##
        0.8695652
##
   [3]
        0.7272727
                    3.672727
##
   [4]
        0.6060606
                   3.060606
##
   [5]
        0.5714286
                   2.885714
##
   [6]
        0.555556
                   2.805556
##
   [7]
        0.555556
                    2.805556
##
   [8]
        0.5238095
                   2.645238
   [9]
        0.5185185
                    2.618519
##
   [10] 0.5128205
                    2.589744
##
   [11] 0.5128205
                   2.589744
##
       "Número de reglas con consecuente negado"
##
        lhs
                                             rhs
                                                              support
##
   [1]
        {type=bird}
                                            {feathers=TRUE} 0.1980198
##
   [2]
        {toothed=FALSE,backbone=TRUE}
                                             {feathers=TRUE} 0.1980198
##
   [3]
        {hair=FALSE,airborne=TRUE}
                                             {feathers=TRUE} 0.1584158
   [4]
##
        {airborne=TRUE,tail=TRUE}
                                             {feathers=TRUE} 0.1584158
   [5]
        {airborne=TRUE,backbone=TRUE}
                                             {feathers=TRUE} 0.1584158
##
##
   [6]
        {toothed=FALSE,tail=TRUE}
                                             {feathers=TRUE} 0.1980198
##
   [7]
        {airborne=TRUE, toothed=FALSE}
                                             {feathers=TRUE} 0.1584158
   [8]
        {eggs=TRUE,airborne=TRUE}
                                             {feathers=TRUE} 0.1584158
##
        {milk=FALSE,airborne=TRUE}
                                             {feathers=TRUE} 0.1584158
   [9]
##
   [10] {airborne=TRUE, venomous=FALSE}
                                             {feathers=TRUE} 0.1584158
   [11] {toothed=FALSE,breathes=TRUE}
                                             {feathers=TRUE} 0.1980198
   [12] {hair=FALSE,toothed=FALSE}
                                             {feathers=TRUE} 0.1980198
   [13] {toothed=FALSE,legs=TRUE}
                                             {feathers=TRUE} 0.1980198
   [14] {toothed=FALSE, venomous=FALSE}
                                             {feathers=TRUE} 0.1980198
   [15] {hair=FALSE,legs=TRUE}
                                             {feathers=TRUE} 0.1980198
   [16] {hair=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
   [17]
       {hair=FALSE,aquatic=FALSE}
                                             {feathers=TRUE} 0.1386139
   [18] {predator=FALSE, toothed=FALSE}
                                             {feathers=TRUE} 0.1089109
                                            {feathers=TRUE} 0.1386139
   [19] {aquatic=FALSE, toothed=FALSE}
   [20] {eggs=TRUE,toothed=FALSE}
                                             {feathers=TRUE} 0.1980198
##
   [21] {milk=FALSE,toothed=FALSE}
                                             {feathers=TRUE} 0.1980198
  [22] {eggs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
## [23] {eggs=TRUE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
## [24] {milk=FALSE,breathes=TRUE}
                                             {feathers=TRUE} 0.1980198
```

```
## [25] {hair=FALSE,predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
   [26] {eggs=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [27] {milk=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [28] {milk=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [29] {eggs=TRUE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   [30] {hair=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [31] {eggs=TRUE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [32] {milk=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [33]
       {milk=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   [34]
       {hair=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [35] {hair=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [36] {eggs=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [37]
       {milk=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1089109
   [38] {eggs=TRUE,predator=FALSE}
   [39] {milk=FALSE,predator=FALSE}
                                           {feathers=TRUE} 0.1089109
   [40] {hair=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [41] {milk=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [42] {tail=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
                                           {feathers=TRUE} 0.1980198
   [43] {eggs=TRUE, venomous=FALSE}
   [44] {hair=FALSE,eggs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
  [45] {hair=FALSE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
  [46] {legs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
  [47] {backbone=TRUE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
                                            {feathers=TRUE} 0.1980198
##
   Г481
       {hair=FALSE}
  [49]
       {eggs=TRUE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
   [50] {legs=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [51] {breathes=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   [52] {fins=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [53] {predator=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1089109
  [54] {breathes=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
   [55]
        {backbone=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [56]
        {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
       {backbone=TRUE,fins=FALSE}
                                           {feathers=TRUE} 0.1980198
##
   [58] {fins=FALSE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
        {backbone=TRUE, breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
   [59]
##
   [60]
       {aquatic=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1386139
   [61] {predator=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1089109
       {venomous=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
##
   [62]
        {venomous=FALSE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [63]
##
   [64]
       {breathes=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [65]
       {backbone=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [66] {venomous=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
##
   [67]
       {predator=FALSE, breathes=TRUE}
                                            {feathers=TRUE} 0.1089109
   [68] {predator=FALSE,fins=FALSE}
                                           {feathers=TRUE} 0.1089109
  [69] {breathes=TRUE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [70] {aquatic=FALSE,backbone=TRUE}
                                           {feathers=TRUE} 0.1386139
##
   [71] {breathes=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
  [72] {fins=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [73] {venomous=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [74] {legs=TRUE,domestic=FALSE}
                                           {feathers=TRUE} 0.1683168
##
  [75] {predator=FALSE, venomous=FALSE}
                                        =>
                                            {feathers=TRUE} 0.1089109
  [76] {backbone=TRUE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
## [77] {aquatic=FALSE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1386139
## [78] {aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
```

```
## [79] {venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
  [80] {domestic=FALSE}
                                        => {feathers=TRUE} 0.1683168
##
        confidence lift
## [1]
        1.0000000 5.0500000
##
  [2]
        0.9090909
                   4.5909091
  [3]
        0.8888889
                   4.4888889
##
  ۲4٦
        0.888889
                   4.4888889
## [5]
        0.8888889
                   4.4888889
##
  [6]
        0.8695652
                   4.3913043
##
  [7]
        0.7272727
                   3.6727273
## [8]
        0.7272727
                   3.6727273
  [9]
        0.7272727
                   3.6727273
## [10] 0.7272727
                   3.6727273
## [11] 0.6060606
                   3.0606061
## [12] 0.5714286
                   2.8857143
## [13] 0.555556
                   2.8055556
## [14] 0.555556
                   2.8055556
## [15] 0.555556
                   2.8055556
## [16] 0.5405405
                   2.7297297
## [17] 0.5384615
                   2.7192308
## [18] 0.5238095
                   2.6452381
## [19] 0.5185185
                   2.6185185
## [20] 0.5128205
                   2.5897436
## [21] 0.5128205
                   2.5897436
## [22] 0.5128205
                   2.5897436
## [23] 0.5128205
                   2.5897436
## [24] 0.5128205
                   2.5897436
## [25] 0.5000000
                   2.5250000
## [26] 0.5000000
                   2.5250000
## [27] 0.5000000
                   2.5250000
## [28] 0.5000000
                   2.5250000
## [29] 0.4827586
                   2.4379310
## [30] 0.4761905
                   2.4047619
## [31] 0.4761905
                   2.4047619
  [32] 0.4761905
                   2.4047619
## [33] 0.4666667
                   2.3566667
## [34] 0.4651163
                   2.3488372
## [35] 0.4545455
                   2.2954545
## [36] 0.4347826
                   2.1956522
## [37] 0.4255319
                   2.1489362
  [38] 0.4230769
                   2.1365385
## [39] 0.4230769
                   2.1365385
## [40] 0.3846154
                   1.9423077
## [41] 0.3846154
                   1.9423077
## [42] 0.3783784
                   1.9108108
## [43] 0.3773585
                   1.9056604
## [44] 0.3703704
                   1.8703704
## [45] 0.3571429
                   1.8035714
                   1.7719298
## [46] 0.3508772
## [47] 0.3500000
                   1.7675000
## [48] 0.3448276
                   1.7413793
## [49] 0.3448276
                   1.7413793
## [50] 0.3414634
                   1.7243902
## [51] 0.3414634 1.7243902
```

```
1.7118644
   [52] 0.3389831
   [53] 0.3333333
                   1.6833333
   [54] 0.3278689
                   1.6557377
   [55] 0.3125000
                   1.5781250
##
   [56] 0.3055556
                   1.5430556
##
   [57] 0.3030303
                   1.5303030
   [58] 0.2916667
                   1.4729167
   [59] 0.2898551
                   1.4637681
   [60] 0.2857143
                   1.4428571
   [61] 0.2820513
                   1.4243590
   [62] 0.2816901
                   1.4225352
   [63] 0.2800000
                   1.4140000
##
   [64] 0.2739726
                   1.3835616
   [65] 0.2702703
                   1.3648649
   [66] 0.2702703
                   1.3648649
   [67]
       0.2682927
                   1.3548780
##
   [68] 0.2682927
                   1.3548780
   [69] 0.2666667
                   1.3466667
   [70] 0.2641509
                   1.3339623
   [71] 0.2631579
                   1.3289474
##
   [72] 0.2597403
                   1.3116883
   [73] 0.2597403
                   1.3116883
   [74] 0.2575758
                   1.3007576
   [75] 0.2558140
                   1.2918605
   [76] 0.2531646
                   1.2784810
   [77] 0.2295082
                   1.1590164
   [78] 0.2153846
                   1.0876923
##
   [79] 0.2150538
                   1.0860215
##
   [80] 0.1931818
                   0.9755682
##
        lhs
                             rhs
                                               support
                                                         confidence lift
##
   [1]
        {type=fish}
                          => {feathers=FALSE} 0.1287129 1.0000000
                                                                    1.2469136
##
   [2]
        {fins=TRUE}
                          => {feathers=FALSE} 0.1683168 1.0000000
                                                                     1.2469136
##
   [3]
        {backbone=FALSE} => {feathers=FALSE} 0.1782178 1.0000000
                                                                     1.2469136
   [4]
##
        {breathes=FALSE} => {feathers=FALSE} 0.2079208 1.0000000
                                                                     1.2469136
##
   [5]
        {legs=FALSE}
                             {feathers=FALSE} 0.2277228 1.0000000
                                                                     1.2469136
##
                          => {feathers=FALSE} 0.2574257 1.0000000
   [6]
        {tail=FALSE}
                                                                     1.2469136
##
   [7]
        {eggs=FALSE}
                          => {feathers=FALSE} 0.4158416 1.0000000
                                                                     1.2469136
##
  [8]
        {hair=TRUE}
                          => {feathers=FALSE} 0.4257426 1.0000000
                                                                     1.2469136
   [9]
                             {feathers=FALSE} 0.7227723 0.9480519
        {airborne=FALSE} =>
                                                                     1.1821388
##
   [10] {catsize=TRUE}
                          => {feathers=FALSE} 0.3762376 0.8636364
                                                                     1.0768799
   [11] {predator=TRUE}
                          => {feathers=FALSE} 0.4653465 0.8392857
                                                                     1.0465168
                          => {feathers=FALSE} 0.2970297 0.8333333
   [12] {aquatic=TRUE}
                                                                     1.0390947
##
   [13] {aquatic=FALSE}
                          => {feathers=FALSE} 0.5049505 0.7846154
                                                                     0.9783476
                          => {feathers=FALSE} 0.3366337 0.7555556
   [14] {predator=FALSE}
                                                                     0.9421125
  [15] {catsize=FALSE}
                          => {feathers=FALSE} 0.4257426 0.7543860
                                                                     0.9406541
   [16] {breathes=TRUE}
                          => {feathers=FALSE} 0.5940594 0.7500000
                                                                     0.9351852
##
   [17] {legs=TRUE}
                             {feathers=FALSE} 0.5742574 0.7435897
                                                                     0.9271921
   [18] {milk=FALSE}
                          => {feathers=FALSE} 0.3960396 0.6666667
                                                                     0.8312757
   [19] {eggs=TRUE}
                          => {feathers=FALSE} 0.3861386 0.6610169
                                                                     0.8242310
##
   [20] {hair=FALSE}
                          => {feathers=FALSE} 0.3762376 0.6551724
                                                                     0.8169434
##
                          => {feathers=FALSE} 0.1980198 0.5000000
   [21] {toothed=FALSE}
                                                                     0.6234568
##
                                                           support
                                                                      confidence
  [1] {hair=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5384615
## [2] {aquatic=FALSE,toothed=FALSE} => {feathers=TRUE} 0.1386139 0.5185185
```

```
## [3] {eggs=TRUE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4827586
## [4] {milk=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
## [5] {aquatic=FALSE,tail=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2857143
## [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
##
   [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
       lift
## [1] 2.719231
## [2] 2.618519
## [3] 2.437931
## [4] 2.356667
## [5] 1.442857
  [6] 1.333962
##
   [7] 1.159016
##
        lhs
                                                             support
## [1]
                                         => {feathers=TRUE} 0.1089109
        {predator=FALSE, toothed=FALSE}
## [2]
        {hair=FALSE, predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
##
  [3]
        {eggs=TRUE,predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
  [4]
        {milk=FALSE, predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
                                         => {feathers=TRUE} 0.1089109
##
  [5]
        {predator=FALSE,tail=TRUE}
  [6]
        {predator=FALSE, backbone=TRUE}
                                         => {feathers=TRUE} 0.1089109
##
  [7]
        {predator=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1089109
        {predator=FALSE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1089109
  [8]
                                         => {feathers=TRUE} 0.1089109
  [9]
        {predator=FALSE,fins=FALSE}
  [10] {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
##
        confidence lift
  Г17
        0.5238095 2.645238
  [2]
        0.5000000
                   2.525000
##
   [3]
        0.4230769
                   2.136538
  [4]
##
        0.4230769
                   2.136538
## [5]
        0.3333333
                   1.683333
##
  [6]
        0.3055556
                   1.543056
##
  [7]
        0.2820513
                   1.424359
  [8]
        0.2682927
                   1.354878
##
  [9]
        0.2682927
                   1.354878
   [10] 0.2558140
                   1.291860
##
                                                           support
##
       lhs
                                          rhs
                                                                     confidence
## [1] {tail=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3783784
## [2] {backbone=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3500000
## [3] {legs=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
## [4] {breathes=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
  [5] {fins=FALSE, catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.2916667
  [6] {venomous=FALSE,catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
       lift
## [1] 1.910811
## [2] 1.767500
## [3] 1.724390
## [4] 1.724390
## [5] 1.472917
##
  [6] 1.414000
##
        lhs
                                           rhs
                                                            support
## [1]
        {toothed=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
## [2]
        {hair=FALSE, breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
## [3]
        {eggs=TRUE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
## [4]
        {milk=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
```

```
{breathes=TRUE,catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
##
   [6]
        {breathes=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
        {backbone=TRUE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [7]
   [8]
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
##
   [9]
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
       {breathes=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198
##
   [10]
   [11] {breathes=TRUE.fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
        confidence lift
##
   [1]
        0.6060606
                   3.060606
   [2]
##
        0.5405405
                   2.729730
   [3]
        0.5128205
                   2.589744
   [4]
##
        0.5128205
                   2.589744
##
   [5]
        0.3414634
                    1.724390
##
   [6]
        0.3278689
                    1.655738
        0.2898551
   [7]
##
                    1.463768
##
   [8]
        0.2739726
                    1.383562
##
   [9]
        0.2682927
                    1.354878
                    1.346667
   [10] 0.2666667
##
   [11]
        0.2631579
                    1.328947
##
        lhs
                                                         support
                                                                   confidence
##
   [1]
        {toothed=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5555556
                                     => {feathers=TRUE} 0.1980198 0.5555556
   [2]
        {hair=FALSE,legs=TRUE}
   [3]
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
        {eggs=TRUE,legs=TRUE}
   [4]
                                       {feathers=TRUE} 0.1980198 0.5000000
##
        {milk=FALSE,legs=TRUE}
##
   [5]
        {legs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3508772
   [6]
        {legs=TRUE,catsize=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.3414634
   [7]
        {backbone=TRUE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.3125000
##
##
   [8]
        {predator=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1089109 0.2820513
        {breathes=TRUE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.2739726
   [10] {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
        {fins=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.2597403
##
   [12]
       {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
##
        lift
        2.805556
##
   [1]
##
   [2]
        2.805556
   [3]
##
        2.525000
##
   [4]
        2.525000
   [5]
        1.771930
##
   [6]
##
        1.724390
##
   [7]
        1.578125
   [8]
        1.424359
   [9]
##
        1.383562
##
   Γ107
       1.364865
##
   [11] 1.311688
##
   [12] 1.300758
##
        lhs
                                         rhs
                                                          support
                                                                    confidence
##
  [1]
        {milk=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.7272727
   [2]
        {milk=FALSE,toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
   [3]
        {milk=FALSE,breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
##
   [4]
        {milk=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
        {milk=FALSE,legs=TRUE}
   [6]
        {milk=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
##
  [7]
        {milk=FALSE,aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.4666667
## [8]
        {milk=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4255319
```

```
{milk=FALSE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
   [10] {milk=FALSE,venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
   [11] {hair=FALSE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3571429
                                     => {feathers=TRUE} 0.1980198 0.3448276
   [12] {eggs=TRUE,milk=FALSE}
        lift.
##
  [1]
        3.672727
   [2]
        2.589744
  [3]
        2.589744
##
##
   [4]
        2.525000
##
   [5]
        2.525000
   [6]
        2.404762
   [7]
##
        2.356667
##
   [8]
        2.148936
##
   [9]
        2.136538
  [10] 1.942308
   [11] 1.803571
##
   [12] 1.741379
##
        lhs
                                                        support
                                                                   confidence
                                    => {feathers=TRUE} 0.1584158 0.7272727
##
   [1]
        {eggs=TRUE,airborne=TRUE}
   [2]
        {eggs=TRUE, toothed=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
##
   [3]
        {eggs=TRUE,tail=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
  [4]
        {eggs=TRUE,breathes=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
##
  [5]
                                       {feathers=TRUE} 0.1980198 0.5000000
        {eggs=TRUE,legs=TRUE}
##
                                       {feathers=TRUE} 0.1386139 0.4827586
##
   [6]
        {eggs=TRUE,aquatic=FALSE}
        {eggs=TRUE,backbone=TRUE}
##
   [7]
                                    => {feathers=TRUE} 0.1980198 0.4761905
   [8]
        {eggs=TRUE,fins=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.4347826
   [9]
        {eggs=TRUE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
##
   [10] {eggs=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3773585
                                    => {feathers=TRUE} 0.1980198 0.3703704
   [11] {hair=FALSE,eggs=TRUE}
   [12] {eggs=TRUE,milk=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.3448276
##
##
        lift
##
   [1]
        3.672727
##
   [2]
        2.589744
   [3]
##
        2.589744
   [4]
        2.589744
##
   [5]
##
        2.525000
   [6]
        2.437931
  [7]
        2.404762
##
   [8]
        2.195652
##
   [9]
##
        2.136538
   [10] 1.905660
   [11] 1.870370
##
   Γ12]
       1.741379
##
        lhs
                                        rhs
                                                         support
                                                                    confidence
## [1]
        {hair=FALSE,airborne=TRUE}
                                     => {feathers=TRUE} 0.1584158 0.8888889
   [2]
                                     => {feathers=TRUE} 0.1980198 0.5714286
##
        {hair=FALSE,toothed=FALSE}
##
   [3]
        {hair=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5555556
##
   [4]
        {hair=FALSE,breathes=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5405405
   [5]
        {hair=FALSE,aquatic=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.5384615
##
   [6]
        {hair=FALSE, predator=FALSE}
                                     => {feathers=TRUE} 0.1089109 0.5000000
   [7]
                                     => {feathers=TRUE} 0.1980198 0.4761905
##
        {hair=FALSE,tail=TRUE}
## [8]
        {hair=FALSE,fins=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.4651163
## [9]
        {hair=FALSE,backbone=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.4545455
## [10] {hair=FALSE,venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
```

```
## [11] {hair=FALSE,eggs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3703704
   [12] {hair=FALSE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3571429
##
        lift
##
  [1]
        4.488889
##
   [2]
        2.885714
   [3]
##
        2.805556
   [4]
        2.729730
##
  [5]
        2.719231
##
   [6]
        2.525000
##
   [7]
        2.404762
   [8]
        2.348837
##
   [9]
        2.295455
   [10] 1.942308
##
  [11] 1.870370
##
   [12] 1.803571
##
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {toothed=FALSE,backbone=TRUE}
                                        => {feathers=TRUE} 0.1980198
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [3]
                                        => {feathers=TRUE} 0.1584158
##
        {airborne=TRUE, toothed=FALSE}
##
   [4]
        {toothed=FALSE, breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
##
   [5]
        {hair=FALSE,toothed=FALSE}
                                        => {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1980198
   [6]
        {toothed=FALSE,legs=TRUE}
  [7]
##
        {toothed=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198
##
   [8]
        {predator=FALSE,toothed=FALSE} => {feathers=TRUE} 0.1089109
##
   [9]
        {aquatic=FALSE, toothed=FALSE}
                                        => {feathers=TRUE} 0.1386139
   [10]
       {eggs=TRUE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
       {milk=FALSE,toothed=FALSE}
                                        => {feathers=TRUE} 0.1980198
##
   [11]
##
        confidence lift
##
  [1]
        0.9090909
                   4.590909
##
   [2]
        0.8695652
                   4.391304
##
   [3]
        0.7272727
                   3.672727
##
   [4]
        0.6060606
                   3.060606
##
   [5]
        0.5714286
                   2.885714
##
   [6]
        0.555556
                   2.805556
   [7]
        0.555556
                    2.805556
##
##
   [8]
        0.5238095
                   2.645238
  [9]
        0.5185185
                   2.618519
## [10] 0.5128205
                   2.589744
   [11] 0.5128205
                   2.589744
##
   [1] "Número de reglas con consecuente negado"
##
                                             rhs
                                                             support
                                            {feathers=TRUE} 0.1980198
##
   [1]
        {type=bird}
##
   [2]
        {toothed=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [3]
        {hair=FALSE,airborne=TRUE}
                                          => {feathers=TRUE} 0.1584158
  [4]
        {airborne=TRUE, tail=TRUE}
                                          => {feathers=TRUE} 0.1584158
## [5]
        {airborne=TRUE,backbone=TRUE}
                                            {feathers=TRUE} 0.1584158
##
   [6]
        {toothed=FALSE,tail=TRUE}
                                             {feathers=TRUE} 0.1980198
##
   [7]
        {airborne=TRUE, toothed=FALSE}
                                          => {feathers=TRUE} 0.1584158
  [8]
        {eggs=TRUE,airborne=TRUE}
                                          => {feathers=TRUE} 0.1584158
   [9]
        {milk=FALSE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
  [10] {airborne=TRUE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1584158
## [11] {toothed=FALSE,breathes=TRUE}
                                          => {feathers=TRUE} 0.1980198
## [12] {hair=FALSE,toothed=FALSE}
                                          => {feathers=TRUE} 0.1980198
## [13] {toothed=FALSE,legs=TRUE}
                                          => {feathers=TRUE} 0.1980198
```

```
## [14] {toothed=FALSE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
  [15] {hair=FALSE,legs=TRUE}
  [16] {hair=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
  [17] {hair=FALSE,aquatic=FALSE}
                                           {feathers=TRUE} 0.1386139
##
  [18] {predator=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1089109
  [19] {aquatic=FALSE, toothed=FALSE}
                                           {feathers=TRUE} 0.1386139
##
  [20] {eggs=TRUE,toothed=FALSE}
                                           {feathers=TRUE} 0.1980198
  [21] {milk=FALSE,toothed=FALSE}
                                           {feathers=TRUE} 0.1980198
##
  [22]
       {eggs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [23]
       {eggs=TRUE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
   [24] {milk=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
   [25] {hair=FALSE,predator=FALSE}
                                           {feathers=TRUE} 0.1089109
   [26] {eggs=TRUE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
       {milk=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
  [28] {milk=FALSE,legs=TRUE}
        {eggs=TRUE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   [29]
   [30]
       {hair=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
   [31] {eggs=TRUE,backbone=TRUE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
   [32] {milk=FALSE,backbone=TRUE}
   [33] {milk=FALSE,aquatic=FALSE}
                                           {feathers=TRUE} 0.1386139
##
  [34] {hair=FALSE,fins=FALSE}
                                           {feathers=TRUE} 0.1980198
  [35] {hair=FALSE,backbone=TRUE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
  [36] {eggs=TRUE,fins=FALSE}
##
                                            {feathers=TRUE} 0.1980198
##
   [37] {milk=FALSE,fins=FALSE}
   [38] {eggs=TRUE,predator=FALSE}
                                           {feathers=TRUE} 0.1089109
   [39] {milk=FALSE,predator=FALSE}
                                           {feathers=TRUE} 0.1089109
   [40] {hair=FALSE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
   [41] {milk=FALSE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
  [42] {tail=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
  [43] {eggs=TRUE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
   [44]
       {hair=FALSE,eggs=TRUE}
                                           {feathers=TRUE} 0.1980198
##
   [45]
        {hair=FALSE,milk=FALSE}
                                           {feathers=TRUE} 0.1980198
   [46]
       {legs=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
   [47]
       {backbone=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
   [48]
        {hair=FALSE}
                                           {feathers=TRUE} 0.1980198
##
  [49]
       {eggs=TRUE,milk=FALSE}
                                           {feathers=TRUE} 0.1980198
  [50] {legs=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
  [51] {breathes=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
##
       {fins=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [52]
##
   [53]
       {predator=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1089109
   [54]
       {breathes=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
   [55] {backbone=TRUE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
   [56] {predator=FALSE,backbone=TRUE}
                                           {feathers=TRUE} 0.1089109
   [57] {backbone=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
  [58] {fins=FALSE,catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
  [59]
       {backbone=TRUE, breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
   [60]
##
       {aquatic=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1386139
   [61]
       {predator=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1089109
   [62] {venomous=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [63]
        {venomous=FALSE, catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
##
   [64]
       {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [65] {backbone=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [66] {venomous=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [67] {predator=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1089109
```

```
## [68] {predator=FALSE,fins=FALSE}
                                          => {feathers=TRUE} 0.1089109
       {breathes=TRUE, venomous=FALSE}
   [69]
                                             {feathers=TRUE} 0.1980198
   [70] {aquatic=FALSE,backbone=TRUE}
                                             {feathers=TRUE} 0.1386139
   [71] {breathes=TRUE,fins=FALSE}
                                             {feathers=TRUE} 0.1980198
##
   [72] {fins=FALSE,legs=TRUE}
                                             {feathers=TRUE} 0.1980198
   [73] {venomous=FALSE,fins=FALSE}
##
                                             {feathers=TRUE} 0.1980198
   [74] {legs=TRUE,domestic=FALSE}
                                             {feathers=TRUE} 0.1683168
   [75] {predator=FALSE, venomous=FALSE} =>
                                             {feathers=TRUE} 0.1089109
##
   [76]
        {backbone=TRUE, venomous=FALSE}
                                             {feathers=TRUE} 0.1980198
        {aquatic=FALSE, venomous=FALSE}
                                             {feathers=TRUE} 0.1386139
   [78]
       {aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   [79]
##
        {venomous=FALSE}
                                          => {feathers=TRUE} 0.1980198
##
   [08]
        {domestic=FALSE}
                                          => {feathers=TRUE} 0.1683168
        confidence lift
##
##
  [1]
        1.0000000
                   5.0500000
##
   [2]
        0.9090909
                    4.5909091
   [3]
##
        0.888889
                    4.4888889
   [4]
        0.888889
                    4.4888889
   [5]
##
        0.888889
                    4.4888889
##
   [6]
        0.8695652
                    4.3913043
##
   [7]
        0.7272727
                    3.6727273
   [8]
        0.7272727
                    3.6727273
##
   [9]
        0.7272727
                    3.6727273
   [10] 0.7272727
                    3.6727273
   [11] 0.6060606
                    3.0606061
   [12] 0.5714286
                    2.8857143
   [13] 0.5555556
                    2.8055556
   [14] 0.5555556
                    2.8055556
   [15] 0.5555556
                    2.8055556
   [16] 0.5405405
                    2.7297297
   [17] 0.5384615
                    2.7192308
   [18] 0.5238095
                    2.6452381
   [19] 0.5185185
                    2.6185185
   [20] 0.5128205
                    2.5897436
   [21] 0.5128205
                    2.5897436
##
   [22] 0.5128205
                    2.5897436
   [23] 0.5128205
                    2.5897436
   [24] 0.5128205
                    2.5897436
   [25] 0.5000000
                    2.5250000
   [26] 0.5000000
                    2.5250000
   [27] 0.5000000
                    2.5250000
   [28] 0.5000000
                   2.5250000
   [29] 0.4827586
                    2.4379310
   [30] 0.4761905
                    2.4047619
   [31] 0.4761905
                    2.4047619
   [32] 0.4761905
                    2.4047619
                    2.3566667
##
   [33] 0.4666667
   [34] 0.4651163
                    2.3488372
   [35] 0.4545455
                    2.2954545
   [36]
        0.4347826
                    2.1956522
   [37]
##
        0.4255319
                    2.1489362
  [38] 0.4230769
                    2.1365385
## [39] 0.4230769
                   2.1365385
## [40] 0.3846154
                   1.9423077
```

```
## [41] 0.3846154
                   1.9423077
   [42] 0.3783784
                    1.9108108
                    1.9056604
   [43] 0.3773585
   [44] 0.3703704
                    1.8703704
   [45] 0.3571429
                    1.8035714
   [46] 0.3508772
                    1.7719298
   [47] 0.3500000
                    1.7675000
   [48] 0.3448276
                    1.7413793
   [49] 0.3448276
                    1.7413793
   [50] 0.3414634
                    1.7243902
   [51] 0.3414634
                    1.7243902
   [52] 0.3389831
                    1.7118644
##
   [53] 0.3333333
                    1.6833333
                    1.6557377
   [54] 0.3278689
   [55] 0.3125000
                    1.5781250
   [56] 0.3055556
                    1.5430556
   [57] 0.3030303
                    1.5303030
   [58] 0.2916667
                    1.4729167
   [59] 0.2898551
                    1.4637681
   [60] 0.2857143
                    1.4428571
##
   [61] 0.2820513
                    1.4243590
   [62] 0.2816901
                    1.4225352
   [63] 0.2800000
                    1.4140000
   [64] 0.2739726
##
                    1.3835616
   [65] 0.2702703
                    1.3648649
   [66] 0.2702703
                    1.3648649
   [67] 0.2682927
                    1.3548780
##
   [68] 0.2682927
                    1.3548780
   [69] 0.2666667
                    1.3466667
   [70] 0.2641509
                    1.3339623
   [71] 0.2631579
                    1.3289474
   [72] 0.2597403
                    1.3116883
   [73] 0.2597403
                    1.3116883
   [74] 0.2575758
                    1.3007576
   [75] 0.2558140
                    1.2918605
##
   [76] 0.2531646
                    1.2784810
   [77] 0.2295082
                    1.1590164
   [78] 0.2153846
                    1.0876923
   [79] 0.2150538
                    1.0860215
##
   [80] 0.1931818
                   0.9755682
##
        lhs
                                               support
                                                         confidence lift
##
   [1]
                          => {feathers=FALSE} 0.1287129 1.0000000 1.2469136
        {type=fish}
##
   [2]
        {fins=TRUE}
                          => {feathers=FALSE} 0.1683168 1.0000000
                                                                     1.2469136
##
   [3]
        {backbone=FALSE} => {feathers=FALSE} 0.1782178 1.0000000
                                                                     1.2469136
   [4]
        {breathes=FALSE} => {feathers=FALSE} 0.2079208 1.0000000
                                                                     1.2469136
   [5]
                          => {feathers=FALSE} 0.2277228 1.0000000
##
        {legs=FALSE}
                                                                     1.2469136
##
   [6]
        {tail=FALSE}
                             {feathers=FALSE} 0.2574257 1.0000000
                                                                     1.2469136
   [7]
##
        {eggs=FALSE}
                             {feathers=FALSE} 0.4158416 1.0000000
                                                                     1.2469136
##
   [8]
        {hair=TRUE}
                          => {feathers=FALSE} 0.4257426 1.0000000
                                                                     1.2469136
##
   [9]
        {airborne=FALSE}
                             {feathers=FALSE} 0.7227723 0.9480519
                                                                     1.1821388
##
   [10]
       {catsize=TRUE}
                          => {feathers=FALSE} 0.3762376 0.8636364
                                                                     1.0768799
  [11] {predator=TRUE}
                          => {feathers=FALSE} 0.4653465 0.8392857
## [12] {aquatic=TRUE}
                          => {feathers=FALSE} 0.2970297 0.8333333
                                                                     1.0390947
## [13] {aquatic=FALSE}
                          => {feathers=FALSE} 0.5049505 0.7846154
```

```
## [14] {predator=FALSE} => {feathers=FALSE} 0.3366337 0.7555556
                                                                    0.9421125
                         => {feathers=FALSE} 0.4257426 0.7543860
  [15] {catsize=FALSE}
                                                                    0.9406541
  [16] {breathes=TRUE}
                         => {feathers=FALSE} 0.5940594 0.7500000
                                                                    0.9351852
  [17] {legs=TRUE}
                          => {feathers=FALSE} 0.5742574 0.7435897
                                                                    0.9271921
  [18] {milk=FALSE}
                          => {feathers=FALSE} 0.3960396 0.6666667
                                                                    0.8312757
  [19] {eggs=TRUE}
                          => {feathers=FALSE} 0.3861386 0.6610169
                                                                    0.8242310
##
                          => {feathers=FALSE} 0.3762376 0.6551724
  [20] {hair=FALSE}
                                                                    0.8169434
##
  [21] {toothed=FALSE}
                         => {feathers=FALSE} 0.1980198 0.5000000
                                                                    0.6234568
##
       lhs
                                          rhs
                                                           support
                                                                     confidence
##
  [1] {hair=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5384615
   [2] {aquatic=FALSE,toothed=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5185185
   [3] {eggs=TRUE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4827586
   [4] {milk=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
                                       => {feathers=TRUE} 0.1386139 0.2857143
   [5] {aquatic=FALSE,tail=TRUE}
  [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
   [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
       lift
##
  [1] 2.719231
  [2] 2.618519
##
   [3] 2.437931
##
  [4] 2.356667
  [5] 1.442857
  [6] 1.333962
##
##
   [7] 1.159016
##
        lhs
                                            rhs
                                                             support
  [1]
        {predator=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1089109
   [2]
        {hair=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
##
   [3]
        {eggs=TRUE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [4]
        {milk=FALSE,predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
##
  [5]
        {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [6]
        {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [7]
        {predator=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [8]
        {predator=FALSE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1089109
##
   [9]
        {predator=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1089109
   [10]
        {predator=FALSE,venomous=FALSE} => {feathers=TRUE} 0.1089109
##
##
        confidence lift
##
  [1]
        0.5238095 2.645238
##
  [2]
        0.5000000
                   2.525000
   [3]
        0.4230769
##
                   2.136538
   [4]
##
        0.4230769
                   2.136538
   [5]
        0.3333333
                   1.683333
   [6]
##
        0.3055556
                   1.543056
##
   [7]
        0.2820513
                   1.424359
##
   [8]
        0.2682927
                   1.354878
##
  [9]
        0.2682927
                   1.354878
  [10] 0.2558140
                   1.291860
##
##
       lhs
                                                           support
                                                                     confidence
##
  [1] {tail=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3783784
   [2] {backbone=TRUE, catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3500000
   [3] {legs=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
   [4] {breathes=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
  [5] {fins=FALSE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.2916667
## [6] {venomous=FALSE,catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
       lift
```

```
[1] 1.910811
   [2] 1.767500
   [3] 1.724390
   [4] 1.724390
##
##
   [5]
       1.472917
##
   [6] 1.414000
##
        lhs
                                            rhs
                                                             support
## [1]
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [2]
        {hair=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [3]
        {eggs=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [4]
        {milk=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [5]
##
        {breathes=TRUE,catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
##
   [6]
        {breathes=TRUE, tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [7]
##
        {backbone=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [8]
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
##
   [9]
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
##
   [10]
       {breathes=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198
       {breathes=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
        confidence lift
##
   [1]
        0.6060606 3.060606
##
   [2]
        0.5405405
                   2.729730
   [3]
                   2.589744
##
        0.5128205
   [4]
##
        0.5128205
                   2.589744
##
   [5]
        0.3414634
                    1.724390
##
   [6]
        0.3278689
                    1.655738
   [7]
        0.2898551
                    1.463768
   [8]
##
        0.2739726
                    1.383562
##
   [9]
        0.2682927
                    1.354878
##
   [10] 0.2666667
                    1.346667
##
   [11] 0.2631579
                    1.328947
##
        lhs
                                                         support
                                                                    confidence
##
   [1]
        {toothed=FALSE,legs=TRUE}
                                        {feathers=TRUE} 0.1980198 0.5555556
##
   [2]
        {hair=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5555556
   [3]
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
        {eggs=TRUE,legs=TRUE}
##
   [4]
        {milk=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
        {legs=TRUE,tail=TRUE}
   [5]
                                     => {feathers=TRUE} 0.1980198 0.3508772
##
##
   [6]
        {legs=TRUE,catsize=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.3414634
   [7]
        {backbone=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3125000
##
   [8]
        {predator=FALSE,legs=TRUE}
                                       {feathers=TRUE} 0.1089109 0.2820513
##
        {breathes=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2739726
##
   [9]
   [10] {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
   [11] {fins=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2597403
##
   Γ12]
       {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
##
        lift
##
  [1]
        2.805556
   [2]
        2.805556
##
##
   [3]
        2.525000
##
   [4]
        2.525000
##
   [5]
        1.771930
##
   [6]
        1.724390
   [7]
##
        1.578125
##
  [8]
        1.424359
## [9]
        1.383562
## [10] 1.364865
```

```
## [11] 1.311688
   [12] 1.300758
##
##
        lhs
                                                          support
                                                                    confidence
##
  [1]
        {milk=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.7272727
##
   [2]
        {milk=FALSE,toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
   [3]
        {milk=FALSE,breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
##
                                      => {feathers=TRUE} 0.1980198 0.5000000
   [4]
        {milk=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
        {milk=FALSE,legs=TRUE}
##
   [6]
        {milk=FALSE,backbone=TRUE}
                                         {feathers=TRUE} 0.1980198 0.4761905
##
   [7]
        {milk=FALSE,aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.4666667
   [8]
        {milk=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4255319
                                     => {feathers=TRUE} 0.1089109 0.4230769
##
   [9]
        {milk=FALSE, predator=FALSE}
##
   [10] {milk=FALSE, venomous=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3846154
                                      => {feathers=TRUE} 0.1980198 0.3571429
   [11] {hair=FALSE,milk=FALSE}
   [12] {eggs=TRUE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3448276
##
##
        lift
##
   [1]
        3.672727
   [2]
        2.589744
   [3]
##
        2.589744
##
   [4]
        2.525000
##
   [5]
        2.525000
   [6]
##
        2.404762
   [7]
        2.356667
##
   [8]
##
        2.148936
##
   [9]
        2.136538
   [10] 1.942308
##
   [11] 1.803571
##
   [12]
        1.741379
##
        lhs
                                        rhs
                                                         support
                                                                   confidence
##
  [1]
                                       {feathers=TRUE} 0.1584158 0.7272727
        {eggs=TRUE,airborne=TRUE}
##
   [2]
        {eggs=TRUE,toothed=FALSE}
                                       {feathers=TRUE} 0.1980198 0.5128205
##
   [3]
        {eggs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
##
   [4]
        {eggs=TRUE,breathes=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
        {eggs=TRUE,legs=TRUE}
   [6]
        {eggs=TRUE,aquatic=FALSE}
                                    => {feathers=TRUE} 0.1386139 0.4827586
##
                                    => {feathers=TRUE} 0.1980198 0.4761905
##
   [7]
        {eggs=TRUE,backbone=TRUE}
   [8]
        {eggs=TRUE,fins=FALSE}
                                       {feathers=TRUE} 0.1980198 0.4347826
   [9]
        {eggs=TRUE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
##
   [10] {eggs=TRUE,venomous=FALSE} =>
                                       {feathers=TRUE} 0.1980198 0.3773585
##
   [11] {hair=FALSE,eggs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3703704
                                     => {feathers=TRUE} 0.1980198 0.3448276
   [12] {eggs=TRUE,milk=FALSE}
##
        lift
##
   Г17
        3.672727
##
   [2]
        2.589744
   [3]
##
        2.589744
   [4]
        2.589744
##
##
   [5]
        2.525000
##
   [6]
        2.437931
##
   [7]
        2.404762
##
   [8]
        2.195652
##
   [9]
        2.136538
## [10] 1.905660
## [11] 1.870370
## [12] 1.741379
```

```
##
                                                          support
                                                                    confidence
##
   [1]
        {hair=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.8888889
        {hair=FALSE,toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5714286
   [2]
   [3]
        {hair=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5555556
##
##
   [4]
        {hair=FALSE,breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5405405
##
   [5]
        {hair=FALSE,aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.5384615
##
   [6]
        {hair=FALSE, predator=FALSE} => {feathers=TRUE} 0.1089109 0.5000000
##
   [7]
        {hair=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
##
   [8]
        {hair=FALSE,fins=FALSE}
                                         {feathers=TRUE} 0.1980198 0.4651163
   [9]
##
        {hair=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4545455
       {hair=FALSE, venomous=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3846154
   Γ10]
                                      => {feathers=TRUE} 0.1980198 0.3703704
   [11]
        {hair=FALSE,eggs=TRUE}
        {hair=FALSE,milk=FALSE}
##
   [12]
                                      => {feathers=TRUE} 0.1980198 0.3571429
##
        lift
## [1]
        4.488889
##
   [2]
        2.885714
   [3]
##
        2.805556
   [4]
        2.729730
##
   [5]
##
        2.719231
##
   [6]
        2.525000
##
   [7]
        2.404762
   [8]
        2.348837
  [9]
##
        2.295455
   [10] 1.942308
   [11] 1.870370
   [12] 1.803571
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [2]
##
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [3]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
##
   [4]
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [5]
        {hair=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
   [6]
        {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [7]
        {toothed=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198
   [8]
        {predator=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1089109
##
##
   [9]
        {aquatic=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1386139
   [10] {eggs=TRUE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [11] {milk=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
##
        confidence lift
##
   [1]
        0.9090909
                   4.590909
   [2]
        0.8695652
                   4.391304
   [3]
        0.7272727
                    3.672727
##
##
   [4]
        0.6060606
                    3.060606
##
   [5]
        0.5714286
                    2.885714
##
   [6]
        0.555556
                    2.805556
   [7]
##
        0.555556
                    2.805556
##
   [8]
        0.5238095
                    2.645238
##
   [9]
        0.5185185
                    2.618519
   [10] 0.5128205
                    2.589744
   [11] 0.5128205
                    2.589744
##
       "Número de reglas con consecuente negado"
##
                                                              support
## [1]
                                          => {feathers=TRUE} 0.1980198
        {type=bird}
## [2]
        {toothed=FALSE,backbone=TRUE}
                                          => {feathers=TRUE} 0.1980198
```

```
[3]
        {hair=FALSE,airborne=TRUE}
                                         => {feathers=TRUE} 0.1584158
                                           {feathers=TRUE} 0.1584158
##
   [4]
        {airborne=TRUE,tail=TRUE}
        {airborne=TRUE,backbone=TRUE}
##
   [5]
                                           {feathers=TRUE} 0.1584158
   [6]
        {toothed=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
##
   [7]
        {airborne=TRUE, toothed=FALSE}
                                            {feathers=TRUE} 0.1584158
##
   [8]
        {eggs=TRUE,airborne=TRUE}
                                           {feathers=TRUE} 0.1584158
        {milk=FALSE.airborne=TRUE}
   [9]
                                           {feathers=TRUE} 0.1584158
  [10] {airborne=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1584158
   [11] {toothed=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
   [12] {hair=FALSE,toothed=FALSE}
                                           {feathers=TRUE} 0.1980198
  [13] {toothed=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
   [14] {toothed=FALSE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
   [15] {hair=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
  [16] {hair=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
  [17] {hair=FALSE,aquatic=FALSE}
                                           {feathers=TRUE} 0.1386139
        {predator=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1089109
       {aquatic=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1386139
   [19]
   [20] {eggs=TRUE,toothed=FALSE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
   [21] {milk=FALSE,toothed=FALSE}
   [22] {eggs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
  [23] {eggs=TRUE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
  [24] {milk=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
  [25] {hair=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
                                            {feathers=TRUE} 0.1980198
   [26] {eggs=TRUE,legs=TRUE}
   [27] {milk=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
   [28] {milk=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
   [29] {eggs=TRUE,aquatic=FALSE}
                                           {feathers=TRUE} 0.1386139
   [30] {hair=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
  [31] {eggs=TRUE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [32] {milk=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [33]
        {milk=FALSE, aquatic=FALSE}
                                           {feathers=TRUE} 0.1386139
   [34]
        {hair=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [35]
       {hair=FALSE,backbone=TRUE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
   [36] {eggs=TRUE,fins=FALSE}
       {milk=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
  [38] {eggs=TRUE,predator=FALSE}
                                           {feathers=TRUE} 0.1089109
  [39] {milk=FALSE,predator=FALSE}
                                           {feathers=TRUE} 0.1089109
  [40] {hair=FALSE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
  [41] {milk=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
  [42] {tail=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
  [43] {eggs=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [44] {hair=FALSE,eggs=TRUE}
                                           {feathers=TRUE} 0.1980198
  [45] {hair=FALSE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
  [46] {legs=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
  [47] {backbone=TRUE, catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
## [48]
       {hair=FALSE}
                                           {feathers=TRUE} 0.1980198
##
   [49]
        {eggs=TRUE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
       {legs=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
  [51] {breathes=TRUE, catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
   [52]
       {fins=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1089109
##
  [53]
       {predator=FALSE,tail=TRUE}
## [54] {breathes=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [55] {backbone=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [56] {predator=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1089109
```

```
[57] {backbone=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
   ſ581
       {fins=FALSE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
       {backbone=TRUE, breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
   [60] {aquatic=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1386139
##
   [61]
       {predator=FALSE,legs=TRUE}
                                             {feathers=TRUE} 0.1089109
       {venomous=FALSE,tail=TRUE}
##
   [62]
                                            {feathers=TRUE} 0.1980198
       {venomous=FALSE, catsize=FALSE}
   [63]
                                             {feathers=TRUE} 0.1386139
   [64]
        {breathes=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [65]
        {backbone=TRUE,tail=TRUE}
                                             {feathers=TRUE} 0.1980198
   [66]
        {venomous=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [67]
       {predator=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1089109
       {predator=FALSE,fins=FALSE}
   [68]
                                            {feathers=TRUE} 0.1089109
   [69]
       {breathes=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [70] {aquatic=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1386139
       {breathes=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [71]
   [72]
        {fins=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [73]
        {venomous=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
       {legs=TRUE,domestic=FALSE}
                                            {feathers=TRUE} 0.1683168
   [75] {predator=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1089109
   [76] {backbone=TRUE, venomous=FALSE}
                                             {feathers=TRUE} 0.1980198
##
   [77] {aquatic=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1386139
       {aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   [78]
   [79] {venomous=FALSE}
                                          => {feathers=TRUE} 0.1980198
                                          => {feathers=TRUE} 0.1683168
##
   [08]
       {domestic=FALSE}
##
        confidence lift
   [1]
        1.0000000
                   5.0500000
   [2]
        0.9090909
                   4.5909091
##
##
   [3]
        0.888889
                   4.4888889
##
   [4]
        0.888889
                   4.4888889
##
   [5]
        0.888889
                   4.4888889
##
   [6]
        0.8695652
                   4.3913043
##
   [7]
        0.7272727
                   3.6727273
##
   [8]
        0.7272727
                   3.6727273
##
   [9]
        0.7272727
                   3.6727273
   [10]
                   3.6727273
        0.7272727
##
   [11] 0.6060606
                   3.0606061
   [12] 0.5714286
                   2.8857143
   [13] 0.5555556
                   2.8055556
   [14] 0.5555556
                   2.8055556
   [15] 0.5555556
                   2.8055556
   [16] 0.5405405
                   2.7297297
   [17] 0.5384615
                   2.7192308
   [18] 0.5238095
                   2.6452381
   [19] 0.5185185
                   2.6185185
   [20] 0.5128205
                   2.5897436
   [21] 0.5128205
                   2.5897436
                   2.5897436
##
   [22] 0.5128205
   [23] 0.5128205
                   2.5897436
   [24]
       0.5128205
                   2.5897436
   [25]
        0.5000000
                   2.5250000
##
   [26] 0.5000000
                   2.5250000
  [27] 0.5000000
                   2.5250000
## [28] 0.5000000
                   2.5250000
                   2.4379310
## [29] 0.4827586
```

```
## [30] 0.4761905 2.4047619
  [31] 0.4761905
                   2.4047619
                   2.4047619
  [32] 0.4761905
## [33] 0.4666667
                   2.3566667
  [34] 0.4651163
                   2.3488372
  [35] 0.4545455
                   2.2954545
  [36] 0.4347826
                   2.1956522
  [37] 0.4255319
                   2.1489362
  [38] 0.4230769
                   2.1365385
  [39] 0.4230769
                   2.1365385
  [40] 0.3846154
                   1.9423077
## [41] 0.3846154
                   1.9423077
## [42] 0.3783784
                   1.9108108
## [43] 0.3773585
                   1.9056604
## [44] 0.3703704
                   1.8703704
## [45] 0.3571429
                   1.8035714
  [46] 0.3508772
                   1.7719298
  [47] 0.3500000
                   1.7675000
## [48] 0.3448276
                   1.7413793
## [49] 0.3448276
                   1.7413793
## [50] 0.3414634
                   1.7243902
  [51] 0.3414634
                   1.7243902
  [52] 0.3389831
                   1.7118644
  [53] 0.3333333
                   1.6833333
  [54] 0.3278689
                   1.6557377
  [55] 0.3125000
                   1.5781250
  [56] 0.3055556
                   1.5430556
  [57] 0.3030303
                   1.5303030
  [58] 0.2916667
                   1.4729167
  [59] 0.2898551
                   1.4637681
  [60] 0.2857143
                   1.4428571
   [61] 0.2820513
                   1.4243590
   [62] 0.2816901
                   1.4225352
  [63] 0.2800000
                   1.4140000
   [64] 0.2739726
                   1.3835616
  [65] 0.2702703
                   1.3648649
  [66] 0.2702703
                   1.3648649
  [67] 0.2682927
                   1.3548780
  [68] 0.2682927
                   1.3548780
  [69] 0.2666667
                   1.3466667
  [70] 0.2641509
                   1.3339623
  [71] 0.2631579
                   1.3289474
  [72] 0.2597403
                   1.3116883
  [73] 0.2597403
                   1.3116883
## [74] 0.2575758
                   1.3007576
## [75] 0.2558140
                   1.2918605
  [76] 0.2531646
                   1.2784810
  [77] 0.2295082
                   1.1590164
  [78] 0.2153846
                   1.0876923
  [79] 0.2150538
                   1.0860215
##
   [80] 0.1931818 0.9755682
##
        lhs
                                              support
                                                         confidence lift
## [1]
        {type=fish}
                         => {feathers=FALSE} 0.1287129 1.0000000 1.2469136
## [2]
        {fins=TRUE}
                         => {feathers=FALSE} 0.1683168 1.0000000 1.2469136
```

```
{backbone=FALSE} => {feathers=FALSE} 0.1782178 1.0000000 1.2469136
##
  [4]
        {breathes=FALSE} => {feathers=FALSE} 0.2079208 1.0000000
                                                                    1.2469136
##
  [5]
        {legs=FALSE}
                          => {feathers=FALSE} 0.2277228 1.0000000
                                                                    1.2469136
  [6]
                          => {feathers=FALSE} 0.2574257 1.0000000
##
        {tail=FALSE}
                                                                    1.2469136
##
   [7]
        {eggs=FALSE}
                          => {feathers=FALSE} 0.4158416 1.0000000
                                                                    1.2469136
  [8]
##
        {hair=TRUE}
                          => {feathers=FALSE} 0.4257426 1.0000000
                                                                    1.2469136
  [9]
        {airborne=FALSE} => {feathers=FALSE} 0.7227723 0.9480519
                                                                    1.1821388
## [10] {catsize=TRUE}
                          => {feathers=FALSE} 0.3762376 0.8636364
                                                                    1.0768799
  [11] {predator=TRUE}
                         => {feathers=FALSE} 0.4653465 0.8392857
                                                                    1.0465168
  [12] {aquatic=TRUE}
                          => {feathers=FALSE} 0.2970297 0.8333333
                                                                    1.0390947
  [13] {aquatic=FALSE}
                          => {feathers=FALSE} 0.5049505 0.7846154
                                                                    0.9783476
  [14] {predator=FALSE}
                         => {feathers=FALSE} 0.3366337 0.7555556
                                                                    0.9421125
  [15] {catsize=FALSE}
                         => {feathers=FALSE} 0.4257426 0.7543860
                                                                    0.9406541
## [16] {breathes=TRUE}
                         => {feathers=FALSE} 0.5940594 0.7500000
                                                                    0.9351852
                          => {feathers=FALSE} 0.5742574 0.7435897
## [17] {legs=TRUE}
                                                                    0.9271921
  [18]
        {milk=FALSE}
                          => {feathers=FALSE} 0.3960396 0.6666667
                                                                    0.8312757
                          => {feathers=FALSE} 0.3861386 0.6610169
                                                                    0.8242310
  [19] {eggs=TRUE}
                          => {feathers=FALSE} 0.3762376 0.6551724
  [20] {hair=FALSE}
                                                                    0.8169434
                         => {feathers=FALSE} 0.1980198 0.5000000
##
   [21] {toothed=FALSE}
                                                                    0.6234568
##
                                          rhs
                                                           support
                                                                     confidence
## [1] {hair=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5384615
  [2] {aquatic=FALSE,toothed=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5185185
  [3] {eggs=TRUE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4827586
## [4] {milk=FALSE,aquatic=FALSE}
                                         {feathers=TRUE} 0.1386139 0.4666667
  [5] {aquatic=FALSE,tail=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2857143
  [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
   [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
       lift
## [1] 2.719231
## [2] 2.618519
## [3] 2.437931
##
  [4] 2.356667
  [5] 1.442857
  [6] 1.333962
       1.159016
##
   [7]
##
        lhs
                                            rhs
                                                             support
  [1]
        {predator=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1089109
##
  [2]
        {hair=FALSE, predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
  [3]
        {eggs=TRUE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
  [4]
##
        {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
  [5]
        {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
   [6]
        {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
##
##
   [7]
        {predator=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1089109
##
   [8]
        {predator=FALSE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1089109
##
  [9]
        {predator=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1089109
   [10] {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
##
        confidence lift
##
  [1]
        0.5238095
                   2.645238
##
  [2]
        0.5000000
                   2.525000
##
   [3]
        0.4230769
                   2.136538
   [4]
##
        0.4230769
                   2.136538
##
  [5]
        0.3333333
                   1.683333
## [6]
        0.3055556
                   1.543056
## [7]
        0.2820513
                   1.424359
```

```
0.2682927
                    1.354878
   [9]
        0.2682927
                    1.354878
##
   [10] 0.2558140
                   1.291860
##
       lhs
                                           rhs
                                                           support
                                                                      confidence
##
   [1] {tail=TRUE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.3783784
   [2] {backbone=TRUE, catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3500000
   [3] {legs=TRUE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.3414634
   [4] {breathes=TRUE, catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
   [5] {fins=FALSE,catsize=FALSE}
                                          {feathers=TRUE} 0.1386139 0.2916667
##
   [6] {venomous=FALSE,catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
       lift
##
   [1] 1.910811
   [2] 1.767500
   [3] 1.724390
  [4] 1.724390
   [5] 1.472917
##
   [6] 1.414000
##
        lhs
                                            rhs
                                                            support
##
   [1]
        {toothed=FALSE, breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
   [2]
        {hair=FALSE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [3]
        {eggs=TRUE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
  [4]
        {milk=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [5]
##
        {breathes=TRUE, catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139
   [6]
        {breathes=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
##
##
  [7]
        {backbone=TRUE, breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
   [8]
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [9]
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
##
       {breathes=TRUE, venomous=FALSE}
                                        => {feathers=TRUE} 0.1980198
   [11] {breathes=TRUE,fins=FALSE}
                                        => {feathers=TRUE} 0.1980198
##
##
        confidence lift
##
   [1]
        0.6060606 3.060606
##
   [2]
        0.5405405
                   2.729730
##
   [3]
        0.5128205
                   2.589744
   [4]
##
        0.5128205
                   2.589744
   [5]
        0.3414634
##
                    1.724390
##
   [6]
        0.3278689
                   1.655738
   [7]
        0.2898551
                    1.463768
  [8]
        0.2739726
                    1.383562
##
   [9]
        0.2682927
                    1.354878
##
   [10] 0.2666667
                    1.346667
   [11] 0.2631579
                   1.328947
##
        lhs
                                                        support
                                                                   confidence
        {toothed=FALSE,legs=TRUE}
##
  Г17
                                    => {feathers=TRUE} 0.1980198 0.5555556
##
   [2]
                                    => {feathers=TRUE} 0.1980198 0.5555556
        {hair=FALSE,legs=TRUE}
##
   [3]
        {eggs=TRUE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5000000
## [4]
                                    => {feathers=TRUE} 0.1980198 0.5000000
        {milk=FALSE,legs=TRUE}
##
   [5]
        {legs=TRUE,tail=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.3508772
   [6]
##
        {legs=TRUE,catsize=FALSE}
                                    => {feathers=TRUE} 0.1386139 0.3414634
   [7]
        {backbone=TRUE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.3125000
##
   [8]
        {predator=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1089109 0.2820513
        {breathes=TRUE,legs=TRUE}
##
   [9]
                                    => {feathers=TRUE} 0.1980198 0.2739726
## [10] {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
## [11] {fins=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.2597403
## [12] {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
```

```
##
        lift
##
   [1]
        2.805556
##
   [2]
        2.805556
   [3]
        2.525000
##
##
   [4]
        2.525000
   [5]
##
        1.771930
##
   [6]
        1.724390
   [7]
##
        1.578125
##
   [8]
        1.424359
##
   [9]
        1.383562
   [10] 1.364865
##
   [11] 1.311688
##
   [12]
       1.300758
##
        lhs
                                         rhs
                                                          support
                                                                    confidence
## [1]
        {milk=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.7272727
##
   [2]
        {milk=FALSE,toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
   [3]
                                      => {feathers=TRUE} 0.1980198 0.5128205
##
        {milk=FALSE,breathes=TRUE}
   [4]
        {milk=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
        {milk=FALSE,legs=TRUE}
##
   [6]
        {milk=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
##
   [7]
        {milk=FALSE,aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.4666667
        {milk=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4255319
   [8]
        {milk=FALSE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
   [9]
##
   [10] {milk=FALSE,venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
   [11] {hair=FALSE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3571429
   [12] {eggs=TRUE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3448276
##
        lift
##
   [1]
        3.672727
##
   [2]
        2.589744
##
   [3]
        2.589744
##
   [4]
        2.525000
##
   [5]
        2.525000
##
   [6]
        2.404762
   [7]
##
        2.356667
   [8]
        2.148936
##
   [9]
##
        2.136538
   [10] 1.942308
  [11] 1.803571
##
   [12] 1.741379
##
##
        lhs
                                        rhs
                                                                   confidence
                                                         support
   [1]
        {eggs=TRUE,airborne=TRUE}
                                       {feathers=TRUE} 0.1584158 0.7272727
   [2]
        {eggs=TRUE, toothed=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
##
##
   [3]
        {eggs=TRUE,tail=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5128205
##
   [4]
        {eggs=TRUE,breathes=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5128205
##
   [5]
        {eggs=TRUE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5000000
   [6]
                                        {feathers=TRUE} 0.1386139 0.4827586
##
        {eggs=TRUE,aquatic=FALSE}
##
   [7]
        {eggs=TRUE,backbone=TRUE}
                                        {feathers=TRUE} 0.1980198 0.4761905
##
   [8]
        {eggs=TRUE,fins=FALSE}
                                       {feathers=TRUE} 0.1980198 0.4347826
   [9]
        {eggs=TRUE,predator=FALSE} =>
                                        {feathers=TRUE} 0.1089109 0.4230769
   [10] {eggs=TRUE, venomous=FALSE} =>
                                        {feathers=TRUE} 0.1980198 0.3773585
                                       {feathers=TRUE} 0.1980198 0.3703704
##
   [11] {hair=FALSE,eggs=TRUE}
##
   [12] {eggs=TRUE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3448276
##
        lift
## [1] 3.672727
```

```
[2]
        2.589744
##
   [3]
        2.589744
##
   [4]
        2.589744
   [5]
        2.525000
##
##
   [6]
        2.437931
##
   [7]
        2.404762
   [8]
        2.195652
        2.136538
##
   [9]
##
   [10] 1.905660
##
   [11] 1.870370
   [12] 1.741379
##
        lhs
                                         rhs
                                                          support
                                                                     confidence
##
   [1]
        {hair=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.8888889
##
   [2]
        {hair=FALSE,toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5714286
   [3]
                                      => {feathers=TRUE} 0.1980198 0.5555556
##
        {hair=FALSE,legs=TRUE}
##
   [4]
        {hair=FALSE,breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5405405
   [5]
                                      => {feathers=TRUE} 0.1386139 0.5384615
##
        {hair=FALSE,aquatic=FALSE}
   [6]
        {hair=FALSE, predator=FALSE}
                                     => {feathers=TRUE} 0.1089109 0.5000000
        {hair=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
##
   [7]
##
   [8]
        {hair=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4651163
##
   [9]
        {hair=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4545455
       {hair=FALSE, venomous=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3846154
                                      => {feathers=TRUE} 0.1980198 0.3703704
   [11] {hair=FALSE,eggs=TRUE}
   [12] {hair=FALSE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3571429
##
##
        lift
  [1]
        4.488889
   [2]
        2.885714
##
##
   [3]
        2.805556
##
   [4]
        2.729730
##
   [5]
        2.719231
##
   [6]
        2.525000
##
   [7]
        2.404762
##
   [8]
        2.348837
##
   [9]
        2.295455
   [10]
       1.942308
##
   [11] 1.870370
##
   [12] 1.803571
##
        lhs
                                            rhs
                                                             support
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [1]
   [2]
##
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [3]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
   [4]
        {toothed=FALSE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
##
   [5]
        {hair=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
        {toothed=FALSE,legs=TRUE}
##
   [6]
                                         => {feathers=TRUE} 0.1980198
   [7]
        {toothed=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198
   [8]
        {predator=FALSE,toothed=FALSE} => {feathers=TRUE} 0.1089109
##
##
   [9]
        {aquatic=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1386139
       {eggs=TRUE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
   [11]
        {milk=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
        confidence lift
##
   [1]
        0.9090909 4.590909
##
   [2]
        0.8695652 4.391304
## [3]
        0.7272727
                   3.672727
## [4]
        0.6060606 3.060606
```

```
[5]
        0.5714286
                   2.885714
##
   [6]
                   2.805556
        0.555556
##
   [7]
        0.555556
                   2.805556
   [8]
##
        0.5238095
                   2.645238
##
   [9]
        0.5185185
                   2.618519
##
   [10] 0.5128205
                   2.589744
   [11] 0.5128205
                   2.589744
##
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {type=bird}
                                            {feathers=TRUE} 0.1980198
   [2]
        {toothed=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [3]
##
        {hair=FALSE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
##
   [4]
        {airborne=TRUE, tail=TRUE}
                                            {feathers=TRUE} 0.1584158
##
   [5]
        {airborne=TRUE,backbone=TRUE}
                                            {feathers=TRUE} 0.1584158
##
   [6]
                                            {feathers=TRUE} 0.1980198
        {toothed=FALSE,tail=TRUE}
##
   [7]
        {airborne=TRUE, toothed=FALSE}
                                            {feathers=TRUE} 0.1584158
##
   [8]
                                            {feathers=TRUE} 0.1584158
        {eggs=TRUE,airborne=TRUE}
        {milk=FALSE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
   [10] {airborne=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1584158
   [11] {toothed=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
##
  [12] {hair=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
  [13] {toothed=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
  [14] {toothed=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1980198
##
   [15]
       {hair=FALSE,legs=TRUE}
   [16] {hair=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
   [17] {hair=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
       {predator=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1089109
   [18]
   [19]
##
       {aquatic=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1386139
       {eggs=TRUE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
  [21] {milk=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
        {eggs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [23]
       {eggs=TRUE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
       {milk=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
   [25] {hair=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
       {eggs=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [26]
##
   [27]
       {milk=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
  [28] {milk=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1386139
  [29] {eggs=TRUE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1980198
   [30]
       {hair=FALSE,tail=TRUE}
##
   [31] {eggs=TRUE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [32] {milk=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [33] {milk=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   Γ341
       {hair=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [35]
                                            {feathers=TRUE} 0.1980198
##
       {hair=FALSE,backbone=TRUE}
  [36] {eggs=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [37]
        {milk=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [38]
        {eggs=TRUE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
       {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [40] {hair=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [41]
        {milk=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
  [42]
       {tail=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
  [43] {eggs=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
## [44] {hair=FALSE,eggs=TRUE}
                                            {feathers=TRUE} 0.1980198
## [45] {hair=FALSE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
```

```
## [46] {legs=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
       {backbone=TRUE,catsize=FALSE}
  [47]
                                            {feathers=TRUE} 0.1386139
                                            {feathers=TRUE} 0.1980198
  [48] {hair=FALSE}
  [49] {eggs=TRUE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
   [50] {legs=TRUE,catsize=FALSE}
##
                                            {feathers=TRUE} 0.1386139
   [51] {breathes=TRUE, catsize=FALSE}
##
                                            {feathers=TRUE} 0.1386139
       {fins=FALSE,tail=TRUE}
   [52]
                                            {feathers=TRUE} 0.1980198
   [53]
        {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   Γ541
        {breathes=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [55]
        {backbone=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [56] {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
   [57] {backbone=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [58] {fins=FALSE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
       {backbone=TRUE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
       {aquatic=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1386139
   [60]
   [61]
        {predator=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [62]
        {venomous=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
        {venomous=FALSE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
       {breathes=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [64]
   Γ651
       {backbone=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [66]
       {venomous=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
       {predator=FALSE, breathes=TRUE}
                                            {feathers=TRUE} 0.1089109
        {predator=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [68]
        {breathes=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [69]
   [70] {aquatic=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1386139
   [71] {breathes=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [72] {fins=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [73] {venomous=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [74] {legs=TRUE,domestic=FALSE}
                                            {feathers=TRUE} 0.1683168
   [75] {predator=FALSE, venomous=FALSE} =>
                                            {feathers=TRUE} 0.1089109
        {backbone=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [77]
        {aquatic=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1386139
       {aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
##
   [79]
       {venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
   [80]
        {domestic=FALSE}
                                         => {feathers=TRUE} 0.1683168
##
        confidence lift
##
  [1]
        1.0000000
                   5.0500000
##
   [2]
        0.9090909
                   4.5909091
   [3]
        0.888889
                   4.4888889
##
   [4]
##
        0.888889
                   4.4888889
   [5]
        0.888889
                   4.4888889
   [6]
##
        0.8695652
                   4.3913043
##
   [7]
        0.7272727
                   3.6727273
   [8]
##
        0.7272727
                   3.6727273
   [9]
        0.7272727
                   3.6727273
   [10] 0.7272727
                   3.6727273
##
   [11] 0.6060606
                   3.0606061
   [12] 0.5714286
                   2.8857143
   [13] 0.5555556
                   2.8055556
   [14]
        0.555556
                   2.8055556
##
  [15] 0.5555556
                   2.8055556
## [16] 0.5405405
                   2.7297297
## [17] 0.5384615
                   2.7192308
                   2.6452381
## [18] 0.5238095
```

```
## [19] 0.5185185
                   2.6185185
   [20] 0.5128205
                   2.5897436
   [21] 0.5128205
                   2.5897436
   [22] 0.5128205
                   2.5897436
   [23] 0.5128205
                   2.5897436
##
  [24] 0.5128205
                   2.5897436
  [25] 0.5000000
                   2.5250000
   [26] 0.5000000
                   2.5250000
   [27] 0.5000000
                   2.5250000
   [28] 0.5000000
                   2.5250000
   [29] 0.4827586
                   2.4379310
   [30] 0.4761905
                   2.4047619
                   2.4047619
##
   [31] 0.4761905
                   2.4047619
   [32] 0.4761905
  [33] 0.4666667
                    2.3566667
   [34] 0.4651163
                    2.3488372
   [35] 0.4545455
                   2.2954545
##
   [36] 0.4347826
                   2.1956522
   [37] 0.4255319
                   2.1489362
   [38] 0.4230769
                   2.1365385
##
  [39] 0.4230769
                   2.1365385
## [40] 0.3846154
                    1.9423077
## [41] 0.3846154
                    1.9423077
   [42] 0.3783784
##
                   1.9108108
   [43] 0.3773585
                    1.9056604
   [44] 0.3703704
                    1.8703704
   [45] 0.3571429
                    1.8035714
##
   [46] 0.3508772
                   1.7719298
  [47] 0.3500000
                   1.7675000
  [48] 0.3448276
                   1.7413793
   [49] 0.3448276
                    1.7413793
##
   [50] 0.3414634
                    1.7243902
   [51] 0.3414634
                    1.7243902
   [52] 0.3389831
                    1.7118644
   [53] 0.3333333
                    1.6833333
##
   [54] 0.3278689
                    1.6557377
   [55] 0.3125000
                    1.5781250
   [56] 0.3055556
##
                    1.5430556
   [57] 0.3030303
##
                    1.5303030
##
   [58] 0.2916667
                    1.4729167
   [59] 0.2898551
                    1.4637681
   [60] 0.2857143
                    1.4428571
##
   [61] 0.2820513
                    1.4243590
##
   [62] 0.2816901
                    1.4225352
   [63] 0.2800000
                    1.4140000
   [64] 0.2739726
                    1.3835616
##
   [65] 0.2702703
                    1.3648649
   [66] 0.2702703
                    1.3648649
   [67] 0.2682927
                    1.3548780
   [68] 0.2682927
                    1.3548780
##
   [69] 0.2666667
                    1.3466667
## [70] 0.2641509
                    1.3339623
## [71] 0.2631579
                   1.3289474
## [72] 0.2597403 1.3116883
```

```
[73] 0.2597403
                   1.3116883
   [74] 0.2575758
                   1.3007576
   [75] 0.2558140
                   1.2918605
   [76] 0.2531646
                   1.2784810
##
   [77] 0.2295082
                   1.1590164
   [78] 0.2153846
                   1.0876923
##
   [79] 0.2150538
                   1.0860215
##
   [80] 0.1931818
                   0.9755682
##
        lhs
                                                         confidence lift
                             rhs
                                               support
##
  [1]
        {type=fish}
                          => {feathers=FALSE} 0.1287129 1.0000000
                                                                    1.2469136
   [2]
        {fins=TRUE}
                          => {feathers=FALSE} 0.1683168 1.0000000
                                                                    1.2469136
   [3]
##
        {backbone=FALSE}
                             {feathers=FALSE} 0.1782178 1.0000000
                                                                    1.2469136
##
   [4]
        {breathes=FALSE}
                             {feathers=FALSE} 0.2079208 1.0000000
                                                                    1.2469136
        {legs=FALSE}
##
   [5]
                          => {feathers=FALSE} 0.2277228 1.0000000
                                                                    1.2469136
  [6]
                          => {feathers=FALSE} 0.2574257 1.0000000
##
        {tail=FALSE}
                                                                    1.2469136
##
   [7]
        {eggs=FALSE}
                             {feathers=FALSE} 0.4158416 1.0000000
                                                                    1.2469136
   [8]
##
        {hair=TRUE}
                          => {feathers=FALSE} 0.4257426 1.0000000
                                                                    1.2469136
   [9]
        {airborne=FALSE}
                         => {feathers=FALSE} 0.7227723 0.9480519
##
                                                                    1.1821388
                          => {feathers=FALSE} 0.3762376 0.8636364
  [10] {catsize=TRUE}
                                                                    1.0768799
   [11] {predator=TRUE}
                             {feathers=FALSE} 0.4653465 0.8392857
                                                                     1.0465168
##
  [12] {aquatic=TRUE}
                          => {feathers=FALSE} 0.2970297 0.8333333
                                                                    1.0390947
                          => {feathers=FALSE} 0.5049505 0.7846154
  [13] {aquatic=FALSE}
                                                                    0.9783476
  [14] {predator=FALSE}
                         =>
                             {feathers=FALSE} 0.3366337 0.7555556
                                                                    0.9421125
                             {feathers=FALSE} 0.4257426 0.7543860
   [15] {catsize=FALSE}
                                                                    0.9406541
  [16] {breathes=TRUE}
                             {feathers=FALSE} 0.5940594 0.7500000
                                                                    0.9351852
   [17] {legs=TRUE}
                          => {feathers=FALSE} 0.5742574 0.7435897
                                                                    0.9271921
                          => {feathers=FALSE} 0.3960396 0.6666667
   [18] {milk=FALSE}
                                                                    0.8312757
##
   [19] {eggs=TRUE}
                          => {feathers=FALSE} 0.3861386 0.6610169
                                                                    0.8242310
                          => {feathers=FALSE} 0.3762376 0.6551724
##
   [20] {hair=FALSE}
                                                                    0.8169434
##
   [21] {toothed=FALSE}
                          => {feathers=FALSE} 0.1980198 0.5000000
                                                                    0.6234568
##
       lhs
                                          rhs
                                                           support
                                                                      confidence
##
   [1] {hair=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5384615
   [2] {aquatic=FALSE, toothed=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5185185
   [3] {eggs=TRUE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4827586
   [4] {milk=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
##
   [5] {aquatic=FALSE,tail=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2857143
  [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
  [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
##
       lift
  [1] 2.719231
##
   [2] 2.618519
   [3] 2.437931
   [4] 2.356667
##
   [5] 1.442857
##
  [6] 1.333962
  [7] 1.159016
##
##
        lhs
                                             rhs
                                                             support
##
  [1]
        {predator=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [2]
        {hair=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [3]
        {eggs=TRUE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [4]
##
        {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
  [5]
        {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
##
  [6]
        {predator=FALSE,backbone=TRUE}
                                         =>
                                            {feathers=TRUE} 0.1089109
  [7]
        {predator=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1089109
```

```
{predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
        {predator=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1089109
##
   [9]
   [10] {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
        confidence lift
##
   [1]
        0.5238095 2.645238
##
   [2]
        0.5000000 2.525000
   [3]
        0.4230769
                   2.136538
## [4]
        0.4230769
                   2.136538
##
   [5]
        0.3333333
                   1.683333
##
   [6]
        0.3055556
                   1.543056
   [7]
        0.2820513
                   1.424359
##
   [8]
        0.2682927
                   1.354878
##
   [9]
        0.2682927
                   1.354878
   [10] 0.2558140
##
                   1.291860
##
       lhs
                                          rhs
                                                           support
                                                                      confidence
##
   [1] {tail=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3783784
   [2] {backbone=TRUE, catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3500000
   [3] {legs=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
  [4] {breathes=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
   [5] {fins=FALSE, catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.2916667
   [6] {venomous=FALSE,catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
##
       lift.
## [1] 1.910811
   [2] 1.767500
## [3] 1.724390
  [4] 1.724390
   [5] 1.472917
##
##
   [6] 1.414000
##
        lhs
                                            rhs
                                                            support
## [1]
        {toothed=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
##
  [2]
        {hair=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
##
   [3]
        {eggs=TRUE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
##
  [4]
        {milk=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
  [5]
##
        {breathes=TRUE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139
   [6]
        {breathes=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
        {backbone=TRUE,breathes=TRUE}
##
   [7]
                                        => {feathers=TRUE} 0.1980198
  [8]
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [9]
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
##
   [10] {breathes=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198
##
   [11] {breathes=TRUE,fins=FALSE}
                                        => {feathers=TRUE} 0.1980198
##
        confidence lift
##
        0.6060606 3.060606
   [1]
##
   [2]
        0.5405405
                   2.729730
##
   [3]
        0.5128205
                   2.589744
##
  [4]
        0.5128205
                   2.589744
  [5]
##
        0.3414634
                   1.724390
##
   [6]
        0.3278689
                   1.655738
##
   [7]
        0.2898551
                   1.463768
##
   [8]
        0.2739726
                   1.383562
##
   [9]
        0.2682927
                   1.354878
   [10]
       0.2666667
                   1.346667
##
  [11] 0.2631579
                   1.328947
##
        lhs
                                       rhs
                                                        support
                                                                   confidence
## [1] {toothed=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.5555556
```

```
## [2]
        {hair=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5555556
##
   [3]
                                    => {feathers=TRUE} 0.1980198 0.5000000
        {eggs=TRUE,legs=TRUE}
        {milk=FALSE,legs=TRUE}
   [4]
                                    => {feathers=TRUE} 0.1980198 0.5000000
   [5]
        {legs=TRUE,tail=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.3508772
##
##
   [6]
        {legs=TRUE,catsize=FALSE}
                                    => {feathers=TRUE} 0.1386139 0.3414634
##
   [7]
        {backbone=TRUE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.3125000
        {predator=FALSE,legs=TRUE}
   [8]
                                    => {feathers=TRUE} 0.1089109 0.2820513
##
   [9]
        {breathes=TRUE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.2739726
   [10] {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
   [11] {fins=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.2597403
   [12]
       {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
##
        lift
##
   [1]
        2.805556
##
   [2]
        2.805556
   [3]
        2.525000
##
##
   [4]
        2.525000
   [5]
##
        1.771930
   [6]
        1.724390
   [7]
##
        1.578125
##
   [8]
        1.424359
##
   [9]
        1.383562
  [10] 1.364865
  [11] 1.311688
##
   [12] 1.300758
##
        lhs
                                        rhs
                                                         support
                                                                    confidence
  Г17
        {milk=FALSE,airborne=TRUE}
                                     => {feathers=TRUE} 0.1584158 0.7272727
   [2]
        {milk=FALSE,toothed=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
##
   [3]
        {milk=FALSE,breathes=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
##
   [4]
                                     => {feathers=TRUE} 0.1980198 0.5000000
        {milk=FALSE,tail=TRUE}
   [5]
        {milk=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [6]
        {milk=FALSE,backbone=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.4761905
##
   [7]
        {milk=FALSE,aquatic=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.4666667
   [8]
        {milk=FALSE,fins=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.4255319
                                     => {feathers=TRUE} 0.1089109 0.4230769
   [9]
        {milk=FALSE,predator=FALSE}
       {milk=FALSE,venomous=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3846154
                                     => {feathers=TRUE} 0.1980198 0.3571429
##
   [11]
       {hair=FALSE,milk=FALSE}
##
   [12] {eggs=TRUE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3448276
##
        lift
   [1]
        3.672727
##
   [2]
##
        2.589744
   [3]
        2.589744
   [4]
        2.525000
##
##
   [5]
        2.525000
##
   [6]
        2.404762
##
   [7]
        2.356667
  [8]
        2.148936
##
##
   [9]
        2.136538
   [10] 1.942308
   [11] 1.803571
##
   [12]
       1.741379
##
        lhs
                                       rhs
                                                        support
                                                                   confidence
## [1]
        {eggs=TRUE,airborne=TRUE}
                                       {feathers=TRUE} 0.1584158 0.7272727
## [2]
        {eggs=TRUE,toothed=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
## [3]
        {eggs=TRUE,tail=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
```

```
{eggs=TRUE,breathes=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
        {eggs=TRUE,legs=TRUE}
   [6]
        {eggs=TRUE,aquatic=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.4827586
   [7]
        {eggs=TRUE,backbone=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.4761905
##
##
   [8]
        {eggs=TRUE,fins=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.4347826
##
   [9]
        {eggs=TRUE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
   [10] {eggs=TRUE, venomous=FALSE} =>
                                       {feathers=TRUE} 0.1980198 0.3773585
   [11] {hair=FALSE,eggs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3703704
##
   [12] {eggs=TRUE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3448276
##
        lift
##
   [1]
        3.672727
   [2]
        2.589744
##
##
   [3]
        2.589744
##
   [4]
        2.589744
   [5]
        2.525000
##
##
   [6]
        2.437931
##
   [7]
        2.404762
   [8]
        2.195652
##
   [9]
        2.136538
   [10]
       1.905660
##
   [11] 1.870370
##
   [12] 1.741379
##
        lhs
                                         rhs
                                                          support
                                                                    confidence
##
   [1]
        {hair=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.8888889
   [2]
        {hair=FALSE, toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5714286
   [3]
        {hair=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5555556
   [4]
                                      => {feathers=TRUE} 0.1980198 0.5405405
##
        {hair=FALSE,breathes=TRUE}
##
   [5]
        {hair=FALSE,aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.5384615
   [6]
                                     => {feathers=TRUE} 0.1089109 0.5000000
##
        {hair=FALSE,predator=FALSE}
##
   [7]
        {hair=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
##
   [8]
        {hair=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4651163
##
   [9]
        {hair=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4545455
   [10] {hair=FALSE, venomous=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3846154
                                      => {feathers=TRUE} 0.1980198 0.3703704
   [11] {hair=FALSE,eggs=TRUE}
        {hair=FALSE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3571429
##
   [12]
##
        lift
##
  [1]
        4.488889
##
   [2]
        2.885714
   [3]
        2.805556
##
   [4]
##
        2.729730
   [5]
        2.719231
   [6]
##
        2.525000
##
   [7]
        2.404762
##
   [8]
        2.348837
   [9]
        2.295455
   [10] 1.942308
##
   [11] 1.870370
##
   [12] 1.803571
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [2]
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [3]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
##
  ۲4٦
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [5]
        {hair=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
```

```
{toothed=FALSE,legs=TRUE}
                                        => {feathers=TRUE} 0.1980198
##
  [7]
        {toothed=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198
        {predator=FALSE, toothed=FALSE} => {feathers=TRUE} 0.1089109
  [8]
        {aquatic=FALSE, toothed=FALSE}
                                        => {feathers=TRUE} 0.1386139
##
   [9]
##
   [10] {eggs=TRUE,toothed=FALSE}
                                        => {feathers=TRUE} 0.1980198
                                        => {feathers=TRUE} 0.1980198
##
   [11] {milk=FALSE,toothed=FALSE}
##
        confidence lift
## [1]
        0.9090909
                   4.590909
##
   [2]
        0.8695652
                   4.391304
##
   [3]
        0.7272727
                   3.672727
   [4]
        0.6060606
                   3.060606
##
   [5]
        0.5714286
                   2.885714
##
   [6]
                   2.805556
        0.555556
##
   [7]
        0.555556
                   2.805556
  [8]
##
        0.5238095
                   2.645238
##
   [9]
        0.5185185
                   2.618519
##
   [10] 0.5128205
                   2.589744
   [11] 0.5128205
                   2.589744
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                             support
##
  [1]
        {type=bird}
                                            {feathers=TRUE} 0.1980198
  [2]
        {toothed=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
  [3]
##
        {hair=FALSE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
##
   [4]
        {airborne=TRUE, tail=TRUE}
                                            {feathers=TRUE} 0.1584158
##
  [5]
        {airborne=TRUE, backbone=TRUE}
                                            {feathers=TRUE} 0.1584158
   [6]
        {toothed=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [7]
##
        {airborne=TRUE, toothed=FALSE}
                                            {feathers=TRUE} 0.1584158
##
   [8]
        {eggs=TRUE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
##
  [9]
        {milk=FALSE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
  [10] {airborne=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1584158
  [11]
       {toothed=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
       {hair=FALSE,toothed=FALSE}
  [12]
                                            {feathers=TRUE} 0.1980198
  [13] {toothed=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
  [14] {toothed=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [15] {hair=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
  [16] {hair=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
  [17] {hair=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
## [18] {predator=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1089109
  [19] {aquatic=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1386139
  [20] {eggs=TRUE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
  [21] {milk=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
  [22] {eggs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
  [23] {eggs=TRUE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1980198
  [24] {milk=FALSE,breathes=TRUE}
  [25] {hair=FALSE,predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
  [26] {eggs=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
  [27] {milk=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
  [28] {milk=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
  [29] {eggs=TRUE,aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
   [30] {hair=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
  [31] {eggs=TRUE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
## [32] {milk=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [33] {milk=FALSE,aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
## [34] {hair=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
```

```
[35] {hair=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1980198
   [36]
       {eggs=TRUE,fins=FALSE}
   [37] {milk=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
  [38] {eggs=TRUE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [39] {milk=FALSE,predator=FALSE}
##
                                            {feathers=TRUE} 0.1089109
  [40] {hair=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
  [41] {milk=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
  [42] {tail=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   Γ431
       {eggs=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [44]
       {hair=FALSE,eggs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [45] {hair=FALSE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
   [46] {legs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [47]
       {backbone=TRUE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
  [48] {hair=FALSE}
                                            {feathers=TRUE} 0.1980198
##
                                            {feathers=TRUE} 0.1980198
  [49] {eggs=TRUE,milk=FALSE}
        {legs=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   [51]
        {breathes=TRUE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [52]
       {fins=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [53] {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
   [54] {breathes=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [55] {backbone=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
       {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
        {backbone=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [57]
        {fins=FALSE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   ſ581
   [59]
##
       {backbone=TRUE, breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
   [60] {aquatic=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1386139
   [61] {predator=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [62] {venomous=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [63]
       {venomous=FALSE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
   [64] {breathes=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [65]
        {backbone=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [66]
        {venomous=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
       {predator=FALSE, breathes=TRUE}
                                            {feathers=TRUE} 0.1089109
   [68] {predator=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1089109
   [69] {breathes=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [70] {aquatic=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1386139
  [71] {breathes=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
  [72] {fins=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
       {venomous=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [73]
   [74] {legs=TRUE,domestic=FALSE}
##
                                            {feathers=TRUE} 0.1683168
   [75] {predator=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1089109
   [76] {backbone=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [77] {aquatic=FALSE, venomous=FALSE}
                                           {feathers=TRUE} 0.1386139
       {aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
##
   [78]
   [79] {venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [80] {domestic=FALSE}
                                         => {feathers=TRUE} 0.1683168
##
##
        confidence lift
##
  [1]
        1.0000000
                   5.0500000
##
   [2]
        0.9090909
                   4.5909091
##
   [3]
        0.888889
                   4.4888889
   [4]
##
        0.888889
                   4.4888889
##
  [5]
        0.888889
                   4.4888889
##
  [6]
        0.8695652
                   4.3913043
## [7]
        0.7272727
                   3.6727273
```

```
## [8]
       0.7272727
                   3.6727273
##
  [9]
        0.7272727
                   3.6727273
  [10] 0.7272727
                   3.6727273
  [11] 0.6060606
                   3.0606061
  [12] 0.5714286
                   2.8857143
## [13] 0.555556
                   2.8055556
## [14] 0.555556
                   2.8055556
## [15] 0.555556
                   2.8055556
   [16] 0.5405405
                   2.7297297
  [17] 0.5384615
                   2.7192308
  [18] 0.5238095
                   2.6452381
  [19] 0.5185185
                   2.6185185
  [20] 0.5128205
                   2.5897436
  [21] 0.5128205
                   2.5897436
## [22] 0.5128205
                   2.5897436
  [23] 0.5128205
                   2.5897436
##
   [24] 0.5128205
                   2.5897436
   [25] 0.5000000
                   2.5250000
  [26] 0.5000000
                   2.5250000
   [27] 0.5000000
                   2.5250000
## [28] 0.5000000
                   2.5250000
  [29] 0.4827586
                   2.4379310
##
  [30] 0.4761905
                   2.4047619
   [31] 0.4761905
##
                   2.4047619
  [32] 0.4761905
                   2.4047619
  [33] 0.4666667
                   2.3566667
  [34] 0.4651163
                   2.3488372
##
  [35] 0.4545455
                   2.2954545
  [36] 0.4347826
                   2.1956522
  [37] 0.4255319
                   2.1489362
  [38] 0.4230769
                   2.1365385
##
   [39] 0.4230769
                   2.1365385
  [40] 0.3846154
                   1.9423077
  [41] 0.3846154
                   1.9423077
   [42] 0.3783784
                   1.9108108
## [43] 0.3773585
                   1.9056604
  [44] 0.3703704
                   1.8703704
  [45] 0.3571429
                   1.8035714
  [46] 0.3508772
                   1.7719298
##
  [47] 0.3500000
                   1.7675000
  [48] 0.3448276
                   1.7413793
  [49] 0.3448276
                   1.7413793
   [50] 0.3414634
                   1.7243902
##
  [51] 0.3414634
                   1.7243902
  [52] 0.3389831
                   1.7118644
  [53] 0.3333333
                   1.6833333
                   1.6557377
##
   [54] 0.3278689
  [55] 0.3125000
                   1.5781250
  [56] 0.3055556
                   1.5430556
   [57] 0.3030303
                   1.5303030
## [58] 0.2916667
                   1.4729167
## [59] 0.2898551
                   1.4637681
## [60] 0.2857143
                   1.4428571
## [61] 0.2820513 1.4243590
```

```
[62] 0.2816901
                   1.4225352
   [63] 0.2800000
                   1.4140000
   [64] 0.2739726
                   1.3835616
  [65] 0.2702703
                   1.3648649
##
   [66] 0.2702703
                   1.3648649
##
   [67] 0.2682927
                   1.3548780
   [68] 0.2682927
                   1.3548780
   [69] 0.2666667
                   1.3466667
   [70] 0.2641509
                   1.3339623
   [71] 0.2631579
                   1.3289474
  [72] 0.2597403
                   1.3116883
   [73] 0.2597403
                   1.3116883
   [74] 0.2575758
                   1.3007576
  [75] 0.2558140
                   1.2918605
  [76] 0.2531646
                   1.2784810
   [77] 0.2295082
                   1.1590164
                   1.0876923
   [78] 0.2153846
   [79] 0.2150538
                   1.0860215
   [80] 0.1931818
##
                   0.9755682
##
        lhs
                                              support
                                                         confidence lift
##
  [1]
        {type=fish}
                          => {feathers=FALSE} 0.1287129 1.0000000
                                                                    1.2469136
  [2]
                          => {feathers=FALSE} 0.1683168 1.0000000
##
        {fins=TRUE}
  [3]
##
        {backbone=FALSE} => {feathers=FALSE} 0.1782178 1.0000000
                                                                    1.2469136
   [4]
        fbreathes=FALSE > {feathers=FALSE} 0.2079208 1.0000000
##
                                                                    1.2469136
##
  [5]
        {legs=FALSE}
                          => {feathers=FALSE} 0.2277228 1.0000000
                                                                    1.2469136
  [6]
        {tail=FALSE}
                          => {feathers=FALSE} 0.2574257 1.0000000
                                                                    1.2469136
   [7]
                          => {feathers=FALSE} 0.4158416 1.0000000
##
        {eggs=FALSE}
                                                                    1.2469136
##
   [8]
        {hair=TRUE}
                          => {feathers=FALSE} 0.4257426 1.0000000
                                                                    1.2469136
##
  [9]
        {airborne=FALSE} => {feathers=FALSE} 0.7227723 0.9480519
                                                                    1.1821388
  [10]
       {catsize=TRUE}
                          => {feathers=FALSE} 0.3762376 0.8636364
                                                                    1.0768799
  [11]
        {predator=TRUE}
                         => {feathers=FALSE} 0.4653465 0.8392857
                                                                    1.0465168
##
  [12]
       {aquatic=TRUE}
                          => {feathers=FALSE} 0.2970297 0.8333333
                                                                    1.0390947
  [13] {aquatic=FALSE}
                          => {feathers=FALSE} 0.5049505 0.7846154
                                                                    0.9783476
  [14] {predator=FALSE} => {feathers=FALSE} 0.3366337 0.7555556
                                                                    0.9421125
   [15] {catsize=FALSE}
                         => {feathers=FALSE} 0.4257426 0.7543860
                                                                    0.9406541
                         => {feathers=FALSE} 0.5940594 0.7500000
                                                                    0.9351852
##
  [16] {breathes=TRUE}
  [17] {legs=TRUE}
                          => {feathers=FALSE} 0.5742574 0.7435897
                                                                    0.9271921
                          => {feathers=FALSE} 0.3960396 0.6666667
##
  [18] {milk=FALSE}
                                                                    0.8312757
                          => {feathers=FALSE} 0.3861386 0.6610169
##
   [19] {eggs=TRUE}
                                                                    0.8242310
   [20] {hair=FALSE}
                          => {feathers=FALSE} 0.3762376 0.6551724
                                                                    0.8169434
                         => {feathers=FALSE} 0.1980198 0.5000000
   [21] {toothed=FALSE}
                                                                    0.6234568
##
       lhs
                                          rhs
                                                           support
                                                                     confidence
## [1] {hair=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5384615
   [2] {aquatic=FALSE,toothed=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5185185
  [3] {eggs=TRUE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4827586
  [4] {milk=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
   [5] {aquatic=FALSE,tail=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2857143
   [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
##
   [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
       lift
## [1] 2.719231
## [2] 2.618519
## [3] 2.437931
## [4] 2.356667
```

```
[5] 1.442857
   [6] 1.333962
##
   [7] 1.159016
##
        lhs
                                             rhs
                                                              support
##
   [1]
        {predator=FALSE, toothed=FALSE}
                                             {feathers=TRUE} 0.1089109
        {hair=FALSE, predator=FALSE}
##
   [2]
                                             {feathers=TRUE} 0.1089109
##
   [3]
        {eggs=TRUE,predator=FALSE}
                                             {feathers=TRUE} 0.1089109
##
   [4]
        {milk=FALSE,predator=FALSE}
                                             {feathers=TRUE} 0.1089109
##
   [5]
        {predator=FALSE,tail=TRUE}
                                             {feathers=TRUE} 0.1089109
##
   [6]
        {predator=FALSE,backbone=TRUE}
                                             {feathers=TRUE} 0.1089109
   [7]
        {predator=FALSE,legs=TRUE}
                                             {feathers=TRUE} 0.1089109
                                             {feathers=TRUE} 0.1089109
##
   [8]
        {predator=FALSE, breathes=TRUE}
##
   [9]
        {predator=FALSE,fins=FALSE}
                                          => {feathers=TRUE} 0.1089109
##
   [10]
       {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
        confidence lift
##
   [1]
        0.5238095
                   2.645238
   [2]
##
        0.5000000
                   2.525000
   [3]
        0.4230769
                    2.136538
##
   [4]
##
        0.4230769
                   2.136538
##
   [5]
        0.3333333
                    1.683333
##
   [6]
        0.3055556
                    1.543056
##
   [7]
        0.2820513
                    1.424359
##
   [8]
        0.2682927
                    1.354878
##
   [9]
        0.2682927
                    1.354878
##
   [10] 0.2558140
                    1.291860
##
       lhs
                                                            support
                                                                       confidence
   [1] {tail=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139 0.3783784
##
   [2] {backbone=TRUE, catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.3500000
   [3] {legs=TRUE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.3414634
   [4] {breathes=TRUE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.3414634
##
   [5] {fins=FALSE, catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.2916667
##
   [6] {venomous=FALSE,catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
       lift
##
   [1] 1.910811
   [2] 1.767500
##
   [3] 1.724390
##
   [4] 1.724390
   [5] 1.472917
##
   [6] 1.414000
##
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {toothed=FALSE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [2]
        {hair=FALSE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
##
   [3]
        {eggs=TRUE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [4]
        {milk=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [5]
        {breathes=TRUE, catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
   [6]
                                         => {feathers=TRUE} 0.1980198
##
        {breathes=TRUE,tail=TRUE}
##
   [7]
        {backbone=TRUE, breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [8]
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [9]
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
##
   [10]
        {breathes=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1980198
##
   [11]
        {breathes=TRUE,fins=FALSE}
##
        confidence lift
## [1]
        0.6060606 3.060606
## [2]
        0.5405405 2.729730
```

```
[3]
        0.5128205
                    2.589744
##
   [4]
        0.5128205
                    2.589744
   [5]
        0.3414634
                    1.724390
   [6]
##
        0.3278689
                    1.655738
##
   [7]
        0.2898551
                    1.463768
##
   [8]
        0.2739726
                    1.383562
   [9]
        0.2682927
                    1.354878
##
   [10] 0.2666667
                    1.346667
##
   [11] 0.2631579
                    1.328947
##
        lhs
                                                         support
                                                                   confidence
##
   [1]
        {toothed=FALSE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5555556
   [2]
##
        {hair=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5555556
##
   [3]
        {eggs=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [4]
        {milk=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
   [5]
        {legs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3508772
##
##
   [6]
        {legs=TRUE,catsize=FALSE}
                                       {feathers=TRUE} 0.1386139 0.3414634
##
   [7]
        {backbone=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3125000
        {predator=FALSE,legs=TRUE} => {feathers=TRUE} 0.1089109 0.2820513
   [9]
        {breathes=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2739726
   [10] {venomous=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.2702703
##
   [11] {fins=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2597403
   [12] {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
##
##
        lift
        2.805556
##
   Г17
##
   [2]
        2.805556
   [3]
        2.525000
   [4]
##
        2.525000
##
   [5]
        1.771930
   [6]
##
        1.724390
##
   [7]
        1.578125
##
   [8]
        1.424359
##
   [9]
        1.383562
   [10] 1.364865
   [11] 1.311688
##
   [12]
        1.300758
##
##
        lhs
                                         rhs
                                                          support
                                                                    confidence
##
   [1]
        {milk=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.7272727
##
   [2]
        {milk=FALSE,toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
   [3]
        {milk=FALSE,breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
##
   [4]
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
        {milk=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
   [5]
        {milk=FALSE,legs=TRUE}
   [6]
        {milk=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
##
##
   [7]
        {milk=FALSE, aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.4666667
   [8]
        {milk=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4255319
##
   [9]
        {milk=FALSE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
       {milk=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
##
   [11]
       {hair=FALSE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3571429
                                      => {feathers=TRUE} 0.1980198 0.3448276
##
   [12] {eggs=TRUE,milk=FALSE}
##
        lift
##
   [1]
        3.672727
   [2]
##
        2.589744
##
   [3]
        2.589744
## [4]
        2.525000
## [5]
        2.525000
```

```
[6]
        2.404762
##
   [7]
        2.356667
   [8]
        2.148936
   [9]
##
        2.136538
   [10] 1.942308
##
   [11] 1.803571
##
   Γ12 ] 1.741379
##
        lhs
                                        rhs
                                                         support
                                                                   confidence
##
  [1]
        {eggs=TRUE,airborne=TRUE}
                                       {feathers=TRUE} 0.1584158 0.7272727
##
   [2]
        {eggs=TRUE,toothed=FALSE}
                                       {feathers=TRUE} 0.1980198 0.5128205
   [3]
        {eggs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
   [4]
        {eggs=TRUE,breathes=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
##
##
   [5]
        {eggs=TRUE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5000000
        {eggs=TRUE,aquatic=FALSE}
##
   [6]
                                       {feathers=TRUE} 0.1386139 0.4827586
   [7]
        {eggs=TRUE,backbone=TRUE}
                                       {feathers=TRUE} 0.1980198 0.4761905
##
##
   [8]
        {eggs=TRUE,fins=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.4347826
                                       {feathers=TRUE} 0.1089109 0.4230769
##
   [9]
        {eggs=TRUE,predator=FALSE} =>
       {eggs=TRUE, venomous=FALSE} =>
                                       {feathers=TRUE} 0.1980198 0.3773585
                                     => {feathers=TRUE} 0.1980198 0.3703704
   [11] {hair=FALSE,eggs=TRUE}
   [12] {eggs=TRUE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3448276
##
        lift
##
  [1]
        3.672727
   [2]
        2.589744
##
   [3]
##
        2.589744
##
   [4]
        2.589744
   [5]
        2.525000
   [6]
##
        2.437931
##
   [7]
        2.404762
   [8]
##
        2.195652
##
   [9]
        2.136538
##
   [10] 1.905660
##
   [11] 1.870370
##
   [12] 1.741379
##
                                                                    confidence
        lhs
                                         rhs
                                                          support
##
   [1]
        {hair=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.8888889
                                      => {feathers=TRUE} 0.1980198 0.5714286
##
   [2]
        {hair=FALSE,toothed=FALSE}
   [3]
        {hair=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5555556
   [4]
        {hair=FALSE,breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5405405
##
   [5]
        {hair=FALSE,aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.5384615
##
   [6]
        {hair=FALSE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.5000000
##
        {hair=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
   [7]
   [8]
        {hair=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4651163
##
##
   [9]
        {hair=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4545455
                                     => {feathers=TRUE} 0.1980198 0.3846154
       {hair=FALSE, venomous=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3703704
  [11]
       {hair=FALSE,eggs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.3571429
   [12] {hair=FALSE,milk=FALSE}
##
##
        lift
##
   [1]
        4.488889
##
   [2]
        2.885714
##
   [3]
        2.805556
   [4]
##
        2.729730
##
  [5]
        2.719231
## [6]
        2.525000
## [7]
        2.404762
```

```
[8]
        2.348837
##
   [9]
        2.295455
   [10] 1.942308
   [11] 1.870370
##
   [12]
        1.803571
##
        lhs
                                            rhs
                                                             support
   [1]
        {toothed=FALSE,backbone=TRUE}
                                           {feathers=TRUE} 0.1980198
   [2]
##
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [3]
        {airborne=TRUE, toothed=FALSE}
                                            {feathers=TRUE} 0.1584158
   [4]
##
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [5]
        {hair=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [6]
##
        {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [7]
        {toothed=FALSE, venomous=FALSE}
                                        => {feathers=TRUE} 0.1980198
##
   [8]
        {predator=FALSE, toothed=FALSE}
                                        => {feathers=TRUE} 0.1089109
                                         => {feathers=TRUE} 0.1386139
##
   [9]
        {aquatic=FALSE, toothed=FALSE}
       {eggs=TRUE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
   [11]
        {milk=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
        confidence lift
##
   [1]
        0.9090909
                   4.590909
##
   [2]
        0.8695652
                   4.391304
##
   [3]
        0.7272727
                   3.672727
   [4]
##
        0.6060606
                   3.060606
##
   [5]
        0.5714286
                   2.885714
##
   [6]
        0.555556
                    2.805556
##
   [7]
        0.555556
                   2.805556
   [8]
        0.5238095
                    2.645238
   [9]
##
        0.5185185
                    2.618519
##
   [10] 0.5128205
                    2.589744
##
   [11] 0.5128205
                   2.589744
##
   [1] "Número de reglas con consecuente negado"
##
                                                              support
##
   [1]
        {type=bird}
                                             {feathers=TRUE} 0.1980198
##
   [2]
        {toothed=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [3]
##
        {hair=FALSE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
   [4]
        {airborne=TRUE,tail=TRUE}
                                             {feathers=TRUE} 0.1584158
##
##
   [5]
        {airborne=TRUE,backbone=TRUE}
                                             {feathers=TRUE} 0.1584158
   [6]
        {toothed=FALSE,tail=TRUE}
                                             {feathers=TRUE} 0.1980198
   [7]
        {airborne=TRUE, toothed=FALSE}
                                             {feathers=TRUE} 0.1584158
##
   [8]
        {eggs=TRUE,airborne=TRUE}
                                             {feathers=TRUE} 0.1584158
##
##
   [9]
        {milk=FALSE,airborne=TRUE}
                                             {feathers=TRUE} 0.1584158
   [10] {airborne=TRUE, venomous=FALSE}
                                             {feathers=TRUE} 0.1584158
   [11] {toothed=FALSE,breathes=TRUE}
                                             {feathers=TRUE} 0.1980198
   [12] {hair=FALSE,toothed=FALSE}
                                             {feathers=TRUE} 0.1980198
   [13] {toothed=FALSE,legs=TRUE}
                                             {feathers=TRUE} 0.1980198
   [14] {toothed=FALSE, venomous=FALSE}
                                             {feathers=TRUE} 0.1980198
   [15]
        {hair=FALSE,legs=TRUE}
                                             {feathers=TRUE} 0.1980198
##
   [16]
       {hair=FALSE,breathes=TRUE}
                                             {feathers=TRUE} 0.1980198
       {hair=FALSE,aquatic=FALSE}
                                             {feathers=TRUE} 0.1386139
                                            {feathers=TRUE} 0.1089109
   [18] {predator=FALSE,toothed=FALSE}
   [19] {aquatic=FALSE, toothed=FALSE}
                                             {feathers=TRUE} 0.1386139
   [20] {eggs=TRUE,toothed=FALSE}
                                             {feathers=TRUE} 0.1980198
##
  [21] {milk=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
## [22] {eggs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
## [23] {eggs=TRUE,breathes=TRUE}
                                             {feathers=TRUE} 0.1980198
```

```
[24] {milk=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [25] {hair=FALSE,predator=FALSE}
                                           {feathers=TRUE} 0.1089109
   [26] {eggs=TRUE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
   [27] {milk=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
##
  [28] {milk=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
  [29] {eggs=TRUE,aquatic=FALSE}
                                           {feathers=TRUE} 0.1386139
##
  [30] {hair=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
  [31] {eggs=TRUE,backbone=TRUE}
                                           {feathers=TRUE} 0.1980198
   [32]
       {milk=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [33] {milk=FALSE,aquatic=FALSE}
                                           {feathers=TRUE} 0.1386139
   [34] {hair=FALSE,fins=FALSE}
                                           {feathers=TRUE} 0.1980198
   [35] {hair=FALSE,backbone=TRUE}
                                           {feathers=TRUE} 0.1980198
##
   [36]
       {eggs=TRUE,fins=FALSE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
       {milk=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1089109
  [38] {eggs=TRUE,predator=FALSE}
        {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [39]
##
   [40] {hair=FALSE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
   [41] {milk=FALSE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
   [42] {tail=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
   [43] {eggs=TRUE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
##
  [44] {hair=FALSE,eggs=TRUE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
  [45] {hair=FALSE,milk=FALSE}
  [46] {legs=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1386139
   [47] {backbone=TRUE.catsize=FALSE}
  [48]
##
       {hair=FALSE}
                                           {feathers=TRUE} 0.1980198
   [49] {eggs=TRUE,milk=FALSE}
                                           {feathers=TRUE} 0.1980198
   [50] {legs=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
   [51] {breathes=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
   [52] {fins=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
  [53] {predator=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1089109
   [54]
        {breathes=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
##
   [55]
        {backbone=TRUE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
   [56] {predator=FALSE,backbone=TRUE}
                                           {feathers=TRUE} 0.1089109
   [57] {backbone=TRUE,fins=FALSE}
                                           {feathers=TRUE} 0.1980198
       {fins=FALSE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
##
   [59] {backbone=TRUE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
   [60] {aquatic=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1386139
       {predator=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1089109
##
  [61]
        {venomous=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [62]
##
   [63]
       {venomous=FALSE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
   [64]
       {breathes=TRUE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
       {backbone=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
   [65]
##
   [66] {venomous=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
                                        => {feathers=TRUE} 0.1089109
   [67] {predator=FALSE,breathes=TRUE}
  [68] {predator=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1089109
        {breathes=TRUE, venomous=FALSE}
   [69]
                                         => {feathers=TRUE} 0.1980198
   [70]
##
       {aquatic=FALSE,backbone=TRUE}
                                           {feathers=TRUE} 0.1386139
  [71] {breathes=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1980198
  [72] {fins=FALSE,legs=TRUE}
   [73] {venomous=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
  [74] {legs=TRUE,domestic=FALSE}
                                           {feathers=TRUE} 0.1683168
## [75] {predator=FALSE, venomous=FALSE}
                                        => {feathers=TRUE} 0.1089109
## [76] {backbone=TRUE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [77] {aquatic=FALSE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1386139
```

```
## [78] {aquatic=FALSE}
   [79] {venomous=FALSE}
   [80] {domestic=FALSE}
##
        confidence lift
##
   [1]
        1.0000000 5.0500000
   [2]
        0.9090909
                   4.5909091
##
  [3]
        0.8888889
                   4.4888889
## [4]
        0.8888889
                   4.4888889
##
  [5]
        0.888889
                   4.4888889
   [6]
##
        0.8695652
                   4.3913043
  [7]
        0.7272727
                   3.6727273
   [8]
        0.7272727
##
                   3.6727273
##
   [9]
        0.7272727
                   3.6727273
  [10] 0.7272727
                   3.6727273
## [11] 0.6060606
                   3.0606061
## [12] 0.5714286
                   2.8857143
  [13] 0.5555556
                   2.8055556
   [14] 0.555556
                   2.8055556
  [15] 0.5555556
                   2.8055556
## [16] 0.5405405
                   2.7297297
## [17] 0.5384615
                   2.7192308
## [18] 0.5238095
                   2.6452381
## [19] 0.5185185
                   2.6185185
  [20] 0.5128205
                   2.5897436
  [21] 0.5128205
                   2.5897436
  [22] 0.5128205
                   2.5897436
## [23] 0.5128205
                   2.5897436
## [24] 0.5128205
                   2.5897436
## [25] 0.5000000
                   2.5250000
## [26] 0.5000000
                   2.5250000
## [27] 0.5000000
                   2.5250000
  [28] 0.5000000
                   2.5250000
  [29] 0.4827586
                   2.4379310
                   2.4047619
  [30] 0.4761905
   [31] 0.4761905
                   2.4047619
##
  [32] 0.4761905
                   2.4047619
  [33] 0.4666667
                   2.3566667
## [34] 0.4651163
                   2.3488372
   [35] 0.4545455
                   2.2954545
   [36] 0.4347826
                   2.1956522
   [37] 0.4255319
                   2.1489362
  [38] 0.4230769
                   2.1365385
  [39] 0.4230769
                   2.1365385
## [40] 0.3846154
                   1.9423077
## [41] 0.3846154
                   1.9423077
## [42] 0.3783784
                   1.9108108
## [43] 0.3773585
                   1.9056604
## [44] 0.3703704
                   1.8703704
## [45] 0.3571429
                   1.8035714
## [46] 0.3508772
                   1.7719298
## [47] 0.3500000
                   1.7675000
## [48] 0.3448276
                   1.7413793
## [49] 0.3448276
                   1.7413793
```

## [50] 0.3414634 1.7243902

=> {feathers=TRUE} 0.1386139 => {feathers=TRUE} 0.1980198 => {feathers=TRUE} 0.1683168

```
[51] 0.3414634
                    1.7243902
   [52] 0.3389831
                    1.7118644
   [53] 0.3333333
                    1.6833333
   [54] 0.3278689
                    1.6557377
##
   [55] 0.3125000
                    1.5781250
##
   [56] 0.3055556
                    1.5430556
   [57] 0.3030303
                    1.5303030
   [58] 0.2916667
                    1.4729167
##
   [59] 0.2898551
                    1.4637681
   [60] 0.2857143
                    1.4428571
   [61] 0.2820513
                    1.4243590
   [62] 0.2816901
                    1.4225352
##
   [63] 0.2800000
                    1.4140000
   [64] 0.2739726
                    1.3835616
   [65] 0.2702703
                    1.3648649
   [66] 0.2702703
                    1.3648649
##
   [67] 0.2682927
                    1.3548780
   [68] 0.2682927
                    1.3548780
                    1.3466667
   [69] 0.2666667
   [70] 0.2641509
                    1.3339623
##
   [71] 0.2631579
                    1.3289474
   [72] 0.2597403
                    1.3116883
   [73] 0.2597403
                    1.3116883
##
##
   [74] 0.2575758
                    1.3007576
   [75] 0.2558140
                    1.2918605
   [76] 0.2531646
                    1.2784810
   [77] 0.2295082
                    1.1590164
   [78] 0.2153846
                    1.0876923
##
   [79] 0.2150538
                    1.0860215
##
   [80] 0.1931818
                   0.9755682
##
        lhs
                                               support
                                                         confidence lift
##
   [1]
        {type=fish}
                          => {feathers=FALSE} 0.1287129 1.0000000
                                                                     1.2469136
##
   [2]
        {fins=TRUE}
                          => {feathers=FALSE} 0.1683168 1.0000000
                                                                     1.2469136
   [3]
##
        {backbone=FALSE} => {feathers=FALSE} 0.1782178 1.0000000
                                                                     1.2469136
##
   [4]
                             {feathers=FALSE} 0.2079208 1.0000000
        {breathes=FALSE}
                                                                     1.2469136
##
   [5]
                          => {feathers=FALSE} 0.2277228 1.0000000
        {legs=FALSE}
                                                                     1.2469136
##
   [6]
        {tail=FALSE}
                          => {feathers=FALSE} 0.2574257 1.0000000
                                                                     1.2469136
##
   [7]
                          => {feathers=FALSE} 0.4158416 1.0000000
        {eggs=FALSE}
                                                                     1.2469136
   [8]
        {hair=TRUE}
                             {feathers=FALSE} 0.4257426 1.0000000
##
                                                                     1.2469136
##
   [9]
        {airborne=FALSE} =>
                             {feathers=FALSE} 0.7227723 0.9480519
                                                                     1.1821388
   [10]
       {catsize=TRUE}
                          => {feathers=FALSE} 0.3762376 0.8636364
                                                                     1.0768799
   [11] {predator=TRUE}
                          => {feathers=FALSE} 0.4653465 0.8392857
                                                                     1.0465168
##
   [12] {aquatic=TRUE}
                          => {feathers=FALSE} 0.2970297 0.8333333
                                                                     1.0390947
                          => {feathers=FALSE} 0.5049505 0.7846154
##
   [13] {aquatic=FALSE}
                                                                     0.9783476
  [14] {predator=FALSE}
                          => {feathers=FALSE} 0.3366337 0.7555556
                                                                     0.9421125
   [15]
        {catsize=FALSE}
                             {feathers=FALSE} 0.4257426 0.7543860
                                                                     0.9406541
                                                                     0.9351852
##
   [16]
       {breathes=TRUE}
                             {feathers=FALSE} 0.5940594 0.7500000
   [17] {legs=TRUE}
                          => {feathers=FALSE} 0.5742574 0.7435897
                                                                     0.9271921
   [18] {milk=FALSE}
                          => {feathers=FALSE} 0.3960396 0.6666667
                                                                     0.8312757
   [19] {eggs=TRUE}
                          => {feathers=FALSE} 0.3861386 0.6610169
                                                                     0.8242310
##
   [20] {hair=FALSE}
                          => {feathers=FALSE} 0.3762376 0.6551724
                                                                     0.8169434
##
   [21] {toothed=FALSE}
                          => {feathers=FALSE} 0.1980198 0.5000000
                                                                     0.6234568
##
       lhs
                                           rhs
                                                            support
                                                                      confidence
## [1] {hair=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5384615
```

```
## [2] {aquatic=FALSE, toothed=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5185185
                                       => {feathers=TRUE} 0.1386139 0.4827586
## [3] {eggs=TRUE,aquatic=FALSE}
## [4] {milk=FALSE, aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
## [5] {aquatic=FALSE,tail=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2857143
  [6] {aquatic=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1386139 0.2641509
   [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
       lift.
## [1] 2.719231
## [2] 2.618519
## [3] 2.437931
## [4] 2.356667
## [5] 1.442857
  [6] 1.333962
  [7] 1.159016
##
##
        lhs
                                            rhs
                                                             support
## [1]
        {predator=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1089109
##
  [2]
        {hair=FALSE, predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
  [3]
        {eggs=TRUE,predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
  [4]
        {milk=FALSE,predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
##
  [5]
        {predator=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1089109
##
  [6]
        {predator=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1089109
        {predator=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1089109
  [7]
## [8]
                                         => {feathers=TRUE} 0.1089109
        {predator=FALSE, breathes=TRUE}
        {predator=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1089109
  [9]
##
  [10] {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
        confidence lift
##
  [1]
        0.5238095 2.645238
##
  [2]
        0.5000000
                   2.525000
## [3]
        0.4230769
                   2.136538
## [4]
        0.4230769
                   2.136538
## [5]
        0.3333333
                   1.683333
##
  [6]
        0.3055556
                   1.543056
  [7]
        0.2820513
                   1.424359
  [8]
##
        0.2682927
                   1.354878
  [9]
        0.2682927
                   1.354878
  [10] 0.2558140
##
                   1.291860
##
       lhs
                                                           support
                                                                     confidence
## [1] {tail=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3783784
## [2] {backbone=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3500000
## [3] {legs=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
## [4] {breathes=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
  [5] {fins=FALSE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.2916667
   [6] {venomous=FALSE,catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
       lift
## [1] 1.910811
## [2] 1.767500
## [3] 1.724390
## [4] 1.724390
## [5] 1.472917
## [6] 1.414000
##
        lhs
                                           rhs
                                                            support
## [1]
        {toothed=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
                                        => {feathers=TRUE} 0.1980198
## [2]
        {hair=FALSE,breathes=TRUE}
## [3]
        {eggs=TRUE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
```

```
[4]
        {milk=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [5]
                                         => {feathers=TRUE} 0.1386139
        {breathes=TRUE, catsize=FALSE}
   [6]
        {breathes=TRUE, tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [7]
        {backbone=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
##
   [8]
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [9]
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
##
       {breathes=TRUE.venomous=FALSE} => {feathers=TRUE} 0.1980198
##
   [11] {breathes=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
        confidence lift
                   3.060606
##
   [1]
        0.6060606
   [2]
        0.5405405
                   2.729730
   [3]
##
        0.5128205
                   2.589744
##
   [4]
        0.5128205
                   2.589744
##
   [5]
        0.3414634
                    1.724390
   [6]
        0.3278689
##
                    1.655738
##
   [7]
        0.2898551
                    1.463768
   [8]
##
        0.2739726
                    1.383562
   [9]
        0.2682927
                    1.354878
   [10] 0.2666667
                    1.346667
   [11] 0.2631579
                    1.328947
##
        lhs
                                                                   confidence
                                        rhs
                                                         support
  [1]
##
        {toothed=FALSE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5555556
   [2]
                                     => {feathers=TRUE} 0.1980198 0.5555556
##
        {hair=FALSE,legs=TRUE}
        {eggs=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [3]
##
   [4]
        {milk=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
   [5]
        {legs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3508772
   [6]
        {legs=TRUE,catsize=FALSE}
                                    => {feathers=TRUE} 0.1386139 0.3414634
##
        {backbone=TRUE,legs=TRUE}
##
   [7]
                                     => {feathers=TRUE} 0.1980198 0.3125000
   [8]
        {predator=FALSE,legs=TRUE} => {feathers=TRUE} 0.1089109 0.2820513
   [9]
        {breathes=TRUE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.2739726
   [10] {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
   [11]
       {fins=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.2597403
##
   [12] {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
##
        lift
##
   [1]
        2.805556
   [2]
##
        2.805556
##
   [3]
        2.525000
##
  [4]
        2.525000
   [5]
##
        1.771930
##
   [6]
        1.724390
   [7]
        1.578125
   [8]
##
        1.424359
##
   [9]
        1.383562
##
   [10] 1.364865
## [11] 1.311688
## [12] 1.300758
##
        lhs
                                         rhs
                                                          support
                                                                    confidence
##
  [1]
        {milk=FALSE,airborne=TRUE}
                                     => {feathers=TRUE} 0.1584158 0.7272727
   [2]
        {milk=FALSE,toothed=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
##
   [3]
        {milk=FALSE,breathes=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
   [4]
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
        {milk=FALSE,tail=TRUE}
##
  [5]
        {milk=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
## [6]
        {milk=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
## [7]
        {milk=FALSE, aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.4666667
```

```
{milk=FALSE,fins=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.4255319
        {milk=FALSE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
   [9]
   [10] {milk=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
   [11] {hair=FALSE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3571429
##
   [12]
       {eggs=TRUE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3448276
        lift
##
  [1]
        3.672727
  [2]
##
        2.589744
##
   [3]
        2.589744
   [4]
##
        2.525000
   [5]
        2.525000
   [6]
##
        2.404762
##
   [7]
        2.356667
##
   [8]
        2.148936
  [9]
##
        2.136538
   [10] 1.942308
   [11] 1.803571
##
   [12] 1.741379
##
        lhs
                                                        support
                                                                   confidence
##
   [1]
        {eggs=TRUE,airborne=TRUE}
                                       {feathers=TRUE} 0.1584158 0.7272727
##
   [2]
        {eggs=TRUE,toothed=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
   [3]
        {eggs=TRUE,tail=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
## [4]
                                    => {feathers=TRUE} 0.1980198 0.5128205
        {eggs=TRUE,breathes=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
        {eggs=TRUE,legs=TRUE}
##
   [6]
        {eggs=TRUE,aquatic=FALSE}
                                       {feathers=TRUE} 0.1386139 0.4827586
   [7]
        {eggs=TRUE,backbone=TRUE}
                                       {feathers=TRUE} 0.1980198 0.4761905
   [8]
        {eggs=TRUE,fins=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.4347826
##
##
   [9]
        {eggs=TRUE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
   [10] {eggs=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3773585
  [11] {hair=FALSE,eggs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.3703704
##
   [12] {eggs=TRUE,milk=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.3448276
##
        lift
##
   [1]
        3.672727
   [2]
##
        2.589744
   [3]
        2.589744
##
##
   [4]
        2.589744
##
   [5]
        2.525000
##
  [6]
        2.437931
   [7]
        2.404762
   [8]
##
        2.195652
   [9]
        2.136538
   [10] 1.905660
##
   [11] 1.870370
##
   [12] 1.741379
##
        lhs
                                        rhs
                                                         support
                                                                    confidence
## [1]
                                     => {feathers=TRUE} 0.1584158 0.8888889
        {hair=FALSE,airborne=TRUE}
##
   [2]
        {hair=FALSE,toothed=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.5714286
  [3]
##
        {hair=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5555556
        {hair=FALSE,breathes=TRUE}
   [4]
                                     => {feathers=TRUE} 0.1980198 0.5405405
##
   [5]
        {hair=FALSE,aquatic=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.5384615
   [6]
                                     => {feathers=TRUE} 0.1089109 0.5000000
##
        {hair=FALSE,predator=FALSE}
##
  [7]
        {hair=FALSE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.4761905
## [8]
        {hair=FALSE,fins=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.4651163
## [9]
        {hair=FALSE,backbone=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.4545455
```

```
## [10] {hair=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
                                     => {feathers=TRUE} 0.1980198 0.3703704
   [11] {hair=FALSE,eggs=TRUE}
   [12] {hair=FALSE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3571429
##
        lift
##
   [1]
        4.488889
   [2]
##
        2.885714
   [3]
        2.805556
## [4]
        2.729730
##
   [5]
        2.719231
##
   [6]
        2.525000
   [7]
        2.404762
   [8]
##
        2.348837
##
   [9]
        2.295455
  [10] 1.942308
##
## [11] 1.870370
##
   [12] 1.803571
##
        lhs
                                            rhs
                                                            support
##
   [1]
        {toothed=FALSE,backbone=TRUE}
                                        => {feathers=TRUE} 0.1980198
   [2]
        {toothed=FALSE,tail=TRUE}
##
                                         => {feathers=TRUE} 0.1980198
   [3]
        {airborne=TRUE, toothed=FALSE}
                                        => {feathers=TRUE} 0.1584158
##
   [4]
        {toothed=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
   [5]
        {hair=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
  [6]
                                        => {feathers=TRUE} 0.1980198
##
        {toothed=FALSE,legs=TRUE}
        {toothed=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198
   [7]
##
  [8]
        {predator=FALSE,toothed=FALSE} => {feathers=TRUE} 0.1089109
        {aquatic=FALSE, toothed=FALSE}
                                        => {feathers=TRUE} 0.1386139
   [10] {eggs=TRUE,toothed=FALSE}
                                        => {feathers=TRUE} 0.1980198
##
       {milk=FALSE,toothed=FALSE}
                                        => {feathers=TRUE} 0.1980198
##
        confidence lift
## [1]
        0.9090909 4.590909
##
   [2]
        0.8695652
                   4.391304
##
   [3]
        0.7272727
                   3.672727
##
   [4]
        0.6060606
                   3.060606
##
   [5]
        0.5714286
                   2.885714
   [6]
        0.555556
                    2.805556
##
   [7]
        0.555556
                   2.805556
   [8]
        0.5238095
                   2.645238
  [9]
        0.5185185
                   2.618519
##
   [10] 0.5128205
                   2.589744
   [11] 0.5128205 2.589744
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
## [1]
        {type=bird}
                                            {feathers=TRUE} 0.1980198
##
   [2]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [3]
        {hair=FALSE,airborne=TRUE}
                                          => {feathers=TRUE} 0.1584158
## [4]
        {airborne=TRUE,tail=TRUE}
                                          => {feathers=TRUE} 0.1584158
##
   [5]
        {airborne=TRUE, backbone=TRUE}
                                            {feathers=TRUE} 0.1584158
##
   [6]
        {toothed=FALSE,tail=TRUE}
                                          => {feathers=TRUE} 0.1980198
  [7]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
##
   [8]
        {eggs=TRUE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
                                         => {feathers=TRUE} 0.1584158
##
  [9]
        {milk=FALSE,airborne=TRUE}
## [10] {airborne=TRUE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1584158
## [11] {toothed=FALSE,breathes=TRUE}
                                          => {feathers=TRUE} 0.1980198
## [12] {hair=FALSE,toothed=FALSE}
                                          => {feathers=TRUE} 0.1980198
```

```
## [13] {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1980198
  [14] {toothed=FALSE, venomous=FALSE}
  [15] {hair=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
  [16] {hair=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
##
  [17] {hair=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
##
  [18] {predator=FALSE, toothed=FALSE}
                                           {feathers=TRUE} 0.1089109
  [19] {aquatic=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1386139
  [20] {eggs=TRUE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
   [21]
       {milk=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
   [22] {eggs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [23] {eggs=TRUE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
   [24] {milk=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
   [25]
       {hair=FALSE, predator=FALSE}
                                           {feathers=TRUE} 0.1089109
   [26] {eggs=TRUE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
  [27] {milk=FALSE,tail=TRUE}
   [28]
        {milk=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [29]
       {eggs=TRUE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   [30] {hair=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
   [31] {eggs=TRUE,backbone=TRUE}
   [32] {milk=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
##
  [33] {milk=FALSE,aquatic=FALSE}
                                           {feathers=TRUE} 0.1386139
  [34] {hair=FALSE,fins=FALSE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
##
  [35] {hair=FALSE,backbone=TRUE}
       {eggs=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [36]
   [37]
       {milk=FALSE,fins=FALSE}
                                           {feathers=TRUE} 0.1980198
   [38] {eggs=TRUE,predator=FALSE}
                                           {feathers=TRUE} 0.1089109
   [39] {milk=FALSE,predator=FALSE}
                                           {feathers=TRUE} 0.1089109
   [40] {hair=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
  [41] {milk=FALSE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
  [42] {tail=TRUE,catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
  [43]
        {eggs=TRUE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
##
   [44]
        {hair=FALSE,eggs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [45]
       {hair=FALSE,milk=FALSE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
   [46] {legs=TRUE,tail=TRUE}
   [47]
        {backbone=TRUE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
       {hair=FALSE}
##
  Γ48]
                                            {feathers=TRUE} 0.1980198
  [49] {eggs=TRUE,milk=FALSE}
                                           {feathers=TRUE} 0.1980198
  [50] {legs=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
##
        {breathes=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [51]
##
   [52]
       {fins=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
   [53] {predator=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1089109
   [54] {breathes=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
##
   [55] {backbone=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1089109
   [56] {predator=FALSE,backbone=TRUE}
  [57] {backbone=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
       {fins=FALSE,catsize=FALSE}
##
  [58]
                                         => {feathers=TRUE} 0.1386139
##
   [59]
        {backbone=TRUE, breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
   [60]
       {aquatic=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1386139
   [61] {predator=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1089109
   [62]
        {venomous=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1386139
##
   [63]
        {venomous=FALSE,catsize=FALSE}
  [64] {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [65] {backbone=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [66] {venomous=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
```

```
## [67] {predator=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1089109
                                            {feathers=TRUE} 0.1089109
   [68] {predator=FALSE,fins=FALSE}
   [69] {breathes=TRUE, venomous=FALSE}
                                             {feathers=TRUE} 0.1980198
   [70] {aquatic=FALSE,backbone=TRUE}
                                             {feathers=TRUE} 0.1386139
   [71] {breathes=TRUE,fins=FALSE}
                                             {feathers=TRUE} 0.1980198
   [72] {fins=FALSE,legs=TRUE}
##
                                             {feathers=TRUE} 0.1980198
   [73] {venomous=FALSE,fins=FALSE}
                                             {feathers=TRUE} 0.1980198
   [74] {legs=TRUE,domestic=FALSE}
                                             {feathers=TRUE} 0.1683168
   [75] {predator=FALSE, venomous=FALSE} =>
                                             {feathers=TRUE} 0.1089109
   [76] {backbone=TRUE, venomous=FALSE}
                                             {feathers=TRUE} 0.1980198
   [77] {aquatic=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1386139
       {aquatic=FALSE}
   [78]
                                            {feathers=TRUE} 0.1386139
##
   [79]
       {venomous=FALSE}
                                          => {feathers=TRUE} 0.1980198
##
   [80]
       {domestic=FALSE}
                                         => {feathers=TRUE} 0.1683168
##
        confidence lift
##
   [1]
        1.0000000
                   5.0500000
##
   [2]
        0.9090909
                    4.5909091
   [3]
        0.888889
                    4.4888889
   [4]
##
        0.888889
                    4.4888889
##
   [5]
        0.888889
                    4.4888889
##
   [6]
        0.8695652
                    4.3913043
   [7]
        0.7272727
                    3.6727273
   [8]
##
        0.7272727
                    3.6727273
   [9]
        0.7272727
                    3.6727273
   [10] 0.7272727
                    3.6727273
   [11] 0.6060606
                    3.0606061
   [12] 0.5714286
                    2.8857143
   [13] 0.5555556
                    2.8055556
   [14] 0.5555556
                    2.8055556
   [15] 0.5555556
                    2.8055556
   [16] 0.5405405
                    2.7297297
   [17] 0.5384615
                    2.7192308
   [18] 0.5238095
                    2.6452381
   [19] 0.5185185
                    2.6185185
   [20] 0.5128205
                    2.5897436
##
   [21] 0.5128205
                    2.5897436
   [22] 0.5128205
                    2.5897436
  [23] 0.5128205
                    2.5897436
   [24] 0.5128205
                    2.5897436
   [25] 0.5000000
                   2.5250000
   [26] 0.5000000
                    2.5250000
   [27] 0.5000000
                   2.5250000
   [28] 0.5000000
                    2.5250000
   [29] 0.4827586
                    2.4379310
  [30] 0.4761905
                    2.4047619
   [31] 0.4761905
                    2.4047619
                    2.4047619
   [32] 0.4761905
   [33] 0.4666667
                    2.3566667
   [34]
       0.4651163
                    2.3488372
   [35]
        0.4545455
                    2.2954545
##
   [36]
       0.4347826
                    2.1956522
  [37] 0.4255319
                    2.1489362
## [38] 0.4230769
                   2.1365385
## [39] 0.4230769
                   2.1365385
```

```
## [40] 0.3846154
                   1.9423077
   [41] 0.3846154
                    1.9423077
   [42] 0.3783784
                    1.9108108
   [43] 0.3773585
                    1.9056604
   [44] 0.3703704
                    1.8703704
   [45] 0.3571429
                    1.8035714
   [46] 0.3508772
                    1.7719298
   [47] 0.3500000
                    1.7675000
   [48] 0.3448276
                    1.7413793
   [49] 0.3448276
                    1.7413793
   [50] 0.3414634
                    1.7243902
   [51] 0.3414634
                    1.7243902
   [52] 0.3389831
                    1.7118644
   [53] 0.3333333
                    1.6833333
   [54] 0.3278689
                    1.6557377
   [55] 0.3125000
                    1.5781250
   [56] 0.3055556
                    1.5430556
   [57] 0.3030303
                    1.5303030
   [58] 0.2916667
                    1.4729167
   [59] 0.2898551
                    1.4637681
##
   [60] 0.2857143
                    1.4428571
   [61] 0.2820513
                    1.4243590
   [62] 0.2816901
                    1.4225352
   [63] 0.2800000
                    1.4140000
   [64] 0.2739726
                    1.3835616
   [65] 0.2702703
                    1.3648649
   [66] 0.2702703
                    1.3648649
##
   [67] 0.2682927
                    1.3548780
   [68] 0.2682927
                    1.3548780
   [69] 0.2666667
                    1.3466667
   [70] 0.2641509
                    1.3339623
   [71] 0.2631579
                    1.3289474
   [72] 0.2597403
                    1.3116883
   [73] 0.2597403
                    1.3116883
   [74] 0.2575758
                    1.3007576
##
   [75] 0.2558140
                    1.2918605
   [76] 0.2531646
                    1.2784810
   [77] 0.2295082
                    1.1590164
   [78] 0.2153846
                    1.0876923
   [79] 0.2150538
                    1.0860215
   [80] 0.1931818
                   0.9755682
##
        lhs
                                               support
                                                         confidence lift
##
   [1]
        {type=fish}
                          => {feathers=FALSE} 0.1287129 1.0000000 1.2469136
##
   [2]
        {fins=TRUE}
                          => {feathers=FALSE} 0.1683168 1.0000000
                                                                     1.2469136
   [3]
        {backbone=FALSE} => {feathers=FALSE} 0.1782178 1.0000000
                                                                     1.2469136
  [4]
##
        {breathes=FALSE} => {feathers=FALSE} 0.2079208 1.0000000
                                                                     1.2469136
##
   [5]
        {legs=FALSE}
                          => {feathers=FALSE} 0.2277228 1.0000000
                                                                     1.2469136
   [6]
##
        {tail=FALSE}
                          => {feathers=FALSE} 0.2574257 1.0000000
                                                                     1.2469136
##
   [7]
        {eggs=FALSE}
                          => {feathers=FALSE} 0.4158416 1.0000000
                                                                     1.2469136
##
   [8]
        {hair=TRUE}
                          => {feathers=FALSE} 0.4257426 1.0000000
                                                                     1.2469136
##
   [9]
        {airborne=FALSE} => {feathers=FALSE} 0.7227723 0.9480519
                                                                     1.1821388
## [10] {catsize=TRUE}
                          => {feathers=FALSE} 0.3762376 0.8636364
                                                                     1.0768799
## [11] {predator=TRUE}
                          => {feathers=FALSE} 0.4653465 0.8392857
                                                                     1.0465168
## [12] {aquatic=TRUE}
                          => {feathers=FALSE} 0.2970297 0.8333333
```

```
## [13] {aquatic=FALSE} => {feathers=FALSE} 0.5049505 0.7846154
                                                                    0.9783476
  [14] {predator=FALSE} => {feathers=FALSE} 0.3366337 0.7555556
                                                                    0.9421125
  [15] {catsize=FALSE}
                         => {feathers=FALSE} 0.4257426 0.7543860
                                                                    0.9406541
  [16] {breathes=TRUE}
                         => {feathers=FALSE} 0.5940594 0.7500000
                                                                    0.9351852
##
  [17] {legs=TRUE}
                          => {feathers=FALSE} 0.5742574 0.7435897
                                                                    0.9271921
  [18] {milk=FALSE}
                          => {feathers=FALSE} 0.3960396 0.6666667
                                                                    0.8312757
##
  [19] {eggs=TRUE}
                          => {feathers=FALSE} 0.3861386 0.6610169
                                                                    0.8242310
  [20] {hair=FALSE}
                         => {feathers=FALSE} 0.3762376 0.6551724
                                                                    0.8169434
##
   [21] {toothed=FALSE}
                         => {feathers=FALSE} 0.1980198 0.5000000
                                                                    0.6234568
##
       lhs
                                          rhs
                                                           support
                                                                     confidence
  [1] {hair=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5384615
   [2] {aquatic=FALSE,toothed=FALSE}
##
                                       => {feathers=TRUE} 0.1386139 0.5185185
   [3] {eggs=TRUE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4827586
   [4] {milk=FALSE, aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
   [5] {aquatic=FALSE,tail=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2857143
   [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
##
   [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
       lift
  [1] 2.719231
##
   [2] 2.618519
##
   [3] 2.437931
  [4] 2.356667
  [5] 1.442857
##
##
   [6] 1.333962
##
  [7] 1.159016
##
        lhs
                                                             support
##
        {predator=FALSE, toothed=FALSE}
   [1]
                                            {feathers=TRUE} 0.1089109
##
   [2]
        {hair=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [3]
        {eggs=TRUE,predator=FALSE}
##
                                         => {feathers=TRUE} 0.1089109
##
  [4]
        {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [5]
        {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [6]
        {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [7]
        {predator=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [8]
        {predator=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1089109
   [9]
        {predator=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1089109
##
       {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
   Γ10]
##
        confidence lift
##
  [1]
        0.5238095
                   2.645238
   [2]
        0.5000000
                   2.525000
##
   [3]
##
        0.4230769
                   2.136538
   [4]
        0.4230769
                   2.136538
   [5]
        0.3333333
##
                   1.683333
##
   [6]
        0.3055556
                   1.543056
##
   [7]
        0.2820513
                   1.424359
##
  [8]
        0.2682927
                   1.354878
   [9]
##
        0.2682927
                   1.354878
##
   [10] 0.2558140
                   1.291860
##
       lhs
                                          rhs
                                                           support
                                                                     confidence
  [1] {tail=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3783784
   [2] {backbone=TRUE, catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3500000
##
   [3] {legs=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
## [4] {breathes=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
## [5] {fins=FALSE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.2916667
## [6] {venomous=FALSE,catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
```

```
##
       lift
  [1] 1.910811
##
   [2] 1.767500
   [3] 1.724390
##
   [4] 1.724390
##
   [5] 1.472917
##
   [6] 1.414000
##
        lhs
                                            rhs
                                                             support
##
   Γ17
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [2]
##
        {hair=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [3]
        {eggs=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [4]
##
        {milk=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [5]
        {breathes=TRUE,catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
                                         => {feathers=TRUE} 0.1980198
##
   [6]
        {breathes=TRUE,tail=TRUE}
   [7]
        {backbone=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
##
   [8]
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [9]
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
       {breathes=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1980198
##
   Γ117
       {breathes=TRUE,fins=FALSE}
##
        confidence lift
##
   [1]
        0.6060606 3.060606
   [2]
        0.5405405
                   2.729730
   [3]
##
        0.5128205
                   2.589744
##
   [4]
        0.5128205
                    2.589744
##
   [5]
        0.3414634
                    1.724390
   [6]
        0.3278689
                    1.655738
   [7]
##
        0.2898551
                    1.463768
##
   [8]
        0.2739726
                    1.383562
   [9]
##
        0.2682927
                    1.354878
   [10] 0.2666667
                    1.346667
##
   [11] 0.2631579
                   1.328947
##
        lhs
                                        rhs
                                                         support
                                                                    confidence
##
   [1]
        {toothed=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5555556
   [2]
                                     => {feathers=TRUE} 0.1980198 0.5555556
##
        {hair=FALSE,legs=TRUE}
   [3]
        {eggs=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [4]
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
        {milk=FALSE,legs=TRUE}
##
   [5]
        {legs=TRUE,tail=TRUE}
                                        {feathers=TRUE} 0.1980198 0.3508772
##
   [6]
        {legs=TRUE,catsize=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.3414634
   [7]
        {backbone=TRUE,legs=TRUE}
                                        {feathers=TRUE} 0.1980198 0.3125000
##
        {predator=FALSE,legs=TRUE} => {feathers=TRUE} 0.1089109 0.2820513
##
   [8]
        {breathes=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2739726
       {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
   [10]
##
   Γ117
       {fins=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2597403
##
       {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
   [12]
##
        lift
   [1]
        2.805556
##
##
   [2]
        2.805556
   [3]
##
        2.525000
##
   [4]
        2.525000
##
   [5]
        1.771930
   [6]
        1.724390
##
##
   [7]
        1.578125
##
  [8]
        1.424359
## [9]
        1.383562
```

```
## [10] 1.364865
   [11] 1.311688
   [12] 1.300758
##
                                         rhs
        lhs
                                                          support
                                                                    confidence
##
   [1]
        {milk=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.7272727
                                      => {feathers=TRUE} 0.1980198 0.5128205
##
   [2]
        {milk=FALSE, toothed=FALSE}
   [3]
        {milk=FALSE, breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
   [4]
        {milk=FALSE,tail=TRUE}
##
   [5]
        {milk=FALSE,legs=TRUE}
                                         {feathers=TRUE} 0.1980198 0.5000000
##
   [6]
        {milk=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
   [7]
        {milk=FALSE,aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.4666667
                                      => {feathers=TRUE} 0.1980198 0.4255319
##
   [8]
        {milk=FALSE,fins=FALSE}
##
   [9]
        {milk=FALSE,predator=FALSE}
                                     => {feathers=TRUE} 0.1089109 0.4230769
   [10] {milk=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
       {hair=FALSE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3571429
   [11]
##
   [12] {eggs=TRUE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3448276
##
        lift
##
   [1]
        3.672727
   [2]
##
        2.589744
##
   [3]
        2.589744
##
   [4]
        2.525000
   [5]
        2.525000
##
   [6]
        2.404762
##
##
   [7]
        2.356667
##
   [8]
        2.148936
   [9]
        2.136538
##
   [10] 1.942308
##
   [11] 1.803571
##
   [12] 1.741379
##
        lhs
                                        rhs
                                                         support
                                                                   confidence
##
   [1]
        {eggs=TRUE,airborne=TRUE}
                                    => {feathers=TRUE} 0.1584158 0.7272727
##
   [2]
        {eggs=TRUE,toothed=FALSE}
                                       {feathers=TRUE} 0.1980198 0.5128205
##
   [3]
        {eggs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
   [4]
##
        {eggs=TRUE,breathes=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
   [5]
        {eggs=TRUE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5000000
##
                                       {feathers=TRUE} 0.1386139 0.4827586
##
   [6]
        {eggs=TRUE,aquatic=FALSE}
   [7]
        {eggs=TRUE,backbone=TRUE}
                                        {feathers=TRUE} 0.1980198 0.4761905
   [8]
        {eggs=TRUE,fins=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.4347826
##
        {eggs=TRUE,predator=FALSE} =>
                                        {feathers=TRUE} 0.1089109 0.4230769
##
   [9]
   [10] {eggs=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3773585
                                     => {feathers=TRUE} 0.1980198 0.3703704
   [11] {hair=FALSE,eggs=TRUE}
   [12] {eggs=TRUE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3448276
##
##
        lift
##
   [1]
        3.672727
   [2]
##
        2.589744
   [3]
        2.589744
##
##
   [4]
        2.589744
##
   [5]
        2.525000
##
   [6]
        2.437931
##
   [7]
        2.404762
##
   [8]
        2.195652
## [9]
        2.136538
## [10] 1.905660
## [11] 1.870370
```

```
[12] 1.741379
        lhs
##
                                         rhs
                                                          support
                                                                    confidence
        {hair=FALSE,airborne=TRUE}
##
   [1]
                                      => {feathers=TRUE} 0.1584158 0.8888889
   [2]
        {hair=FALSE,toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5714286
        {hair=FALSE,legs=TRUE}
##
   [3]
                                      => {feathers=TRUE} 0.1980198 0.5555556
   [4]
##
        {hair=FALSE,breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5405405
##
   [5]
        {hair=FALSE,aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.5384615
##
   [6]
        {hair=FALSE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.5000000
##
   [7]
        {hair=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
##
   [8]
        {hair=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4651163
   [9]
        {hair=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4545455
        {hair=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
   [10]
        {hair=FALSE,eggs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.3703704
##
   [11]
        {hair=FALSE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3571429
##
   [12]
##
        lift
##
   [1]
        4.488889
   [2]
##
        2.885714
   [3]
        2.805556
   [4]
##
        2.729730
##
   [5]
        2.719231
##
   [6]
        2.525000
   [7]
        2.404762
   [8]
        2.348837
##
##
   [9]
        2.295455
##
   [10] 1.942308
   「11 1.870370
##
   [12]
       1.803571
##
        lhs
                                            rhs
                                                             support
##
  [1]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [2]
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [3]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
##
   [4]
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [5]
        {hair=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
   [6]
        {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [7]
        {toothed=FALSE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
##
   [8]
        {predator=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1089109
        {aquatic=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1386139
   [10] {eggs=TRUE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
   [11] {milk=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
##
        confidence lift
   [1]
        0.9090909
                   4.590909
   [2]
        0.8695652
                   4.391304
##
##
   [3]
        0.7272727
                    3.672727
##
   [4]
        0.6060606
                   3.060606
##
   [5]
        0.5714286
                    2.885714
   [6]
##
        0.555556
                    2.805556
##
   [7]
        0.555556
                    2.805556
##
   [8]
        0.5238095
                    2.645238
   [9]
        0.5185185
                    2.618519
   [10] 0.5128205
                    2.589744
   [11] 0.5128205
                   2.589744
##
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                             rhs
                                                               support
## [1] {type=fish}
                                          => {breathes=FALSE} 0.1287129
```

```
{eggs=TRUE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
                                            {breathes=FALSE} 0.1287129
##
   [3]
        {milk=FALSE,fins=TRUE}
                                             {breathes=FALSE} 0.1287129
##
   [4]
        {hair=FALSE,fins=TRUE}
   [5]
        {aquatic=TRUE,legs=FALSE}
                                             {breathes=FALSE} 0.1485149
##
##
   [6]
        {milk=FALSE,legs=FALSE}
                                             {breathes=FALSE} 0.1584158
##
   [7]
        {eggs=TRUE,legs=FALSE}
                                             {breathes=FALSE} 0.1485149
##
   [8]
        {legs=FALSE,catsize=FALSE}
                                             {breathes=FALSE} 0.1188119
        {hair=FALSE,legs=FALSE}
##
   [9]
                                             {breathes=FALSE} 0.1584158
##
   Γ107
       {predator=TRUE,legs=FALSE}
                                             {breathes=FALSE} 0.1188119
   [11] {milk=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [12] {feathers=FALSE, aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [13] {milk=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
       {aquatic=TRUE,catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
   [14]
       {eggs=TRUE, toothed=TRUE}
                                            {breathes=FALSE} 0.1287129
   [16] {airborne=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
        {eggs=TRUE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1881188
   [17]
        {hair=FALSE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1980198
   [18]
       {aquatic=TRUE, toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
   [20] {hair=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
   [21] {hair=FALSE, feathers=FALSE}
                                             {breathes=FALSE} 0.2079208
##
  [22]
       {milk=FALSE,airborne=FALSE}
                                             {breathes=FALSE} 0.2079208
       {eggs=TRUE,airborne=FALSE}
                                             {breathes=FALSE} 0.1980198
  [24] {hair=FALSE,airborne=FALSE}
                                             {breathes=FALSE} 0.2079208
       {feathers=FALSE,milk=FALSE}
                                             {breathes=FALSE} 0.2079208
   [25]
   [26] {feathers=FALSE,eggs=TRUE}
                                             {breathes=FALSE} 0.1980198
   [27] {milk=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [28] {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
   [29] {hair=FALSE,predator=TRUE}
                                             {breathes=FALSE} 0.1683168
       {airborne=FALSE, catsize=FALSE}
  [30]
                                            {breathes=FALSE} 0.1584158
       {predator=TRUE,catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
   [31]
   [32]
        {hair=FALSE,milk=FALSE}
                                             {breathes=FALSE} 0.2079208
##
   [33]
        {feathers=FALSE, catsize=FALSE}
                                             {breathes=FALSE} 0.1584158
       {hair=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
   [35]
       {hair=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
   [36]
        {hair=FALSE,catsize=FALSE}
                                             {breathes=FALSE} 0.1584158
##
   [37]
        {milk=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
       {feathers=FALSE, predator=TRUE}
                                             {breathes=FALSE} 0.1683168
       {eggs=TRUE,domestic=FALSE}
                                             {breathes=FALSE} 0.1881188
   [39]
       {airborne=FALSE,predator=TRUE}
                                             {breathes=FALSE} 0.1683168
   [40]
                                            {breathes=FALSE} 0.1485149
   [41] {domestic=FALSE, catsize=FALSE}
   [42] {airborne=FALSE,domestic=FALSE} =>
                                            {breathes=FALSE} 0.1980198
   [43] {feathers=FALSE,airborne=FALSE} =>
                                            {breathes=FALSE} 0.2079208
   [44]
       {feathers=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
##
   [45] {toothed=TRUE,domestic=FALSE}
                                         => {breathes=FALSE} 0.1287129
##
   [46] {tail=TRUE}
                                         => {breathes=FALSE} 0.1386139
##
        confidence lift
##
   [1]
        1.0000000
                   4.8095238
   [2]
##
        1.0000000
                   4.8095238
##
   [3]
        1.0000000
                   4.8095238
##
   [4]
        0.8666667
                   4.1682540
   [5]
##
                   4.0079365
        0.8333333
##
   [6]
        0.8000000
                   3.8476190
##
  [7]
        0.7894737
                   3.7969925
## [8]
        0.7500000
                   3.6071429
```

```
## [9]
        0.7272727
                    3.4978355
   [10] 0.7058824
                   3.3949580
   [11] 0.6666667
                    3.2063492
   [12] 0.6666667
                    3.2063492
   [13] 0.6666667
                    3.2063492
##
   [14] 0.6521739
                    3.1366460
   [15] 0.6500000
                    3.1261905
   [16] 0.6451613
                    3.1029186
   [17] 0.6333333
                    3.0460317
   [18] 0.6250000
                    3.0059524
   [19] 0.6086957
                    2.9275362
   [20] 0.6086957
                    2.9275362
                    2.6578947
   [21] 0.5526316
   [22] 0.5526316
                    2.6578947
   [23] 0.5405405
                    2.5997426
   [24] 0.5250000
                    2.5250000
   [25] 0.5250000
                    2.5250000
   [26] 0.5128205
                    2.4664225
   [27] 0.5000000
                    2.4047619
                    2.3318903
   [28] 0.4848485
##
   [29] 0.4722222
                    2.2711640
   [30] 0.444444
                    2.1375661
   [31] 0.4285714
                    2.0612245
##
   [32] 0.3750000
                    1.8035714
   [33] 0.3720930
                    1.7895903
   [34] 0.3703704
                    1.7813051
   [35] 0.3703704
                    1.7813051
##
   [36] 0.3636364
                    1.7489177
   [37] 0.3636364
                    1.7489177
   [38] 0.3617021
                    1.7396150
   [39] 0.3518519
                    1.6922399
##
   [40] 0.3469388
                    1.6686103
   [41] 0.3000000
                    1.4428571
   [42] 0.2941176
                    1.4145658
   [43]
        0.2876712
                    1.3835616
##
   [44] 0.2816901
                    1.3547954
   [45] 0.2500000
                    1.2023810
##
   [46] 0.1866667
                   0.8977778
##
        lhs
                                                         confidence lift
                             rhs
                                              support
##
                          => {breathes=TRUE} 0.1980198 1.0000000
   [1]
        {type=bird}
                                                                    1.2625000
                          => {breathes=TRUE} 0.1980198 1.0000000
   [2]
        {feathers=TRUE}
                                                                    1.2625000
##
   [3]
        {airborne=TRUE}
                             {breathes=TRUE} 0.2376238 1.0000000
                                                                    1.2625000
##
   [4]
        {milk=TRUE}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                    1.2625000
##
   [5]
                             {breathes=TRUE} 0.4059406 1.0000000
        {type=mammal}
                                                                    1.2625000
##
   [6]
        {hair=TRUE}
                             {breathes=TRUE} 0.4257426 1.0000000
                                                                    1.2625000
   [7]
                             {breathes=TRUE} 0.6336634 0.9846154
##
        {aquatic=FALSE}
                                                                    1.2430769
##
   [8]
        {eggs=FALSE}
                             {breathes=TRUE} 0.4059406 0.9761905
                                                                    1.2324405
##
   [9]
        {legs=TRUE}
                             {breathes=TRUE} 0.7227723 0.9358974
                                                                    1.1815705
   [10]
       {domestic=TRUE}
                             {breathes=TRUE} 0.1188119 0.9230769
                                                                    1.1653846
   [11]
        {predator=FALSE}
                             {breathes=TRUE} 0.4059406 0.9111111
                                                                    1.1502778
   [12]
                             {breathes=TRUE} 0.3861386 0.8863636
##
        {catsize=TRUE}
                                                                    1.1190341
  [13] {toothed=FALSE}
                             {breathes=TRUE} 0.3267327 0.8250000
                                                                    1.0415625
## [14] {tail=TRUE}
                          => {breathes=TRUE} 0.6039604 0.8133333
                                                                    1.0268333
## [15] {domestic=FALSE} => {breathes=TRUE} 0.6732673 0.7727273
```

```
## [16] {tail=FALSE}
                         => {breathes=TRUE} 0.1881188 0.7307692
                                                                 0.9225962
  [17] {airborne=FALSE} => {breathes=TRUE} 0.5544554 0.7272727
                                                                 0.9181818
  [18] {catsize=FALSE} => {breathes=TRUE} 0.4059406 0.7192982
  [19] {predator=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6964286
                                                                 0.8792411
  [20] {eggs=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6610169
                                                                 0.8345339
  [21] {milk=FALSE}
                         => {breathes=TRUE} 0.3861386 0.6500000
##
                                                                 0.8206250
  [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
                                                                 0.7715278
##
       lhs
                                          rhs
## [1] {hair=FALSE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1980198
   [2] {milk=FALSE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1980198
  [3] {eggs=TRUE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1881188
   [4] {domestic=FALSE, catsize=FALSE}
                                       => {breathes=FALSE} 0.1485149
   [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
  [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
  [7] {toothed=TRUE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1287129
##
       confidence lift
##
  [1] 0.3703704 1.781305
  [2] 0.3636364
                 1.748918
  [3] 0.3518519
                  1.692240
  [4] 0.3000000
                  1.442857
##
  [5] 0.2941176
                  1.414566
## [6] 0.2816901
                  1.354795
## [7] 0.2500000
                  1.202381
##
                                          rhs
                                                           support
## [1] {airborne=FALSE,aquatic=TRUE}
                                       => {breathes=FALSE} 0.1980198
  [2] {milk=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
  [3] {eggs=TRUE,airborne=FALSE}
                                       => {breathes=FALSE} 0.1980198
  [4] {hair=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
  [5] {airborne=FALSE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1584158
  [6] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
##
   [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
##
       confidence lift
## [1] 0.6451613 3.102919
   [2] 0.5526316
                  2.657895
  [3] 0.5405405
                  2.599743
  [4] 0.5250000
                  2.525000
  [5] 0.444444
##
                  2.137566
   [6] 0.3469388
                  1.668610
##
  [7] 0.2941176
                 1.414566
  [8] 0.2876712 1.383562
##
       lhs
                                                           support
## [1] {legs=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [2] {aquatic=TRUE, catsize=FALSE}
                                      => {breathes=FALSE} 0.1485149
## [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
## [4] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [5] {feathers=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
  [6] {hair=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1584158
##
   [7] {domestic=FALSE, catsize=FALSE} => {breathes=FALSE} 0.1485149
##
       confidence lift
                  3.607143
## [1] 0.7500000
## [2] 0.6521739
                  3.136646
## [3] 0.444444
                  2.137566
## [4] 0.4285714 2.061224
```

```
[5] 0.3720930
                  1.789590
   [6] 0.3636364
                  1.748918
   [7] 0.3000000 1.442857
##
       lhs
                                          rhs
                                                           support
##
  [1] {predator=TRUE,legs=FALSE}
                                       => {breathes=FALSE} 0.1188119
  [2] {milk=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
  [3] {eggs=TRUE,predator=TRUE}
                                       => {breathes=FALSE} 0.1584158
  [4] {hair=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
   [5] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
   [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
##
       confidence lift
##
  [1] 0.7058824
                  3.394958
  [2] 0.5000000
                  2.404762
## [3] 0.4848485
                  2.331890
## [4] 0.472222
                  2.271164
  [5] 0.4285714
                  2.061224
  [6] 0.3617021
                  1.739615
  [7] 0.3469388
##
                  1.668610
##
                                                       support
                                                                 confidence
## [1] {eggs=TRUE,fins=TRUE}
                                  => {breathes=FALSE} 0.1287129 1.0000000
                                  => {breathes=FALSE} 0.1485149 0.7894737
## [2] {eggs=TRUE,legs=FALSE}
                                  => {breathes=FALSE} 0.1287129 0.6500000
## [3] {eggs=TRUE,toothed=TRUE}
## [4] {eggs=TRUE,aquatic=TRUE}
                                  => {breathes=FALSE} 0.1881188 0.6333333
  [5] {eggs=TRUE,airborne=FALSE} => {breathes=FALSE} 0.1980198 0.5405405
  [6] {feathers=FALSE,eggs=TRUE} => {breathes=FALSE} 0.1980198 0.5128205
   [7] {eggs=TRUE,predator=TRUE}
                                  => {breathes=FALSE} 0.1584158 0.4848485
   [8] {hair=FALSE,eggs=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.3703704
   [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
##
       lift
## [1] 4.809524
   [2] 3.796992
  [3] 3.126190
  [4] 3.046032
   [5] 2.599743
##
  [6] 2.466422
  [7] 2.331890
## [8] 1.781305
  [9] 1.692240
##
##
       lhs
                                      rhs
                                                        support
                                                                  confidence
## [1] {milk=FALSE,fins=TRUE}
                                   => {breathes=FALSE} 0.1287129 1.0000000
  [2] {milk=FALSE,legs=FALSE}
                                   => {breathes=FALSE} 0.1584158 0.8000000
  [3] {milk=FALSE,aquatic=TRUE}
                                   => {breathes=FALSE} 0.1980198 0.6666667
  [4] {milk=FALSE,toothed=TRUE}
                                   => {breathes=FALSE} 0.1386139 0.6666667
## [5] {milk=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208 0.5526316
## [6] {feathers=FALSE,milk=FALSE} => {breathes=FALSE} 0.2079208 0.5250000
  [7] {milk=FALSE,predator=TRUE}
                                   => {breathes=FALSE} 0.1683168 0.5000000
   [8] {hair=FALSE,milk=FALSE}
                                   => {breathes=FALSE} 0.2079208 0.3750000
##
   [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
       lift
## [1] 4.809524
## [2] 3.847619
## [3] 3.206349
## [4] 3.206349
```

```
[5] 2.657895
   [6] 2.525000
   [7] 2.404762
   [8] 1.803571
##
##
   [9]
       1.748918
##
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                            support
##
  [1]
        {milk=TRUE, predator=TRUE}
                                         => {catsize=TRUE} 0.1980198
##
   [2]
        {predator=TRUE, type=mammal}
                                            {catsize=TRUE} 0.1980198
##
   [3]
        {hair=TRUE,predator=TRUE}
                                            {catsize=TRUE} 0.1782178
   [4]
        {eggs=FALSE,predator=TRUE}
                                            {catsize=TRUE} 0.1881188
   [5]
##
        {hair=TRUE,airborne=FALSE}
                                            {catsize=TRUE} 0.2970297
##
   [6]
        {milk=TRUE,domestic=FALSE}
                                            {catsize=TRUE} 0.2574257
        {domestic=FALSE, type=mammal}
##
   [7]
                                            {catsize=TRUE} 0.2574257
##
  [8]
                                            {catsize=TRUE} 0.3168317
        {milk=TRUE}
##
   [9]
        {type=mammal}
                                            {catsize=TRUE} 0.3168317
##
   [10]
                                            {catsize=TRUE} 0.3069307
       {eggs=FALSE, venomous=FALSE}
       {hair=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2970297
   [12] {hair=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2475248
   [13]
       {eggs=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3069307
##
  [14]
       {eggs=FALSE}
                                            {catsize=TRUE} 0.3069307
                                            {catsize=TRUE} 0.2970297
  [15] {hair=TRUE, venomous=FALSE}
  [16] {hair=TRUE,domestic=FALSE}
                                            {catsize=TRUE} 0.2376238
##
##
   [17] {hair=TRUE}
                                            {catsize=TRUE} 0.2970297
   [18] {aquatic=FALSE, toothed=TRUE}
                                            {catsize=TRUE} 0.2574257
   [19] {toothed=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.2772277
   [20] {toothed=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.3069307
   [21] {airborne=FALSE,breathes=TRUE}
                                            {catsize=TRUE} 0.3564356
  [22] {airborne=FALSE,aquatic=FALSE}
                                            {catsize=TRUE} 0.2871287
  [23] {airborne=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3366337
   [24] {predator=TRUE,toothed=TRUE}
                                            {catsize=TRUE} 0.2277228
   [25]
       {airborne=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3960396
   [26] {airborne=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3465347
   [27] {toothed=TRUE,fins=FALSE}
                                            {catsize=TRUE} 0.2673267
       {toothed=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.3366337
##
   [29] {aquatic=FALSE,predator=TRUE}
                                            {catsize=TRUE} 0.1584158
  [30] {predator=TRUE, breathes=TRUE}
                                            {catsize=TRUE} 0.2277228
  [31] {feathers=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3663366
##
       {aquatic=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3069307
   [32]
   [33] {feathers=FALSE,tail=TRUE}
##
                                            {catsize=TRUE} 0.3168317
   [34] {toothed=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2970297
   [35] {predator=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2673267
   [36] {backbone=TRUE, breathes=TRUE}
                                            {catsize=TRUE} 0.3861386
                                            {catsize=TRUE} 0.3960396
   [37] {airborne=FALSE, venomous=FALSE}
  [38] {backbone=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.3564356
   [39] {legs=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.3168317
##
   [40] {breathes=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.3366337
   [41] {aquatic=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.2673267
  [42] {airborne=FALSE,fins=FALSE}
                                            {catsize=TRUE} 0.3267327
   [43]
        {feathers=FALSE, breathes=TRUE}
                                            {catsize=TRUE} 0.3267327
##
  [44]
       {predator=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2277228
## [45] {predator=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.2673267
## [46] {predator=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.2079208
## [47] {feathers=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3069307
```

```
## [48] {feathers=FALSE,predator=TRUE}
                                          => {catsize=TRUE} 0.2475248
       {backbone=TRUE, venomous=FALSE}
   [49]
                                          =>
                                             {catsize=TRUE} 0.4158416
   [50] {backbone=TRUE,fins=FALSE}
                                             {catsize=TRUE} 0.3465347
   [51] {feathers=FALSE, aquatic=FALSE}
                                             {catsize=TRUE} 0.2673267
##
   [52]
        {fins=FALSE,tail=TRUE}
                                             {catsize=TRUE} 0.3069307
       {venomous=FALSE,tail=TRUE}
##
   [53]
                                             {catsize=TRUE} 0.3663366
       {backbone=TRUE,domestic=FALSE}
                                             {catsize=TRUE} 0.3663366
   [55]
        {breathes=TRUE, venomous=FALSE}
                                             {catsize=TRUE} 0.3861386
       {aquatic=FALSE, venomous=FALSE}
                                             {catsize=TRUE} 0.3069307
       {feathers=FALSE, venomous=FALSE} =>
                                             {catsize=TRUE} 0.3663366
   [58]
       {venomous=FALSE,legs=TRUE}
                                             {catsize=TRUE} 0.3663366
   [59]
       {aquatic=FALSE}
                                             {catsize=TRUE} 0.3069307
##
   [60]
        {aquatic=TRUE}
                                            {catsize=TRUE} 0.1287129
                                          => {catsize=TRUE} 0.1386139
##
   [61]
        {hair=FALSE}
                                          => {catsize=TRUE} 0.1188119
##
   [62]
       {milk=FALSE}
##
        confidence lift
##
   [1]
        0.9090909
                    2.0867769
   [2]
        0.9090909
                    2.0867769
   [3]
##
        0.9000000
                    2.0659091
##
   [4]
        0.8260870
                    1.8962451
##
   [5]
        0.8108108
                    1.8611794
   [6]
##
        0.7878788
                    1.8085399
   [7]
##
        0.7878788
                    1.8085399
##
   [8]
        0.7804878
                    1.7915743
##
   [9]
        0.7804878
                    1.7915743
   [10] 0.7750000
                    1.7789773
        0.7692308
   [11]
                    1.7657343
##
   [12] 0.7575758
                    1.7389807
   [13] 0.7560976
                    1.7355876
   [14] 0.7380952
                    1.6942641
   [15] 0.7317073
                    1.6796009
##
   [16] 0.7058824
                    1.6203209
   [17] 0.6976744
                    1.6014799
   [18] 0.6842105
                    1.5705742
        0.6666667
   [19]
                    1.5303030
##
   [20] 0.6595745
                    1.5140232
   [21] 0.6428571
                    1.4756494
   [22] 0.6304348
                    1.4471344
   [23] 0.6296296
                    1.4452862
   [24] 0.6216216
                    1.4269042
   [25] 0.6153846
                    1.4125874
   [26] 0.6140351
                    1.4094896
   [27] 0.6136364
                    1.4085744
   [28] 0.5964912
                    1.3692185
   [29] 0.5925926
                    1.3602694
   [30] 0.5897436
                    1.3537296
##
   [31] 0.5873016
                    1.3481241
   [32] 0.5849057
                    1.3426244
   [33]
        0.5818182
                    1.3355372
   [34]
        0.5769231
                    1.3243007
   [35]
##
        0.5744681
                    1.3186654
   [36] 0.5652174
                    1.2974308
  [37] 0.5633803
                    1.2932138
## [38] 0.5625000
                   1.2911932
```

```
[39] 0.5614035
                    1.2886762
   [40] 0.5573770
                    1.2794337
   [41] 0.5510204
                    1.2648423
   [42] 0.5500000
                    1.2625000
   [43] 0.5500000
                    1.2625000
   [44] 0.5476190
                    1.2570346
##
   [45] 0.5400000
                    1.2395455
   [46] 0.5384615
                    1.2360140
   [47] 0.5344828
                    1.2268809
   [48] 0.5319149
                    1.2209865
   [49] 0.5316456
                    1.2203682
   [50] 0.5303030
                    1.2172865
##
   [51] 0.5294118
                    1.2152406
                    1.2060863
   [52] 0.5254237
   [53] 0.5211268
                    1.1962228
   [54]
        0.5211268
                    1.1962228
##
   [55] 0.5200000
                    1.1936364
   [56] 0.5081967
                    1.1665425
   [57] 0.5068493
                    1.1634496
   [58] 0.5000000
                    1.1477273
##
   [59] 0.4769231
                    1.0947552
   [60] 0.3611111
                    0.8289141
##
   [61] 0.2413793
                   0.5540752
##
   [62] 0.2000000
                   0.4590909
##
        lhs
                                              support
                                                         confidence lift
##
   [1]
        {backbone=FALSE} => {catsize=FALSE} 0.1683168 0.9444444
                                                                    1.6734893
   [2]
        {airborne=TRUE}
                          => {catsize=FALSE} 0.2079208 0.8750000
##
                                                                    1.5504386
##
   [3]
        {milk=FALSE}
                          => {catsize=FALSE} 0.4752475 0.8000000
                                                                    1.4175439
##
   [4]
        {eggs=TRUE}
                          => {catsize=FALSE} 0.4554455 0.7796610
                                                                    1.3815046
##
   [5]
        {tail=FALSE}
                          => {catsize=FALSE} 0.1980198 0.7692308
                                                                    1.3630229
##
   [6]
        {breathes=FALSE}
                         =>
                             {catsize=FALSE} 0.1584158 0.7619048
                                                                    1.3500418
##
   [7]
        {type=bird}
                             {catsize=FALSE} 0.1386139 0.7000000
                                                                    1.2403509
##
   [8]
        {feathers=TRUE}
                          => {catsize=FALSE} 0.1386139 0.7000000
                                                                    1.2403509
                          => {catsize=FALSE} 0.1584158 0.6956522
                                                                    1.2326468
##
   [9]
        {legs=FALSE}
        {aquatic=TRUE}
                             {catsize=FALSE} 0.2277228 0.6388889
   [10]
                                                                    1.1320663
##
   [11]
       {predator=TRUE}
                          => {catsize=FALSE} 0.2772277 0.5000000
                                                                    0.8859649
   [12] {airborne=FALSE}
                          => {catsize=FALSE} 0.3564356 0.4675325
                                                                    0.8284347
   [13] {hair=TRUE}
                          => {catsize=FALSE} 0.1287129 0.3023256
##
                                                                    0.5356997
   [14] {eggs=FALSE}
                          => {catsize=FALSE} 0.1089109 0.2619048
##
                                                                    0.4640769
##
        lhs
                                            rhs
                                                            support
                                                                      confidence
##
   [1]
        {milk=TRUE,predator=TRUE}
                                         => {catsize=TRUE} 0.1980198 0.9090909
   [2]
        {predator=TRUE, type=mammal}
                                         => {catsize=TRUE} 0.1980198 0.9090909
##
##
   [3]
        {hair=TRUE, predator=TRUE}
                                         => {catsize=TRUE} 0.1782178 0.9000000
##
   [4]
                                         => {catsize=TRUE} 0.1881188 0.8260870
        {eggs=FALSE,predator=TRUE}
##
   [5]
        {predator=TRUE, toothed=TRUE}
                                         => {catsize=TRUE} 0.2277228 0.6216216
   [6]
##
        {aquatic=FALSE, predator=TRUE}
                                         =>
                                            {catsize=TRUE} 0.1584158 0.5925926
##
   [7]
        {predator=TRUE, breathes=TRUE}
                                            {catsize=TRUE} 0.2277228 0.5897436
##
   [8]
        {predator=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2673267 0.5744681
   [9]
        {predator=TRUE,tail=TRUE}
                                         => {catsize=TRUE} 0.2277228 0.5476190
       {predator=TRUE, venomous=FALSE}
                                         => {catsize=TRUE} 0.2673267 0.5400000
##
       {predator=TRUE,legs=TRUE}
                                         => {catsize=TRUE} 0.2079208 0.5384615
##
   [12] {feathers=FALSE,predator=TRUE} => {catsize=TRUE} 0.2475248 0.5319149
##
        lift
## [1]
        2.086777
```

```
## [2]
        2.086777
   [3]
##
       2.065909
  [4]
        1.896245
  [5]
##
        1.426904
##
   [6]
        1.360269
   [7]
##
        1.353730
  [8]
        1.318665
##
  [9]
        1.257035
  [10] 1.239545
  [11] 1.236014
  [12] 1.220986
##
       lhs
                                                          support
                                                                     confidence
## [1] {hair=TRUE,airborne=FALSE}
                                        => {catsize=TRUE} 0.2970297 0.8108108
## [2] {airborne=FALSE,breathes=TRUE}
                                        => {catsize=TRUE} 0.3564356 0.6428571
## [3] {airborne=FALSE,aquatic=FALSE}
                                        => {catsize=TRUE} 0.2871287 0.6304348
## [4] {airborne=FALSE,legs=TRUE}
                                        => {catsize=TRUE} 0.3366337 0.6296296
  [5] {airborne=FALSE,backbone=TRUE}
                                        => {catsize=TRUE} 0.3960396 0.6153846
  [6] {airborne=FALSE,tail=TRUE}
                                        => {catsize=TRUE} 0.3465347 0.6140351
  [7] {airborne=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3960396 0.5633803
  [8] {airborne=FALSE,fins=FALSE}
                                        => {catsize=TRUE} 0.3267327 0.5500000
##
       lift
## [1] 1.861179
## [2] 1.475649
## [3] 1.447134
## [4] 1.445286
## [5] 1.412587
  [6] 1.409490
##
  [7] 1.293214
  [8] 1.262500
##
##
       lhs
                                      rhs
                                                     support
                                                                confidence
  [1] {hair=TRUE,predator=TRUE} => {catsize=TRUE} 0.1782178 0.9000000
   [2] {hair=TRUE,airborne=FALSE} => {catsize=TRUE} 0.2970297 0.8108108
  [3] {hair=TRUE,backbone=TRUE} => {catsize=TRUE} 0.2970297 0.7692308
  [4] {hair=TRUE,tail=TRUE}
                                   => {catsize=TRUE} 0.2475248 0.7575758
   [5] {hair=TRUE,venomous=FALSE} => {catsize=TRUE} 0.2970297 0.7317073
   [6] {hair=TRUE,domestic=FALSE} => {catsize=TRUE} 0.2376238 0.7058824
##
##
       lift
## [1] 2.065909
  [2] 1.861179
## [3] 1.765734
  [4] 1.738981
  [5] 1.679601
##
   [6] 1.620321
##
       lhs
                                       rhs
                                                      support
                                                                 confidence
## [1] {eggs=FALSE,predator=TRUE} => {catsize=TRUE} 0.1881188 0.8260870
   [2] {eggs=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3069307 0.7750000
##
   [3] {eggs=FALSE,backbone=TRUE} => {catsize=TRUE} 0.3069307 0.7560976
##
       lift
## [1] 1.896245
  [2] 1.778977
  [3] 1.735588
##
  [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                           support
## [1] {milk=TRUE,predator=TRUE}
                                         => {catsize=TRUE} 0.1980198
```

```
{predator=TRUE, type=mammal}
                                         => {catsize=TRUE} 0.1980198
##
   [3]
        {hair=TRUE, predator=TRUE}
                                            {catsize=TRUE} 0.1782178
                                            {catsize=TRUE} 0.1881188
##
   [4]
        {eggs=FALSE,predator=TRUE}
   [5]
        {hair=TRUE,airborne=FALSE}
                                            {catsize=TRUE} 0.2970297
##
##
   [6]
        {milk=TRUE,domestic=FALSE}
                                            {catsize=TRUE} 0.2574257
##
   [7]
        {domestic=FALSE, type=mammal}
                                            {catsize=TRUE} 0.2574257
##
   [8]
        {milk=TRUE}
                                            {catsize=TRUE} 0.3168317
##
  [9]
        {type=mammal}
                                            {catsize=TRUE} 0.3168317
##
   [10] {eggs=FALSE, venomous=FALSE}
                                            {catsize=TRUE} 0.3069307
   [11]
       {hair=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2970297
   [12] {hair=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2475248
   [13]
       {eggs=FALSE,backbone=TRUE}
                                           {catsize=TRUE} 0.3069307
       {eggs=FALSE}
                                            {catsize=TRUE} 0.3069307
##
   [14]
       {hair=TRUE, venomous=FALSE}
                                           {catsize=TRUE} 0.2970297
   [16] {hair=TRUE,domestic=FALSE}
                                           {catsize=TRUE} 0.2376238
   [17]
        {hair=TRUE}
                                            {catsize=TRUE} 0.2970297
##
                                            {catsize=TRUE} 0.2574257
   [18]
       {aquatic=FALSE,toothed=TRUE}
   [19] {toothed=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.2772277
   [20] {toothed=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.3069307
   [21] {airborne=FALSE,breathes=TRUE}
                                            {catsize=TRUE} 0.3564356
##
  [22] {airborne=FALSE,aquatic=FALSE}
                                            {catsize=TRUE} 0.2871287
  [23] {airborne=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3366337
  [24] {predator=TRUE, toothed=TRUE}
                                            {catsize=TRUE} 0.2277228
   [25] {airborne=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3960396
   [26] {airborne=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3465347
   [27] {toothed=TRUE,fins=FALSE}
                                            {catsize=TRUE} 0.2673267
   [28] {toothed=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.3366337
##
   [29] {aquatic=FALSE,predator=TRUE}
                                            {catsize=TRUE} 0.1584158
   [30] {predator=TRUE, breathes=TRUE}
                                         => {catsize=TRUE} 0.2277228
   [31] {feathers=FALSE,backbone=TRUE}
                                         => {catsize=TRUE} 0.3663366
        {aquatic=FALSE, backbone=TRUE}
                                           {catsize=TRUE} 0.3069307
##
   [33]
        {feathers=FALSE, tail=TRUE}
                                            {catsize=TRUE} 0.3168317
       {toothed=TRUE,tail=TRUE}
                                           {catsize=TRUE} 0.2970297
   [35] {predator=TRUE,backbone=TRUE}
                                         => {catsize=TRUE} 0.2673267
        {backbone=TRUE, breathes=TRUE}
                                            {catsize=TRUE} 0.3861386
##
   [37] {airborne=FALSE, venomous=FALSE}
                                            {catsize=TRUE} 0.3960396
   [38] {backbone=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.3564356
  [39] {legs=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.3168317
       {breathes=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.3366337
   [40]
##
   [41] {aquatic=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.2673267
  [42] {airborne=FALSE,fins=FALSE}
                                            {catsize=TRUE} 0.3267327
   [43] {feathers=FALSE,breathes=TRUE}
                                            {catsize=TRUE} 0.3267327
   [44] {predator=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2277228
  [45] {predator=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.2673267
  [46] {predator=TRUE,legs=TRUE}
                                         => {catsize=TRUE} 0.2079208
        {feathers=FALSE,legs=TRUE}
   [47]
                                           {catsize=TRUE} 0.3069307
##
   [48]
       {feathers=FALSE,predator=TRUE}
                                            {catsize=TRUE} 0.2475248
       {backbone=TRUE, venomous=FALSE}
   [49]
                                            {catsize=TRUE} 0.4158416
   [50] {backbone=TRUE,fins=FALSE}
                                         => {catsize=TRUE} 0.3465347
   [51]
       {feathers=FALSE, aquatic=FALSE}
                                           {catsize=TRUE} 0.2673267
##
   [52]
       {fins=FALSE,tail=TRUE}
                                           {catsize=TRUE} 0.3069307
  [53] {venomous=FALSE,tail=TRUE}
                                           {catsize=TRUE} 0.3663366
  [54] {backbone=TRUE,domestic=FALSE}
                                         => {catsize=TRUE} 0.3663366
## [55] {breathes=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.3861386
```

```
## [56] {aquatic=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3069307
       {feathers=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3663366
                                          => {catsize=TRUE} 0.3663366
   [58] {venomous=FALSE,legs=TRUE}
   [59] {aquatic=FALSE}
                                          => {catsize=TRUE} 0.3069307
##
   [60] {aquatic=TRUE}
                                            {catsize=TRUE} 0.1287129
##
   [61] {hair=FALSE}
                                         => {catsize=TRUE} 0.1386139
                                         => {catsize=TRUE} 0.1188119
##
   [62] {milk=FALSE}
##
        confidence lift
##
   [1]
        0.9090909
                   2.0867769
   [2]
##
        0.9090909
                   2.0867769
   [3]
        0.9000000
                   2.0659091
   [4]
##
        0.8260870
                    1.8962451
##
   [5]
        0.8108108
                    1.8611794
##
   [6]
        0.7878788
                    1.8085399
  [7]
        0.7878788
##
                    1.8085399
##
   [8]
        0.7804878
                    1.7915743
   [9]
##
        0.7804878
                    1.7915743
   [10] 0.7750000
                    1.7789773
   [11] 0.7692308
                    1.7657343
   [12] 0.7575758
                    1.7389807
##
  [13] 0.7560976
                    1.7355876
  [14] 0.7380952
                    1.6942641
  [15] 0.7317073
                    1.6796009
   [16] 0.7058824
                    1.6203209
   [17] 0.6976744
                    1.6014799
   [18] 0.6842105
                    1.5705742
  [19] 0.6666667
                    1.5303030
  [20] 0.6595745
                    1.5140232
## [21] 0.6428571
                    1.4756494
## [22] 0.6304348
                    1.4471344
## [23] 0.6296296
                    1.4452862
   [24] 0.6216216
                    1.4269042
   [25] 0.6153846
                    1.4125874
   [26] 0.6140351
                    1.4094896
   [27] 0.6136364
                    1.4085744
##
  [28] 0.5964912
                    1.3692185
   [29] 0.5925926
                    1.3602694
  [30] 0.5897436
                    1.3537296
   [31] 0.5873016
                    1.3481241
   [32] 0.5849057
                    1.3426244
   [33] 0.5818182
                    1.3355372
   [34] 0.5769231
                    1.3243007
   [35] 0.5744681
                    1.3186654
   [36] 0.5652174
                    1.2974308
  [37] 0.5633803
                    1.2932138
  [38] 0.5625000
                    1.2911932
##
   [39] 0.5614035
                    1.2886762
   [40] 0.5573770
                    1.2794337
   [41] 0.5510204
                    1.2648423
   [42]
        0.5500000
                    1.2625000
## [43] 0.5500000
                    1.2625000
## [44] 0.5476190
                    1.2570346
## [45] 0.5400000
                   1.2395455
## [46] 0.5384615
                   1.2360140
```

```
[47] 0.5344828
                    1.2268809
   [48] 0.5319149
                    1.2209865
   [49] 0.5316456
                    1.2203682
   [50] 0.5303030
                    1.2172865
   [51] 0.5294118
                    1.2152406
   [52] 0.5254237
                    1.2060863
   [53] 0.5211268
                    1.1962228
   [54] 0.5211268
                    1.1962228
   [55] 0.5200000
                    1.1936364
   [56] 0.5081967
                    1.1665425
   [57] 0.5068493
                    1.1634496
   [58] 0.5000000
                    1.1477273
                    1.0947552
   [59] 0.4769231
   [60] 0.3611111
                    0.8289141
        0.2413793
   [61]
                    0.5540752
##
   [62] 0.2000000
                   0.4590909
##
        lhs
                                                         confidence lift
                                              support
##
   [1]
        {backbone=FALSE} => {catsize=FALSE} 0.1683168 0.9444444
   [2]
##
        {airborne=TRUE}
                          => {catsize=FALSE} 0.2079208 0.8750000
                                                                    1.5504386
##
   [3]
        {milk=FALSE}
                          => {catsize=FALSE} 0.4752475 0.8000000
                                                                    1.4175439
##
   [4]
        {eggs=TRUE}
                          => {catsize=FALSE} 0.4554455 0.7796610
                                                                    1.3815046
   [5]
                          => {catsize=FALSE} 0.1980198 0.7692308
##
        {tail=FALSE}
                                                                    1.3630229
   [6]
        {breathes=FALSE} => {catsize=FALSE} 0.1584158 0.7619048
##
                                                                    1.3500418
                          => {catsize=FALSE} 0.1386139 0.7000000
##
   [7]
        {type=bird}
                                                                    1.2403509
##
   [8]
        {feathers=TRUE}
                          => {catsize=FALSE} 0.1386139 0.7000000
                                                                    1.2403509
   [9]
        {legs=FALSE}
                          => {catsize=FALSE} 0.1584158 0.6956522
                                                                    1.2326468
                          => {catsize=FALSE} 0.2277228 0.6388889
   [10]
       {aquatic=TRUE}
                                                                    1.1320663
##
   [11] {predator=TRUE}
                          => {catsize=FALSE} 0.2772277 0.5000000
                                                                    0.8859649
                          => {catsize=FALSE} 0.3564356 0.4675325
   [12] {airborne=FALSE}
                                                                    0.8284347
   [13] {hair=TRUE}
                          => {catsize=FALSE} 0.1287129 0.3023256
                                                                    0.5356997
##
   [14] {eggs=FALSE}
                          => {catsize=FALSE} 0.1089109 0.2619048
                                                                    0.4640769
##
        lhs
                                            rhs
                                                            support
                                                                       confidence
##
   [1]
        {milk=TRUE, predator=TRUE}
                                         => {catsize=TRUE} 0.1980198 0.9090909
##
   [2]
        {predator=TRUE, type=mammal}
                                         => {catsize=TRUE} 0.1980198 0.9090909
##
   [3]
        {hair=TRUE, predator=TRUE}
                                         => {catsize=TRUE} 0.1782178 0.9000000
   [4]
                                         => {catsize=TRUE} 0.1881188 0.8260870
##
        {eggs=FALSE,predator=TRUE}
   [5]
        {predator=TRUE, toothed=TRUE}
                                         => {catsize=TRUE} 0.2277228 0.6216216
   [6]
        {aquatic=FALSE, predator=TRUE}
                                         => {catsize=TRUE} 0.1584158 0.5925926
##
   [7]
        {predator=TRUE, breathes=TRUE}
                                            {catsize=TRUE} 0.2277228 0.5897436
##
                                         => {catsize=TRUE} 0.2673267 0.5744681
##
   [8]
        {predator=TRUE, backbone=TRUE}
        {predator=TRUE,tail=TRUE}
                                         => {catsize=TRUE} 0.2277228 0.5476190
   [10] {predator=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2673267 0.5400000
##
   [11] {predator=TRUE,legs=TRUE}
                                         => {catsize=TRUE} 0.2079208 0.5384615
##
       {feathers=FALSE,predator=TRUE} => {catsize=TRUE} 0.2475248 0.5319149
   [12]
##
        lift
   [1]
        2.086777
##
##
   [2]
        2.086777
   [3]
##
        2.065909
##
   [4]
        1.896245
##
   [5]
        1.426904
   [6]
##
        1.360269
##
   [7]
        1.353730
##
  [8]
        1.318665
## [9]
        1.257035
```

```
## [10] 1.239545
  [11] 1.236014
  [12] 1.220986
##
                                                                     confidence
       lhs
                                           rhs
                                                          support
## [1] {hair=TRUE,airborne=FALSE}
                                        => {catsize=TRUE} 0.2970297 0.8108108
## [2] {airborne=FALSE,breathes=TRUE}
                                        => {catsize=TRUE} 0.3564356 0.6428571
  [3] {airborne=FALSE,aquatic=FALSE}
                                        => {catsize=TRUE} 0.2871287 0.6304348
## [4] {airborne=FALSE,legs=TRUE}
                                        => {catsize=TRUE} 0.3366337 0.6296296
## [5] {airborne=FALSE,backbone=TRUE}
                                        => {catsize=TRUE} 0.3960396 0.6153846
  [6] {airborne=FALSE,tail=TRUE}
                                        => {catsize=TRUE} 0.3465347 0.6140351
  [7] {airborne=FALSE,venomous=FALSE} => {catsize=TRUE} 0.3960396 0.5633803
                                        => {catsize=TRUE} 0.3267327 0.5500000
  [8] {airborne=FALSE,fins=FALSE}
##
       lift
## [1] 1.861179
## [2] 1.475649
## [3] 1.447134
## [4] 1.445286
## [5] 1.412587
## [6] 1.409490
## [7] 1.293214
##
  [8] 1.262500
##
                                                               confidence
                                                     support
## [1] {hair=TRUE,predator=TRUE} => {catsize=TRUE} 0.1782178 0.9000000
  [2] {hair=TRUE,airborne=FALSE} => {catsize=TRUE} 0.2970297 0.8108108
  [3] {hair=TRUE,backbone=TRUE} => {catsize=TRUE} 0.2970297 0.7692308
  [4] {hair=TRUE,tail=TRUE}
                                   => {catsize=TRUE} 0.2475248 0.7575758
  [5] {hair=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2970297 0.7317073
##
   [6] {hair=TRUE,domestic=FALSE} => {catsize=TRUE} 0.2376238 0.7058824
##
       lift
## [1] 2.065909
## [2] 1.861179
  [3] 1.765734
## [4] 1.738981
## [5] 1.679601
   [6] 1.620321
##
##
       lhs
                                      rhs
                                                      support
                                                                confidence
  [1] {eggs=FALSE,predator=TRUE} => {catsize=TRUE} 0.1881188 0.8260870
  [2] {eggs=FALSE,venomous=FALSE} => {catsize=TRUE} 0.3069307 0.7750000
  [3] {eggs=FALSE,backbone=TRUE} => {catsize=TRUE} 0.3069307 0.7560976
##
##
       lift.
  [1] 1.896245
  [2] 1.778977
   [3] 1.735588
       "Número de reglas con consecuente negado"
##
##
                                            rhs
                                                            support
  [1]
##
        {aquatic=TRUE,catsize=TRUE}
                                         => {predator=TRUE} 0.1188119
##
   [2]
        {breathes=FALSE,domestic=FALSE} => {predator=TRUE} 0.1683168
  [3]
        {aquatic=TRUE,fins=FALSE}
                                         => {predator=TRUE} 0.1584158
  [4]
        {airborne=FALSE,aquatic=TRUE}
                                         => {predator=TRUE} 0.2574257
  [5]
        {aquatic=TRUE,legs=TRUE}
                                         => {predator=TRUE} 0.1485149
##
  [6]
        {feathers=FALSE, aquatic=TRUE}
                                         => {predator=TRUE} 0.2475248
## [7]
        {fins=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.1287129
## [8]
        {aquatic=TRUE, breathes=TRUE}
                                         => {predator=TRUE} 0.1287129
## [9]
        {breathes=FALSE}
                                         => {predator=TRUE} 0.1683168
```

```
## [10] {aquatic=TRUE}
                                         => {predator=TRUE} 0.2871287
  [11] {backbone=TRUE,legs=FALSE}
                                            {predator=TRUE} 0.1485149
  [12] {hair=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1782178
  [13] {legs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.1683168
  [14] {fins=TRUE}
                                            {predator=TRUE} 0.1287129
##
  [15] {milk=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1584158
  [16] {eggs=TRUE,toothed=TRUE}
                                            {predator=TRUE} 0.1485149
  [17] {hair=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2871287
   [18] {hair=FALSE, feathers=FALSE}
                                            {predator=TRUE} 0.2673267
   [19] {milk=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2673267
  [20] {eggs=TRUE,airborne=FALSE}
                                            {predator=TRUE} 0.2574257
   [21] {airborne=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.4653465
       {domestic=FALSE,catsize=TRUE}
                                            {predator=TRUE} 0.2574257
  [22]
  [23] {toothed=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.3465347
  [24] {airborne=FALSE, toothed=FALSE}
                                            {predator=TRUE} 0.1188119
  [25]
        {hair=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.3564356
   [26]
       {catsize=TRUE}
                                            {predator=TRUE} 0.2772277
       {feathers=FALSE,domestic=FALSE} =>
                                            {predator=TRUE} 0.4455446
  [28] {backbone=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4455446
   [29] {tail=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4059406
##
  [30] {feathers=FALSE,milk=FALSE}
                                            {predator=TRUE} 0.2475248
  [31] {eggs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.2079208
   [32] {feathers=FALSE,eggs=TRUE}
                                            {predator=TRUE} 0.2376238
       {feathers=FALSE,backbone=TRUE}
   [33]
                                            {predator=TRUE} 0.3762376
  [34] {milk=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.2376238
  [35] {feathers=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.3267327
   [36] {eggs=TRUE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
   [37] {milk=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
       {eggs=TRUE,tail=TRUE}
                                            {predator=TRUE} 0.2277228
  [39] {backbone=TRUE}
                                            {predator=TRUE} 0.4653465
   [40]
        {eggs=FALSE}
                                            {predator=TRUE} 0.2277228
   [41]
        {venomous=FALSE,tail=FALSE}
                                            {predator=TRUE} 0.1188119
   [42]
        {legs=TRUE}
                                            {predator=TRUE} 0.3861386
   [43]
       {hair=TRUE}
                                            {predator=TRUE} 0.1980198
##
   [44]
        {aquatic=FALSE}
                                            {predator=TRUE} 0.2673267
##
##
        confidence lift
##
  [1]
        0.9230769
                   1.6648352
##
  [2]
                   1.5330357
        0.8500000
   [3]
##
        0.8421053
                   1.5187970
  [4]
##
        0.8387097
                   1.5126728
   [5]
        0.8333333
                   1.5029762
   [6]
##
        0.8333333
                   1.5029762
##
   [7]
        0.8125000
                   1.4654018
##
   [8]
        0.8125000
                   1.4654018
  [9]
        0.8095238
                   1.4600340
  [10] 0.8055556
                   1.4528770
##
   [11] 0.7894737
                   1,4238722
   [12] 0.7826087
                   1.4114907
  [13] 0.7727273
                   1.3936688
   [14]
       0.7647059
                   1.3792017
##
  [15] 0.7619048
                   1.3741497
## [16] 0.7500000
                   1.3526786
## [17] 0.7250000
                   1.3075893
## [18] 0.7105263
                   1.2814850
```

```
## [19] 0.7105263
                   1.2814850
  [20] 0.7027027
                   1.2673745
  [21] 0.6911765
                   1.2465861
  [22] 0.6842105
                   1.2340226
  [23] 0.6730769
                   1.2139423
  [24] 0.6666667
                   1.2023810
  [25] 0.6666667
                   1.2023810
## [26] 0.6363636
                   1.1477273
  [27] 0.6338028
                   1.1431087
  [28] 0.6338028
                   1.1431087
  [29] 0.6307692
                   1.1376374
  [30] 0.6250000
                   1.1272321
  [31] 0.6176471
                   1.1139706
## [32] 0.6153846
                   1.1098901
## [33] 0.6031746
                   1.0878685
  [34] 0.6000000
                   1.0821429
  [35] 0.6000000
                   1.0821429
                   1.0735544
  [36] 0.5952381
  [37] 0.5952381
                   1.0735544
                   1.0636447
  [38] 0.5897436
  [39] 0.5662651
                   1.0212995
  [40] 0.5476190
                   0.9876701
## [41] 0.5454545
                   0.9837662
  [42] 0.5000000
                   0.9017857
  [43] 0.4651163
                   0.8388704
   [44] 0.4153846
                   0.7491758
##
        lhs
                                              support
                                                         confidence lift
##
  [1]
        {domestic=TRUE}
                         => {predator=FALSE} 0.1089109 0.8461538 1.8991453
##
  [2]
                         => {predator=FALSE} 0.1683168 0.7083333
        {airborne=TRUE}
                                                                    1.5898148
## [3]
        {type=bird}
                          => {predator=FALSE} 0.1089109 0.5500000
                                                                    1.2344444
## [4]
        {feathers=TRUE}
                         => {predator=FALSE} 0.1089109 0.5500000
                                                                    1.2344444
##
  [5]
        {toothed=FALSE}
                          => {predator=FALSE} 0.2079208 0.5250000
                                                                    1.1783333
##
  [6]
        {catsize=FALSE}
                          => {predator=FALSE} 0.2871287 0.5087719
                                                                    1.1419103
##
  [7]
        {milk=TRUE}
                          => {predator=FALSE} 0.1881188 0.4634146
                                                                    1.0401084
   [8]
        {type=mammal}
                          => {predator=FALSE} 0.1881188 0.4634146
                                                                    1.0401084
                                                                    1.0358974
##
  [9]
        {tail=FALSE}
                          => {predator=FALSE} 0.1188119 0.4615385
  [10] {eggs=FALSE}
                          => {predator=FALSE} 0.1881188 0.4523810
## [11] {eggs=TRUE}
                          => {predator=FALSE} 0.2574257 0.4406780
                                                                    0.9890772
  [12] {milk=FALSE}
                          => {predator=FALSE} 0.2574257 0.4333333
                                                                    0.9725926
  [13] {domestic=FALSE} => {predator=FALSE} 0.3366337 0.3863636
                                                                    0.8671717
                          => {predator=FALSE} 0.2178218 0.3793103
  [14] {hair=FALSE}
                                                                    0.8513410
   [15] {catsize=TRUE}
                          => {predator=FALSE} 0.1584158 0.3636364
##
                                                                    0.8161616
                                                                     confidence
##
                                          rhs
                                                           support
   [1] {airborne=FALSE,toothed=FALSE} => {predator=TRUE} 0.1188119 0.6666667
##
##
       lift
  [1] 1.202381
##
##
                                       rhs
                                                        support
                                                                  confidence
   [1] {venomous=FALSE,tail=FALSE} => {predator=TRUE} 0.1188119 0.5454545
##
##
       lift
##
   [1] 0.9837662
##
                                       rhs
                                                        support
                                                                  confidence
##
   [1] {eggs=FALSE,domestic=FALSE} => {predator=TRUE} 0.2079208 0.6176471
##
       lift
## [1] 1.113971
```

```
##
                                      rhs
                                                       support
                                                                 confidence
##
  [1] {eggs=TRUE,toothed=TRUE}
                                   => {predator=TRUE} 0.1485149 0.7500000
   [2] {eggs=TRUE,airborne=FALSE} => {predator=TRUE} 0.2574257 0.7027027
   [3] {feathers=FALSE,eggs=TRUE} => {predator=TRUE} 0.2376238 0.6153846
   [4] {eggs=TRUE,backbone=TRUE}
                                   => {predator=TRUE} 0.2475248 0.5952381
   [5] {eggs=TRUE,tail=TRUE}
                                   => {predator=TRUE} 0.2277228 0.5897436
##
##
       lift
## [1] 1.352679
##
   [2] 1.267375
  [3] 1.109890
  [4] 1.073554
##
   [5] 1.063645
##
       lhs
                                       rhs
                                                        support
                                                                  confidence
                                      {predator=TRUE} 0.1584158 0.7619048
  [1] {milk=FALSE,toothed=TRUE}
                                    =>
  [2] {milk=FALSE,airborne=FALSE} => {predator=TRUE} 0.2673267 0.7105263
   [3] {feathers=FALSE,milk=FALSE} => {predator=TRUE} 0.2475248 0.6250000
   [4] {milk=FALSE,tail=TRUE}
                                    => {predator=TRUE} 0.2376238 0.6000000
   [5] {milk=FALSE,backbone=TRUE}
                                    => {predator=TRUE} 0.2475248 0.5952381
##
       lift
## [1] 1.374150
## [2] 1.281485
  [3] 1.127232
## [4] 1.082143
##
  [5] 1.073554
##
        lhs
                                            rhs
                                                             support
  Г17
        {breathes=FALSE,domestic=FALSE} => {predator=TRUE} 0.1683168
   [2]
        {fins=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.1287129
##
##
   [3]
        {legs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.1683168
  [4]
##
        {airborne=FALSE,domestic=FALSE} => {predator=TRUE} 0.4653465
  [5]
        {domestic=FALSE, catsize=TRUE}
                                         => {predator=TRUE} 0.2574257
##
  [6]
        {toothed=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.3465347
##
  [7]
        {hair=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.3564356
  [8]
        {feathers=FALSE,domestic=FALSE} => {predator=TRUE} 0.4455446
  [9]
        {backbone=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4455446
##
       {tail=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4059406
   [11] {eggs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.2079208
##
##
        confidence lift
## [1]
        0.8500000 1.533036
   [2]
        0.8125000
                   1.465402
  [3]
##
        0.7727273
                   1.393669
  [4]
        0.6911765
                   1.246586
##
   [5]
        0.6842105
                   1.234023
##
   [6]
        0.6730769
                   1.213942
##
   [7]
        0.6666667
                   1.202381
  [8]
        0.6338028
                   1.143109
##
  [9]
        0.6338028
                   1.143109
  [10] 0.6307692
                   1.137637
   [11] 0.6176471
                   1.113971
##
       lhs
                                                        support
                                                                  confidence
##
  [1] {hair=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1782178 0.7826087
   [2] {hair=FALSE,airborne=FALSE} => {predator=TRUE} 0.2871287 0.7250000
  [3] {hair=FALSE,feathers=FALSE} => {predator=TRUE} 0.2673267 0.7105263
## [4] {hair=FALSE,domestic=FALSE} => {predator=TRUE} 0.3564356 0.6666667
##
       lift
```

```
## [1] 1.411491
  [2] 1.307589
  [3] 1.281485
  [4] 1.202381
##
                                         rhs
                                                         support
                                                                   confidence
##
  [1] {aquatic=TRUE, catsize=TRUE}
                                      => {predator=TRUE} 0.1188119 0.9230769
   [2] {domestic=FALSE,catsize=TRUE} => {predator=TRUE} 0.2574257 0.6842105
##
       lift.
##
   [1] 1.664835
   [2] 1.234023
   [1] "Número de reglas con consecuente negado"
##
                                                            support
##
   [1]
        {aquatic=TRUE, catsize=TRUE}
                                           {predator=TRUE} 0.1188119
##
   [2]
        {breathes=FALSE,domestic=FALSE} => {predator=TRUE} 0.1683168
  [3]
        {aquatic=TRUE,fins=FALSE}
##
                                         => {predator=TRUE} 0.1584158
##
   [4]
        {airborne=FALSE, aquatic=TRUE}
                                            {predator=TRUE} 0.2574257
##
   [5]
        {aquatic=TRUE,legs=TRUE}
                                           {predator=TRUE} 0.1485149
   [6]
        {feathers=FALSE, aquatic=TRUE}
                                           {predator=TRUE} 0.2475248
        {fins=TRUE,domestic=FALSE}
##
  [7]
                                           {predator=TRUE} 0.1287129
   [8]
        {aquatic=TRUE, breathes=TRUE}
                                           {predator=TRUE} 0.1287129
##
  [9]
        {breathes=FALSE}
                                           {predator=TRUE} 0.1683168
  [10] {aquatic=TRUE}
                                           {predator=TRUE} 0.2871287
## [11] {backbone=TRUE,legs=FALSE}
                                            {predator=TRUE} 0.1485149
  [12] {hair=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1782178
  [13] {legs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.1683168
                                           {predator=TRUE} 0.1287129
  [14] {fins=TRUE}
  [15] {milk=FALSE,toothed=TRUE}
                                           {predator=TRUE} 0.1584158
  [16] {eggs=TRUE,toothed=TRUE}
                                         => {predator=TRUE} 0.1485149
  [17] {hair=FALSE,airborne=FALSE}
                                         => {predator=TRUE} 0.2871287
## [18] {hair=FALSE,feathers=FALSE}
                                         => {predator=TRUE} 0.2673267
## [19] {milk=FALSE,airborne=FALSE}
                                           {predator=TRUE} 0.2673267
  [20] {eggs=TRUE,airborne=FALSE}
                                           {predator=TRUE} 0.2574257
  [21] {airborne=FALSE,domestic=FALSE}
                                        => {predator=TRUE} 0.4653465
  [22] {domestic=FALSE,catsize=TRUE}
                                         => {predator=TRUE} 0.2574257
  [23] {toothed=TRUE,domestic=FALSE}
                                           {predator=TRUE} 0.3465347
## [24] {airborne=FALSE, toothed=FALSE}
                                        => {predator=TRUE} 0.1188119
## [25] {hair=FALSE,domestic=FALSE}
                                           {predator=TRUE} 0.3564356
## [26] {catsize=TRUE}
                                           {predator=TRUE} 0.2772277
## [27] {feathers=FALSE,domestic=FALSE} =>
                                            {predator=TRUE} 0.4455446
## [28] {backbone=TRUE,domestic=FALSE}
                                           {predator=TRUE} 0.4455446
  [29] {tail=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4059406
## [30] {feathers=FALSE,milk=FALSE}
                                         => {predator=TRUE} 0.2475248
## [31] {eggs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.2079208
  [32] {feathers=FALSE,eggs=TRUE}
                                         => {predator=TRUE} 0.2376238
## [33] {feathers=FALSE,backbone=TRUE}
                                         => {predator=TRUE} 0.3762376
## [34] {milk=FALSE,tail=TRUE}
                                           {predator=TRUE} 0.2376238
  [35] {feathers=FALSE,tail=TRUE}
                                           {predator=TRUE} 0.3267327
  [36] {eggs=TRUE,backbone=TRUE}
                                           {predator=TRUE} 0.2475248
  [37] {milk=FALSE,backbone=TRUE}
                                         => {predator=TRUE} 0.2475248
  [38] {eggs=TRUE,tail=TRUE}
                                           {predator=TRUE} 0.2277228
## [39] {backbone=TRUE}
                                           {predator=TRUE} 0.4653465
## [40] {eggs=FALSE}
                                           {predator=TRUE} 0.2277228
## [41] {venomous=FALSE,tail=FALSE}
                                         => {predator=TRUE} 0.1188119
## [42] {legs=TRUE}
                                           {predator=TRUE} 0.3861386
```

```
## [43] {hair=TRUE}
                                          => {predator=TRUE} 0.1980198
   [44] {aquatic=FALSE}
                                          => {predator=TRUE} 0.2673267
##
        confidence lift
##
        0.9230769
                   1.6648352
   [1]
##
   [2]
        0.8500000
                   1.5330357
   [3]
##
        0.8421053
                    1.5187970
   [4]
        0.8387097
                    1.5126728
##
   [5]
        0.8333333
                    1.5029762
##
   [6]
        0.8333333
                    1.5029762
##
   [7]
        0.8125000
                    1.4654018
   [8]
        0.8125000
                    1.4654018
   [9]
        0.8095238
                    1.4600340
   [10] 0.8055556
                    1.4528770
   [11] 0.7894737
                    1.4238722
   [12] 0.7826087
                    1.4114907
   [13] 0.7727273
                    1.3936688
   [14] 0.7647059
                    1.3792017
   [15] 0.7619048
                    1.3741497
   [16] 0.7500000
                    1.3526786
   [17] 0.7250000
                    1.3075893
  [18] 0.7105263
                    1.2814850
   [19] 0.7105263
                    1.2814850
  [20] 0.7027027
                    1.2673745
   [21] 0.6911765
                    1.2465861
   [22] 0.6842105
                    1.2340226
   [23] 0.6730769
                    1.2139423
   [24] 0.6666667
                    1.2023810
   [25] 0.6666667
                    1.2023810
   [26] 0.6363636
                    1.1477273
   [27] 0.6338028
                    1.1431087
   [28] 0.6338028
                    1.1431087
   [29] 0.6307692
                    1.1376374
   [30] 0.6250000
                    1.1272321
   [31] 0.6176471
                    1.1139706
   [32] 0.6153846
                    1.1098901
##
   [33] 0.6031746
                    1.0878685
   [34] 0.6000000
                    1.0821429
   [35] 0.6000000
                    1.0821429
   [36] 0.5952381
                    1.0735544
   [37] 0.5952381
                    1.0735544
   [38] 0.5897436
                    1.0636447
   [39] 0.5662651
                    1.0212995
   [40] 0.5476190
                   0.9876701
                   0.9837662
   [41] 0.5454545
  [42] 0.5000000
                   0.9017857
   [43] 0.4651163
                   0.8388704
##
   [44] 0.4153846
                   0.7491758
##
        lhs
                                               support
                                                          confidence lift
##
   [1]
        {domestic=TRUE}
                          => {predator=FALSE} 0.1089109 0.8461538
                                                                    1.8991453
##
   [2]
        {airborne=TRUE}
                          => {predator=FALSE} 0.1683168 0.7083333
                                                                     1.5898148
   [3]
                                                                     1.2344444
##
                          => {predator=FALSE} 0.1089109 0.5500000
        {type=bird}
   [4]
        {feathers=TRUE}
                          => {predator=FALSE} 0.1089109 0.5500000
##
   [5]
        {toothed=FALSE}
                          => {predator=FALSE} 0.2079208 0.5250000 1.1783333
## [6]
        {catsize=FALSE}
                          => {predator=FALSE} 0.2871287 0.5087719 1.1419103
```

```
## [7]
        {milk=TRUE}
                         => {predator=FALSE} 0.1881188 0.4634146 1.0401084
                         => {predator=FALSE} 0.1881188 0.4634146
                                                                   1.0401084
## [8]
        {type=mammal}
        {tail=FALSE}
                         => {predator=FALSE} 0.1188119 0.4615385
                         => {predator=FALSE} 0.1881188 0.4523810
## [10] {eggs=FALSE}
                                                                   1.0153439
## [11] {eggs=TRUE}
                         => {predator=FALSE} 0.2574257 0.4406780
                                                                   0.9890772
## [12] {milk=FALSE}
                         => {predator=FALSE} 0.2574257 0.4333333
                                                                   0.9725926
## [13] {domestic=FALSE} => {predator=FALSE} 0.3366337 0.3863636
## [14] {hair=FALSE}
                         => {predator=FALSE} 0.2178218 0.3793103
                                                                   0.8513410
##
  [15] {catsize=TRUE}
                         => {predator=FALSE} 0.1584158 0.3636364
                                                                   0.8161616
##
                                          rhs
                                                          support
   [1] {airborne=FALSE,toothed=FALSE} => {predator=TRUE} 0.1188119 0.6666667
##
       lift
##
   [1] 1.202381
##
                                       rhs
                                                       support
##
   [1] {venomous=FALSE,tail=FALSE} => {predator=TRUE} 0.1188119 0.5454545
##
##
   [1] 0.9837662
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
   [1] {eggs=FALSE,domestic=FALSE} => {predator=TRUE} 0.2079208 0.6176471
##
##
  [1] 1.113971
       lhs
##
                                                      support
                                                                confidence
  [1] {eggs=TRUE,toothed=TRUE}
                                  => {predator=TRUE} 0.1485149 0.7500000
  [2] {eggs=TRUE,airborne=FALSE} => {predator=TRUE} 0.2574257 0.7027027
  [3] {feathers=FALSE,eggs=TRUE} => {predator=TRUE} 0.2376238 0.6153846
  [4] {eggs=TRUE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
   [5] {eggs=TRUE,tail=TRUE}
                                  => {predator=TRUE} 0.2277228 0.5897436
##
       lift
## [1] 1.352679
## [2] 1.267375
## [3] 1.109890
  [4] 1.073554
##
  [5] 1.063645
##
                                                                 confidence
       lhs
                                                       support
                                       rhs
## [1] {milk=FALSE,toothed=TRUE}
                                   => {predator=TRUE} 0.1584158 0.7619048
## [2] {milk=FALSE,airborne=FALSE} => {predator=TRUE} 0.2673267 0.7105263
## [3] {feathers=FALSE,milk=FALSE} => {predator=TRUE} 0.2475248 0.6250000
## [4] {milk=FALSE,tail=TRUE}
                                    => {predator=TRUE} 0.2376238 0.6000000
## [5] {milk=FALSE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
##
       lift.
## [1] 1.374150
## [2] 1.281485
## [3] 1.127232
## [4] 1.082143
## [5] 1.073554
##
        lhs
                                            rhs
                                                            support
## [1]
        {breathes=FALSE,domestic=FALSE} => {predator=TRUE} 0.1683168
## [2]
        {fins=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.1287129
## [3]
        {legs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.1683168
## [4]
        {airborne=FALSE,domestic=FALSE} => {predator=TRUE} 0.4653465
  [5]
##
        {domestic=FALSE, catsize=TRUE}
                                         => {predator=TRUE} 0.2574257
## [6]
        {toothed=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.3465347
## [7]
        {hair=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.3564356
## [8]
        {feathers=FALSE,domestic=FALSE} => {predator=TRUE} 0.4455446
```

```
=> {predator=TRUE} 0.4455446
        {backbone=TRUE,domestic=FALSE}
  [10] {tail=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4059406
   [11] {eggs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.2079208
##
        confidence lift
##
   [1]
        0.8500000 1.533036
##
  [2]
        0.8125000 1.465402
  [3]
        0.7727273
                   1.393669
                   1.246586
## [4]
        0.6911765
##
  [5]
        0.6842105
                   1.234023
##
  [6]
        0.6730769
                   1.213942
  [7]
        0.6666667
                   1.202381
##
   [8]
        0.6338028
                   1.143109
##
   [9]
        0.6338028
                   1.143109
  [10] 0.6307692
                   1.137637
                  1.113971
  [11] 0.6176471
##
       lhs
                                                        support
                                                                  confidence
##
  [1] {hair=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1782178 0.7826087
   [2] {hair=FALSE,airborne=FALSE} => {predator=TRUE} 0.2871287 0.7250000
   [3] {hair=FALSE,feathers=FALSE} => {predator=TRUE} 0.2673267 0.7105263
   [4] {hair=FALSE,domestic=FALSE} => {predator=TRUE} 0.3564356 0.6666667
##
       lift
## [1] 1.411491
  [2] 1.307589
  [3] 1.281485
##
  [4] 1.202381
       lhs
                                         rhs
                                                                    confidence
                                                          support
   [1] {aquatic=TRUE, catsize=TRUE}
                                      => {predator=TRUE} 0.1188119 0.9230769
##
##
   [2] {domestic=FALSE,catsize=TRUE} => {predator=TRUE} 0.2574257 0.6842105
##
       lift
## [1] 1.664835
##
   [2] 1.234023
##
   [1] "Número de reglas con consecuente negado"
##
                                                            support
##
  [1]
        {milk=TRUE,predator=TRUE}
                                            {catsize=TRUE} 0.1980198
   [2]
        {predator=TRUE, type=mammal}
                                         => {catsize=TRUE} 0.1980198
##
   [3]
        {hair=TRUE, predator=TRUE}
                                         => {catsize=TRUE} 0.1782178
  ۲4٦
        {eggs=FALSE,predator=TRUE}
                                         => {catsize=TRUE} 0.1881188
  [5]
        {hair=TRUE,airborne=FALSE}
                                         => {catsize=TRUE} 0.2970297
##
        {milk=TRUE,domestic=FALSE}
                                            {catsize=TRUE} 0.2574257
  [6]
##
  [7]
        {domestic=FALSE, type=mammal}
                                         => {catsize=TRUE} 0.2574257
  [8]
        {milk=TRUE}
                                            {catsize=TRUE} 0.3168317
        {type=mammal}
                                            {catsize=TRUE} 0.3168317
  [9]
  [10] {eggs=FALSE, venomous=FALSE}
                                         => {catsize=TRUE} 0.3069307
## [11] {hair=TRUE,backbone=TRUE}
                                         => {catsize=TRUE} 0.2970297
## [12] {hair=TRUE,tail=TRUE}
                                         => {catsize=TRUE} 0.2475248
## [13] {eggs=FALSE,backbone=TRUE}
                                         => {catsize=TRUE} 0.3069307
  [14] {eggs=FALSE}
                                         => {catsize=TRUE} 0.3069307
  [15] {hair=TRUE, venomous=FALSE}
                                         => {catsize=TRUE} 0.2970297
## [16] {hair=TRUE,domestic=FALSE}
                                         => {catsize=TRUE} 0.2376238
## [17] {hair=TRUE}
                                         => {catsize=TRUE} 0.2970297
                                         => {catsize=TRUE} 0.2574257
## [18] {aquatic=FALSE,toothed=TRUE}
## [19] {toothed=TRUE,legs=TRUE}
                                         => {catsize=TRUE} 0.2772277
## [20] {toothed=TRUE,breathes=TRUE}
                                         => {catsize=TRUE} 0.3069307
## [21] {airborne=FALSE,breathes=TRUE}
                                         => {catsize=TRUE} 0.3564356
```

```
## [22] {airborne=FALSE,aquatic=FALSE}
                                         => {catsize=TRUE} 0.2871287
   [23] {airborne=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3366337
   [24] {predator=TRUE, toothed=TRUE}
                                            {catsize=TRUE} 0.2277228
   [25] {airborne=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3960396
##
   [26] {airborne=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3465347
##
   [27] {toothed=TRUE,fins=FALSE}
                                            {catsize=TRUE} 0.2673267
  [28] {toothed=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.3366337
   [29] {aquatic=FALSE,predator=TRUE}
                                            {catsize=TRUE} 0.1584158
   [30]
       {predator=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.2277228
   [31] {feathers=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3663366
   [32] {aquatic=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3069307
   [33] {feathers=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3168317
##
   [34]
       {toothed=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2970297
                                            {catsize=TRUE} 0.2673267
       {predator=TRUE,backbone=TRUE}
       {backbone=TRUE,breathes=TRUE}
   [36]
                                            {catsize=TRUE} 0.3861386
   [37]
        {airborne=FALSE, venomous=FALSE}
                                         =>
                                            {catsize=TRUE} 0.3960396
   [38]
##
        {backbone=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.3564356
       {legs=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.3168317
   [39]
   [40] {breathes=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.3366337
   [41] {aquatic=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.2673267
##
  [42] {airborne=FALSE,fins=FALSE}
                                            {catsize=TRUE} 0.3267327
  [43] {feathers=FALSE, breathes=TRUE}
                                            {catsize=TRUE} 0.3267327
  [44] {predator=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2277228
       {predator=TRUE, venomous=FALSE}
##
   Γ451
                                            {catsize=TRUE} 0.2673267
   [46] {predator=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.2079208
   [47] {feathers=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3069307
   [48] {feathers=FALSE,predator=TRUE}
                                            {catsize=TRUE} 0.2475248
##
   [49] {backbone=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.4158416
       {backbone=TRUE,fins=FALSE}
   [50]
                                            {catsize=TRUE} 0.3465347
   [51] {feathers=FALSE, aquatic=FALSE}
                                            {catsize=TRUE} 0.2673267
##
   [52]
        {fins=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3069307
##
   [53]
        {venomous=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3663366
       {backbone=TRUE,domestic=FALSE}
                                            {catsize=TRUE} 0.3663366
   [55] {breathes=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.3861386
        {aquatic=FALSE, venomous=FALSE}
                                            {catsize=TRUE} 0.3069307
##
   [57]
       {feathers=FALSE, venomous=FALSE}
                                            {catsize=TRUE} 0.3663366
       {venomous=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3663366
       {aquatic=FALSE}
                                            {catsize=TRUE} 0.3069307
##
   [59]
                                            {catsize=TRUE} 0.1287129
##
   [60]
       {aquatic=TRUE}
##
   [61] {hair=FALSE}
                                            {catsize=TRUE} 0.1386139
   [62]
       {milk=FALSE}
                                         => {catsize=TRUE} 0.1188119
##
        confidence lift
##
   [1]
        0.9090909
                   2.0867769
##
   [2]
        0.9090909
                   2.0867769
##
   [3]
        0.9000000
                   2.0659091
   [4]
##
        0.8260870
                   1.8962451
##
   [5]
        0.8108108
                   1.8611794
##
   [6]
        0.7878788
                   1.8085399
##
   [7]
        0.7878788
                   1.8085399
##
   [8]
        0.7804878
                   1.7915743
##
   [9]
        0.7804878
                   1.7915743
  [10] 0.7750000
                   1.7789773
## [11] 0.7692308
                   1.7657343
## [12] 0.7575758
                   1.7389807
```

```
## [13] 0.7560976
                  1.7355876
## [14] 0.7380952
                   1.6942641
  [15] 0.7317073
                   1.6796009
## [16] 0.7058824
                   1.6203209
## [17] 0.6976744
                   1.6014799
## [18] 0.6842105
                   1.5705742
## [19] 0.6666667
                   1.5303030
## [20] 0.6595745
                   1.5140232
  [21] 0.6428571
                   1.4756494
  [22] 0.6304348
                   1.4471344
  [23] 0.6296296
                   1.4452862
## [24] 0.6216216
                   1.4269042
## [25] 0.6153846
                   1.4125874
## [26] 0.6140351
                   1.4094896
## [27] 0.6136364
                   1.4085744
## [28] 0.5964912
                   1.3692185
  [29] 0.5925926
                   1.3602694
  [30] 0.5897436
                   1.3537296
                   1.3481241
  [31] 0.5873016
  [32] 0.5849057
                   1.3426244
## [33] 0.5818182
                   1.3355372
## [34] 0.5769231
                   1.3243007
  [35] 0.5744681
                   1.3186654
  [36] 0.5652174
##
                   1.2974308
  [37] 0.5633803
                   1.2932138
  [38] 0.5625000
                   1.2911932
  [39] 0.5614035
                   1.2886762
## [40] 0.5573770
                   1.2794337
## [41] 0.5510204
                   1.2648423
## [42] 0.5500000
                   1.2625000
## [43] 0.5500000
                   1.2625000
  [44] 0.5476190
                   1.2570346
  [45] 0.5400000
                   1.2395455
## [46] 0.5384615
                   1.2360140
   [47] 0.5344828
                   1.2268809
## [48] 0.5319149
                   1.2209865
## [49] 0.5316456
                   1.2203682
## [50] 0.5303030
                   1.2172865
  [51] 0.5294118
                   1.2152406
  [52] 0.5254237
                   1.2060863
  [53] 0.5211268
                   1.1962228
  [54] 0.5211268
                   1.1962228
  [55] 0.5200000
                   1.1936364
  [56] 0.5081967
                   1.1665425
                   1.1634496
## [57] 0.5068493
## [58] 0.5000000
                   1.1477273
##
  [59] 0.4769231
                   1.0947552
  [60] 0.3611111
                   0.8289141
   [61] 0.2413793
                   0.5540752
##
   [62]
       0.2000000
                   0.4590909
##
        lhs
                             rhs
                                             support
                                                        confidence lift
## [1]
        {backbone=FALSE} => {catsize=FALSE} 0.1683168 0.9444444 1.6734893
## [2]
        {airborne=TRUE} => {catsize=FALSE} 0.2079208 0.8750000 1.5504386
                         => {catsize=FALSE} 0.4752475 0.8000000 1.4175439
## [3]
        {milk=FALSE}
```

```
## [4]
        {eggs=TRUE}
                          => {catsize=FALSE} 0.4554455 0.7796610
                                                                   1.3815046
##
  [5]
                          => {catsize=FALSE} 0.1980198 0.7692308
        {tail=FALSE}
                                                                   1.3630229
##
  [6]
        {breathes=FALSE}
                         => {catsize=FALSE} 0.1584158 0.7619048
                                                                   1.3500418
  [7]
        {type=bird}
                          => {catsize=FALSE} 0.1386139 0.7000000
##
                                                                   1.2403509
##
   [8]
        {feathers=TRUE}
                          => {catsize=FALSE} 0.1386139 0.7000000
                                                                   1.2403509
   [9]
                          => {catsize=FALSE} 0.1584158 0.6956522
##
        {legs=FALSE}
                                                                   1.2326468
  [10] {aquatic=TRUE}
                          => {catsize=FALSE} 0.2277228 0.6388889
                                                                   1.1320663
  [11] {predator=TRUE}
                          => {catsize=FALSE} 0.2772277 0.5000000
                                                                   0.8859649
   [12] {airborne=FALSE}
                         => {catsize=FALSE} 0.3564356 0.4675325
                                                                   0.8284347
  [13] {hair=TRUE}
                          => {catsize=FALSE} 0.1287129 0.3023256
                                                                   0.5356997
   [14]
       {eggs=FALSE}
                          => {catsize=FALSE} 0.1089109 0.2619048
                                                                   0.4640769
##
        lhs
                                           rhs
                                                           support
                                                                     confidence
##
  [1]
        {milk=TRUE,predator=TRUE}
                                        => {catsize=TRUE} 0.1980198 0.9090909
##
   [2]
        {predator=TRUE, type=mammal}
                                        => {catsize=TRUE} 0.1980198 0.9090909
  [3]
                                        => {catsize=TRUE} 0.1782178 0.9000000
##
        {hair=TRUE,predator=TRUE}
##
  [4]
        {eggs=FALSE,predator=TRUE}
                                        => {catsize=TRUE} 0.1881188 0.8260870
  [5]
##
        {predator=TRUE, toothed=TRUE}
                                        => {catsize=TRUE} 0.2277228 0.6216216
   [6]
        {aquatic=FALSE, predator=TRUE}
                                        => {catsize=TRUE} 0.1584158 0.5925926
                                        => {catsize=TRUE} 0.2277228 0.5897436
##
  [7]
        {predator=TRUE, breathes=TRUE}
   [8]
        {predator=TRUE,backbone=TRUE}
                                        => {catsize=TRUE} 0.2673267 0.5744681
##
  [9]
        {predator=TRUE,tail=TRUE}
                                        => {catsize=TRUE} 0.2277228 0.5476190
  [10] {predator=TRUE,venomous=FALSE} => {catsize=TRUE} 0.2673267 0.5400000
  [11] {predator=TRUE,legs=TRUE}
                                        => {catsize=TRUE} 0.2079208 0.5384615
   [12] {feathers=FALSE,predator=TRUE} => {catsize=TRUE} 0.2475248 0.5319149
##
##
        lift
##
  [1]
        2.086777
   [2]
        2.086777
##
##
   [3]
        2.065909
##
  [4]
        1.896245
##
  [5]
        1.426904
##
  [6]
        1.360269
##
   [7]
        1.353730
##
  [8]
        1.318665
##
  [9]
        1.257035
   [10] 1.239545
##
  [11] 1.236014
##
  [12] 1.220986
##
       lhs
                                           rhs
                                                           support
                                                                     confidence
   [1] {hair=TRUE,airborne=FALSE}
                                        => {catsize=TRUE} 0.2970297 0.8108108
   [2] {airborne=FALSE,breathes=TRUE}
                                        => {catsize=TRUE} 0.3564356 0.6428571
  [3] {airborne=FALSE,aquatic=FALSE}
                                        => {catsize=TRUE} 0.2871287 0.6304348
   [4] {airborne=FALSE,legs=TRUE}
                                        => {catsize=TRUE} 0.3366337 0.6296296
   [5] {airborne=FALSE,backbone=TRUE}
                                        => {catsize=TRUE} 0.3960396 0.6153846
   [6] {airborne=FALSE,tail=TRUE}
                                        => {catsize=TRUE} 0.3465347 0.6140351
## [7] {airborne=FALSE,venomous=FALSE} => {catsize=TRUE} 0.3960396 0.5633803
  [8] {airborne=FALSE,fins=FALSE}
                                        => {catsize=TRUE} 0.3267327 0.5500000
##
##
       lift
## [1] 1.861179
  [2] 1.475649
## [3] 1.447134
##
  [4] 1.445286
## [5] 1.412587
## [6] 1.409490
## [7] 1.293214
```

```
[8] 1.262500
##
                                                     support
       lhs
                                      rhs
                                                                confidence
                                  => {catsize=TRUE} 0.1782178 0.9000000
  [1] {hair=TRUE,predator=TRUE}
  [2] {hair=TRUE,airborne=FALSE} => {catsize=TRUE} 0.2970297 0.8108108
  [3] {hair=TRUE,backbone=TRUE}
                                  => {catsize=TRUE} 0.2970297 0.7692308
  [4] {hair=TRUE,tail=TRUE}
                                   => {catsize=TRUE} 0.2475248 0.7575758
  [5] {hair=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2970297 0.7317073
   [6] {hair=TRUE,domestic=FALSE} => {catsize=TRUE} 0.2376238 0.7058824
##
       lift
##
  [1] 2.065909
  [2] 1.861179
  [3] 1.765734
   [4] 1.738981
##
  [5] 1.679601
   [6] 1.620321
##
##
       lhs
                                       rhs
                                                      support
                                                                 confidence
##
   [1] {eggs=FALSE,predator=TRUE} => {catsize=TRUE} 0.1881188 0.8260870
   [2] {eggs=FALSE,venomous=FALSE} => {catsize=TRUE} 0.3069307 0.7750000
   [3] {eggs=FALSE,backbone=TRUE} => {catsize=TRUE} 0.3069307 0.7560976
##
##
       lift.
##
  [1] 1.896245
  [2] 1.778977
  [3] 1.735588
##
   Г1]
       "Número de reglas con consecuente negado"
        lhs
##
                                            rhs
                                                             support
  [1]
        {type=fish}
                                           {breathes=FALSE} 0.1287129
   [2]
                                           {breathes=FALSE} 0.1287129
##
        {eggs=TRUE,fins=TRUE}
##
   [3]
        {milk=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
  [4]
##
        {hair=FALSE,fins=TRUE}
                                           {breathes=FALSE} 0.1287129
##
  [5]
        {aquatic=TRUE,legs=FALSE}
                                           {breathes=FALSE} 0.1485149
##
  [6]
        {milk=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
##
   [7]
        {eggs=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
  [8]
        {legs=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
##
  [9]
        {hair=FALSE,legs=FALSE}
                                           {breathes=FALSE} 0.1584158
   [10] {predator=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1188119
##
  [11] {milk=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
  [12] {feathers=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
## [13] {milk=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
## [14] {aquatic=TRUE,catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
  [15] {eggs=TRUE,toothed=TRUE}
                                            {breathes=FALSE} 0.1287129
  [16] {airborne=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
  [17] {eggs=TRUE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1881188
## [18] {hair=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
                                           {breathes=FALSE} 0.1386139
## [19] {aquatic=TRUE, toothed=TRUE}
## [20] {hair=FALSE,toothed=TRUE}
                                         => {breathes=FALSE} 0.1386139
## [21] {hair=FALSE,feathers=FALSE}
                                           {breathes=FALSE} 0.2079208
## [22] {milk=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
## [23] {eggs=TRUE,airborne=FALSE}
                                           {breathes=FALSE} 0.1980198
## [24] {hair=FALSE,airborne=FALSE}
                                         => {breathes=FALSE} 0.2079208
## [25] {feathers=FALSE,milk=FALSE}
                                           {breathes=FALSE} 0.2079208
## [26] {feathers=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
## [27] {milk=FALSE,predator=TRUE}
                                           {breathes=FALSE} 0.1683168
## [28] {eggs=TRUE,predator=TRUE}
                                         => {breathes=FALSE} 0.1584158
## [29] {hair=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
```

```
## [30] {airborne=FALSE,catsize=FALSE}
                                         => {breathes=FALSE} 0.1584158
   [31] {predator=TRUE, catsize=FALSE}
                                             {breathes=FALSE} 0.1188119
                                             {breathes=FALSE} 0.2079208
   [32] {hair=FALSE,milk=FALSE}
   [33] {feathers=FALSE, catsize=FALSE}
                                             {breathes=FALSE} 0.1584158
##
   [34]
       {hair=FALSE,eggs=TRUE}
                                             {breathes=FALSE} 0.1980198
   [35]
       {hair=FALSE,domestic=FALSE}
##
                                             {breathes=FALSE} 0.1980198
   [36] {hair=FALSE,catsize=FALSE}
                                             {breathes=FALSE} 0.1584158
   [37]
        {milk=FALSE,domestic=FALSE}
                                             {breathes=FALSE} 0.1980198
   [38]
        {feathers=FALSE,predator=TRUE}
                                             {breathes=FALSE} 0.1683168
   [39]
       {eggs=TRUE,domestic=FALSE}
                                             {breathes=FALSE} 0.1881188
   [40] {airborne=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [41] {domestic=FALSE, catsize=FALSE}
                                             {breathes=FALSE} 0.1485149
   [42]
       {airborne=FALSE,domestic=FALSE} =>
                                             {breathes=FALSE} 0.1980198
   [43] {feathers=FALSE,airborne=FALSE} =>
                                             {breathes=FALSE} 0.2079208
   [44] {feathers=FALSE,domestic=FALSE} =>
                                             {breathes=FALSE} 0.1980198
   [45]
        {toothed=TRUE,domestic=FALSE}
                                             {breathes=FALSE} 0.1287129
   [46]
##
        {tail=TRUE}
                                          => {breathes=FALSE} 0.1386139
##
        confidence lift
##
   [1]
        1.0000000
                   4.8095238
                   4.8095238
##
   [2]
        1.0000000
##
   [3]
        1.0000000
                    4.8095238
   [4]
        0.8666667
                    4.1682540
##
   [5]
        0.8333333
                    4.0079365
##
   [6]
        0.8000000
                    3.8476190
##
   [7]
        0.7894737
                    3.7969925
   [8]
        0.7500000
                    3.6071429
   [9]
        0.7272727
##
                    3.4978355
##
   [10] 0.7058824
                    3.3949580
   [11] 0.6666667
                    3.2063492
   [12] 0.6666667
                    3.2063492
   [13] 0.6666667
                    3.2063492
##
   [14] 0.6521739
                    3.1366460
   [15] 0.6500000
                    3.1261905
   [16] 0.6451613
                    3.1029186
   [17] 0.6333333
                    3.0460317
##
   [18] 0.6250000
                    3.0059524
   [19] 0.6086957
                    2.9275362
   [20] 0.6086957
                    2.9275362
   [21] 0.5526316
                    2.6578947
   [22] 0.5526316
                    2.6578947
   [23] 0.5405405
                    2.5997426
   [24] 0.5250000
                   2.5250000
   [25] 0.5250000
                    2.5250000
   [26] 0.5128205
                    2.4664225
   [27] 0.5000000
                    2.4047619
   [28] 0.4848485
                    2.3318903
                    2.2711640
##
   [29] 0.4722222
   [30] 0.444444
                    2.1375661
   [31] 0.4285714
                    2.0612245
   [32]
        0.3750000
                    1.8035714
##
   [33] 0.3720930
                    1.7895903
  [34] 0.3703704
                    1.7813051
## [35] 0.3703704
                    1.7813051
## [36] 0.3636364
                   1.7489177
```

```
[37] 0.3636364
                   1.7489177
   [38] 0.3617021
                   1.7396150
   [39] 0.3518519
                   1.6922399
   [40] 0.3469388
                   1.6686103
   [41] 0.3000000
                   1.4428571
   [42] 0.2941176
                   1.4145658
##
   [43] 0.2876712
                   1.3835616
   [44] 0.2816901
                   1.3547954
   [45] 0.2500000
                   1.2023810
##
   [46] 0.1866667
                   0.8977778
##
        lhs
                                                        confidence lift
                                              support
##
   [1]
        {type=bird}
                          => {breathes=TRUE} 0.1980198 1.0000000
                                                                   1.2625000
##
   [2]
                             {breathes=TRUE} 0.1980198 1.0000000
                                                                   1.2625000
        {feathers=TRUE}
##
   [3]
        {airborne=TRUE}
                             {breathes=TRUE} 0.2376238 1.0000000
                                                                    1.2625000
##
  [4]
                             {breathes=TRUE} 0.4059406 1.0000000
        {milk=TRUE}
                                                                    1.2625000
##
   [5]
        {type=mammal}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                    1.2625000
##
   [6]
        {hair=TRUE}
                             {breathes=TRUE} 0.4257426 1.0000000
                                                                    1.2625000
   [7]
        {aquatic=FALSE}
                             {breathes=TRUE} 0.6336634 0.9846154
##
                                                                    1.2430769
                             {breathes=TRUE} 0.4059406 0.9761905
##
   [8]
        {eggs=FALSE}
                                                                    1.2324405
##
   [9]
        {legs=TRUE}
                             {breathes=TRUE} 0.7227723 0.9358974
                                                                    1.1815705
##
  [10]
       {domestic=TRUE}
                          => {breathes=TRUE} 0.1188119 0.9230769
                                                                   1.1653846
                             {breathes=TRUE} 0.4059406 0.9111111
       {predator=FALSE}
                                                                    1.1502778
                             {breathes=TRUE} 0.3861386 0.8863636
  [12] {catsize=TRUE}
##
                                                                    1.1190341
##
   [13] {toothed=FALSE}
                             {breathes=TRUE} 0.3267327 0.8250000
                                                                    1.0415625
  [14] {tail=TRUE}
                          => {breathes=TRUE} 0.6039604 0.8133333
                                                                    1.0268333
  [15] {domestic=FALSE}
                         => {breathes=TRUE} 0.6732673 0.7727273
                                                                   0.9755682
                             {breathes=TRUE} 0.1881188 0.7307692
   [16] {tail=FALSE}
                                                                   0.9225962
   [17] {airborne=FALSE}
                         =>
                             {breathes=TRUE} 0.5544554 0.7272727
                                                                    0.9181818
                             {breathes=TRUE} 0.4059406 0.7192982
  [18] {catsize=FALSE}
                                                                    0.9081140
   [19] {predator=TRUE}
                             {breathes=TRUE} 0.3861386 0.6964286
                                                                    0.8792411
   [20] {eggs=TRUE}
                             {breathes=TRUE} 0.3861386 0.6610169
                                                                    0.8345339
##
   [21] {milk=FALSE}
                          => {breathes=TRUE} 0.3861386 0.6500000
                                                                    0.8206250
##
   [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
##
       lhs
                                           rhs
                                                             support
   [1] {hair=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
   [2] {milk=FALSE,domestic=FALSE}
##
                                        => {breathes=FALSE} 0.1980198
   [3] {eggs=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1881188
   [4] {domestic=FALSE,catsize=FALSE}
                                        => {breathes=FALSE} 0.1485149
   [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
##
   [7] {toothed=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1287129
##
       confidence lift
##
   [1] 0.3703704
                  1.781305
   [2] 0.3636364
                  1.748918
   [3] 0.3518519
                  1.692240
##
   [4] 0.3000000
                  1.442857
##
   [5] 0.2941176
                  1.414566
   [6] 0.2816901
                  1.354795
##
   [7]
       0.2500000
                  1.202381
##
                                            rhs
                                                             support
##
  [1] {airborne=FALSE,aquatic=TRUE}
                                           {breathes=FALSE} 0.1980198
   [2] {milk=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
  [3] {eggs=TRUE,airborne=FALSE}
                                        => {breathes=FALSE} 0.1980198
## [4] {hair=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
```

```
## [5] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
   [6] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
       confidence lift
## [1] 0.6451613 3.102919
  [2] 0.5526316
                  2.657895
                  2.599743
## [3] 0.5405405
  [4] 0.5250000
                  2.525000
  [5] 0.4444444
                  2.137566
  [6] 0.3469388
                  1.668610
##
  [7] 0.2941176
                  1.414566
##
   [8] 0.2876712
                 1.383562
##
       lhs
                                                           support
## [1] {legs=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
   [2] {aquatic=TRUE, catsize=FALSE}
                                       => {breathes=FALSE} 0.1485149
  [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
  [4] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [5] {feathers=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
   [6] {hair=FALSE, catsize=FALSE}
                                       => {breathes=FALSE} 0.1584158
##
   [7] {domestic=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1485149
##
       confidence lift
## [1] 0.7500000 3.607143
   [2] 0.6521739
                  3.136646
  [3] 0.444444
                  2.137566
  [4] 0.4285714
                  2.061224
  [5] 0.3720930
                  1.789590
   [6] 0.3636364
                  1.748918
   [7] 0.3000000
##
                  1.442857
##
       lhs
                                         rhs
                                                           support
## [1] {predator=TRUE,legs=FALSE}
                                      => {breathes=FALSE} 0.1188119
   [2] {milk=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
  [3] {eggs=TRUE,predator=TRUE}
                                      => {breathes=FALSE} 0.1584158
  [4] {hair=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
   [5] {predator=TRUE, catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
   [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
##
   [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
       confidence lift
##
  [1] 0.7058824 3.394958
##
  [2] 0.5000000
                  2.404762
  [3] 0.4848485
                  2.331890
  [4] 0.4722222
                  2.271164
   [5] 0.4285714
                  2.061224
  [6] 0.3617021
                  1.739615
##
  [7] 0.3469388
                  1.668610
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
## [1] {eggs=TRUE,fins=TRUE}
                                  => {breathes=FALSE} 0.1287129 1.0000000
  [2] {eggs=TRUE,legs=FALSE}
                                  => {breathes=FALSE} 0.1485149 0.7894737
  [3] {eggs=TRUE,toothed=TRUE}
                                  => {breathes=FALSE} 0.1287129 0.6500000
   [4] {eggs=TRUE,aquatic=TRUE}
                                  => {breathes=FALSE} 0.1881188 0.6333333
  [5] {eggs=TRUE,airborne=FALSE}
                                  => {breathes=FALSE} 0.1980198 0.5405405
## [6] {feathers=FALSE,eggs=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.5128205
                                  => {breathes=FALSE} 0.1584158 0.4848485
## [7] {eggs=TRUE,predator=TRUE}
## [8] {hair=FALSE,eggs=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.3703704
```

```
[9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
       lift.
##
  [1] 4.809524
  [2] 3.796992
   [3] 3.126190
  [4] 3.046032
##
  [5] 2.599743
##
  [6] 2.466422
   [7] 2.331890
  [8] 1.781305
  [9] 1.692240
##
       lhs
                                                        support
                                                                   confidence
## [1] {milk=FALSE,fins=TRUE}
                                    => {breathes=FALSE} 0.1287129 1.0000000
  [2] {milk=FALSE,legs=FALSE}
                                    => {breathes=FALSE} 0.1584158 0.8000000
                                    => {breathes=FALSE} 0.1980198 0.6666667
  [3] {milk=FALSE,aquatic=TRUE}
   [4] {milk=FALSE,toothed=TRUE}
                                    => {breathes=FALSE} 0.1386139 0.6666667
  [5] {milk=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208 0.5526316
  [6] {feathers=FALSE,milk=FALSE} => {breathes=FALSE} 0.2079208 0.5250000
  [7] {milk=FALSE,predator=TRUE}
                                   => {breathes=FALSE} 0.1683168 0.5000000
   [8] {hair=FALSE,milk=FALSE}
                                    => {breathes=FALSE} 0.2079208 0.3750000
##
   [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
       lift.
## [1] 4.809524
   [2] 3.847619
##
##
  [3] 3.206349
  [4] 3.206349
##
  [5] 2.657895
   [6] 2.525000
##
  [7] 2.404762
## [8] 1.803571
##
   [9] 1.748918
##
       "Número de reglas con consecuente negado"
##
        lhs
                                                              support
##
  [1]
        {type=fish}
                                            {airborne=FALSE} 0.1287129
##
   [2]
        {fins=TRUE}
                                            {airborne=FALSE} 0.1683168
   [3]
##
        {breathes=FALSE}
                                           {airborne=FALSE} 0.2079208
##
  ۲4٦
        {legs=FALSE}
                                            {airborne=FALSE} 0.2277228
  [5]
                                            {airborne=FALSE} 0.2277228
##
        {aquatic=TRUE, toothed=TRUE}
        {feathers=FALSE, aquatic=TRUE}
                                            {airborne=FALSE} 0.2970297
##
   [6]
##
  [7]
        {milk=TRUE,predator=TRUE}
                                            {airborne=FALSE} 0.2178218
  [8]
        {predator=TRUE, type=mammal}
                                            {airborne=FALSE} 0.2178218
        {eggs=FALSE,predator=TRUE}
                                            {airborne=FALSE} 0.2277228
   [9]
  [10] {hair=TRUE,predator=TRUE}
                                           {airborne=FALSE} 0.1980198
  [11] {feathers=FALSE,catsize=TRUE}
                                         => {airborne=FALSE} 0.3762376
## [12] {predator=TRUE,toothed=TRUE}
                                         => {airborne=FALSE} 0.3663366
## [13] {hair=FALSE,toothed=TRUE}
                                         => {airborne=FALSE} 0.2277228
  [14] {eggs=TRUE,toothed=TRUE}
                                           {airborne=FALSE} 0.1980198
  [15] {milk=FALSE,toothed=TRUE}
                                         => {airborne=FALSE} 0.2079208
  [16] {feathers=FALSE,predator=TRUE}
                                         => {airborne=FALSE} 0.4554455
  [17] {feathers=FALSE,backbone=TRUE}
                                            {airborne=FALSE} 0.6039604
## [18] {toothed=TRUE}
                                            {airborne=FALSE} 0.5841584
## [19] {predator=TRUE,catsize=TRUE}
                                         => {airborne=FALSE} 0.2673267
## [20] {feathers=FALSE,tail=TRUE}
                                         => {airborne=FALSE} 0.5247525
## [21] {eggs=FALSE}
                                            {airborne=FALSE} 0.3960396
```

```
## [22] {milk=TRUE}
                                         => {airborne=FALSE} 0.3861386
                                         => {airborne=FALSE} 0.3861386
  [23] {type=mammal}
## [24] {hair=FALSE,feathers=FALSE}
                                         => {airborne=FALSE} 0.3564356
## [25] {catsize=TRUE}
                                         => {airborne=FALSE} 0.4059406
## [26] {predator=TRUE,tail=FALSE}
                                           {airborne=FALSE} 0.1287129
## [27] {feathers=FALSE, venomous=FALSE} => {airborne=FALSE} 0.6633663
## [28] {feathers=FALSE,domestic=FALSE} => {airborne=FALSE} 0.6336634
## [29] {predator=TRUE}
                                         => {airborne=FALSE} 0.4851485
##
  [30] {aquatic=TRUE}
                                           {airborne=FALSE} 0.3069307
  [31] {hair=TRUE}
                                         => {airborne=FALSE} 0.3663366
## [32] {venomous=FALSE,tail=FALSE}
                                         => {airborne=FALSE} 0.1782178
## [33] {backbone=TRUE,domestic=FALSE}
                                         => {airborne=FALSE} 0.5544554
## [34]
       {backbone=TRUE}
                                            {airborne=FALSE} 0.6435644
## [35] {tail=FALSE}
                                         => {airborne=FALSE} 0.1980198
## [36] {tail=TRUE}
                                         => {airborne=FALSE} 0.5643564
## [37]
        {aquatic=FALSE}
                                         => {airborne=FALSE} 0.4554455
  [38]
        {hair=FALSE}
                                         => {airborne=FALSE} 0.3960396
## [39] {backbone=FALSE}
                                         => {airborne=FALSE} 0.1188119
## [40] {milk=FALSE}
                                         => {airborne=FALSE} 0.3762376
  [41] {eggs=TRUE}
                                         => {airborne=FALSE} 0.3663366
##
  [42] {predator=FALSE}
                                         => {airborne=FALSE} 0.2772277
  [43] {toothed=FALSE}
                                         => {airborne=FALSE} 0.1782178
##
        confidence lift
        1.0000000 1.3116883
##
  Г17
##
  [2]
        1.0000000
                   1.3116883
  [3]
        1.0000000
                   1.3116883
##
  [4]
        1.0000000
                   1.3116883
##
  [5]
        1.0000000
                   1.3116883
##
  [6]
        1.0000000
                   1.3116883
                   1.3116883
## [7]
        1.0000000
## [8]
        1.0000000
                   1.3116883
##
  [9]
        1.0000000
                   1.3116883
## [10] 1.0000000
                   1.3116883
## [11] 1.0000000
                   1.3116883
## [12] 1.0000000
                   1.3116883
## [13] 1.0000000
                   1.3116883
## [14] 1.0000000
                   1.3116883
## [15] 1.0000000
                   1.3116883
## [16] 0.9787234
                   1.2837800
  [17] 0.9682540
                   1.2700474
  [18] 0.9672131
                   1.2686821
## [19] 0.9642857
                   1.2648423
## [20] 0.9636364
                   1.2639906
## [21] 0.9523810
                   1.2492270
## [22] 0.9512195
                   1.2477035
## [23] 0.9512195
                   1.2477035
  [24] 0.9473684
                   1.2426521
## [25] 0.9318182
                   1.2222550
  [26] 0.9285714
                   1.2179963
## [27] 0.9178082
                   1.2038783
## [28] 0.9014085
                   1.1823669
## [29] 0.8750000
                   1.1477273
## [30] 0.8611111
                  1.1295094
## [31] 0.8604651 1.1286620
```

```
## [32] 0.8181818
                   1.0731995
   [33] 0.7887324
                   1.0345711
   [34] 0.7831325
                   1.0272258
   [35] 0.7692308
                   1.0089910
   [36] 0.7600000
                   0.9968831
   [37] 0.7076923
                   0.9282717
   [38] 0.6896552
                   0.9046126
                   0.8744589
   [39] 0.6666667
   [40] 0.6333333
                   0.8307359
   [41] 0.6271186
                   0.8225842
   [42] 0.6222222
                   0.8161616
##
   [43] 0.4500000
                   0.5902597
##
       lhs
                                                      confidence lift
                                            support
##
   [1] {type=bird}
                        => {airborne=TRUE} 0.1584158 0.8000000
                                                                  3.3666667
                        => {airborne=TRUE} 0.1584158 0.8000000
   [2] {feathers=TRUE}
                                                                  3.3666667
   [3] {toothed=FALSE}
                        => {airborne=TRUE} 0.2178218 0.5500000
                                                                  2.3145833
   [4] {aquatic=FALSE}
                        => {airborne=TRUE} 0.1881188 0.2923077
                                                                  1.2301282
   [5] {venomous=FALSE} => {airborne=TRUE} 0.2178218 0.2365591
##
       lhs
                                           rhs
                                                             support
##
   [1] {feathers=FALSE, venomous=FALSE} => {airborne=FALSE} 0.6633663
##
   [2] {venomous=FALSE,tail=FALSE}
                                        => {airborne=FALSE} 0.1782178
       confidence lift
##
  [1] 0.9178082 1.203878
##
   [2] 0.8181818 1.073200
##
   [1] "Número de reglas con consecuente negado"
##
                                                             support
##
   [1]
        {catsize=FALSE, type=bird}
                                            {airborne=TRUE} 0.1287129
##
   [2]
        {feathers=TRUE, catsize=FALSE}
                                           {airborne=TRUE} 0.1287129
##
   [3]
        {type=bird}
                                         => {airborne=TRUE} 0.1584158
##
  [4]
        {feathers=TRUE}
                                           {airborne=TRUE} 0.1584158
##
  [5]
        {toothed=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
##
   [6]
        {predator=FALSE, toothed=FALSE}
                                            {airborne=TRUE} 0.1485149
##
  [7]
        {toothed=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [8]
##
        {toothed=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
        {aquatic=FALSE, toothed=FALSE}
                                            {airborne=TRUE} 0.1683168
   [9]
##
  [10] {toothed=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [11] {toothed=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
  [12] {eggs=TRUE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
  [13] {eggs=TRUE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
  [14] {milk=FALSE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
  [15] {milk=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
   [16] {eggs=TRUE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
   [17] {milk=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
  [18] {toothed=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [19] {toothed=FALSE}
                                           {airborne=TRUE} 0.2178218
  [20] {eggs=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
  [21] {milk=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
  [22] {predator=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
  [23] {legs=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.2079208
  [24] {breathes=TRUE, catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
  [25] {hair=FALSE,predator=FALSE}
                                            {airborne=TRUE} 0.1089109
## [26] {aquatic=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1683168
## [27] {hair=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1287129
## [28] {hair=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1782178
```

```
## [29] {hair=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.1782178
                                         => {airborne=TRUE} 0.2178218
  [30] {eggs=TRUE,fins=FALSE}
  [31] {milk=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.2178218
  [32] {fins=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.2079208
##
  [33]
       {predator=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1683168
  [34] {hair=FALSE,fins=FALSE}
##
                                           {airborne=TRUE} 0.1782178
  [35] {predator=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1683168
  [36] {predator=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1683168
   [37]
       {eggs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
   [38]
       {eggs=TRUE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
  [39] {tail=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.1485149
  [40] {milk=FALSE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
  [41] {milk=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.1881188
       {milk=FALSE, venomous=FALSE}
## [42]
                                         => {airborne=TRUE} 0.1980198
## [43] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
  [44]
        {hair=FALSE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
  [45]
       {eggs=TRUE,backbone=TRUE}
                                           {airborne=TRUE} 0.1584158
   [46] {milk=FALSE,backbone=TRUE}
                                           {airborne=TRUE} 0.1584158
  [47] {venomous=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.1881188
  [48] {eggs=TRUE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [49] {backbone=TRUE, catsize=FALSE}
                                           {airborne=TRUE} 0.1485149
  [50] {hair=FALSE, venomous=FALSE}
                                           {airborne=TRUE} 0.1782178
  [51] {breathes=TRUE,legs=TRUE}
                                           {airborne=TRUE} 0.2376238
       {aquatic=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1881188
##
   [52]
   [53]
       {legs=TRUE,tail=TRUE}
                                           {airborne=TRUE} 0.1782178
   [54] {breathes=TRUE,fins=FALSE}
                                         => {airborne=TRUE} 0.2376238
   [55] {fins=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2376238
   [56] {fins=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1782178
   [57]
       {aquatic=FALSE}
                                         => {airborne=TRUE} 0.1881188
##
   [58]
       {venomous=FALSE}
                                         => {airborne=TRUE} 0.2178218
##
        confidence lift
##
  [1]
        0.9285714
                   3.9077381
##
   [2]
        0.9285714
                   3.9077381
   [3]
##
        0.8000000
                   3.3666667
   [4]
        0.8000000
                   3.3666667
##
   [5]
##
        0.7272727
                   3.0606061
  [6]
        0.7142857
                   3.0059524
##
  [7]
        0.6956522
                   2.9275362
   [8]
        0.6666667
                   2.8055556
##
  [9]
        0.6296296
                   2.6496914
  [10] 0.6129032
                   2.5793011
  [11] 0.6111111
                   2.5717593
   [12] 0.5862069
                   2.4669540
  [13] 0.5769231
                   2,4278846
  [14] 0.5769231
                   2.4278846
                   2.3847222
## [15] 0.5666667
   [16] 0.5641026
                   2.3739316
  [17] 0.5641026
                   2.3739316
  [18] 0.5555556
                   2.3379630
  [19] 0.5500000
                   2.3145833
  [20] 0.5500000
                   2.3145833
## [21] 0.5500000
                   2.3145833
## [22] 0.5172414
                   2.1767241
## [23] 0.5121951 2.1554878
```

```
## [24] 0.5121951
                   2.1554878
   [25] 0.5000000
                   2.1041667
   [26] 0.5000000
                   2.1041667
   [27] 0.5000000
                   2.1041667
   [28] 0.5000000
                   2.1041667
   [29] 0.4864865
                   2.0472973
   [30] 0.4782609
                   2.0126812
   [31] 0.4680851
                   1.9698582
   [32] 0.4375000
                   1.8411458
   [33] 0.4358974
                   1.8344017
   [34] 0.4186047
                   1.7616279
   [35] 0.4146341
                   1.7449187
                   1.7449187
   [36] 0.4146341
   [37] 0.4130435
                   1.7382246
   [38] 0.4102564
                   1.7264957
   [39] 0.4054054
                   1.7060811
   [40] 0.4000000
                   1.6833333
   [41] 0.3958333
                   1.6657986
                   1.6185897
   [42] 0.3846154
   [43] 0.3823529
                   1.6090686
##
  [44] 0.3809524
                   1.6031746
   [45] 0.3809524
                   1.6031746
   [46] 0.3809524
                   1.6031746
   [47] 0.3800000
                   1.5991667
   [48] 0.3773585
                   1.5880503
   [49] 0.3750000
                   1.5781250
   [50] 0.3461538
                   1.4567308
##
   [51] 0.3287671
                   1.3835616
   [52] 0.3166667
                   1.3326389
   [53] 0.3157895
                   1.3289474
   [54] 0.3157895
                   1.3289474
##
   [55] 0.3116883
                   1.3116883
   [56] 0.3050847
                   1.2838983
   [57]
##
        0.2923077
                   1.2301282
##
   [58]
        0.2365591
                   0.9955197
##
        lhs
                                               support
                                                         confidence lift
##
   [1]
        {type=fish}
                            {airborne=FALSE} 0.1287129 1.0000000
##
   [2]
        {fins=TRUE}
                          => {airborne=FALSE} 0.1683168 1.0000000
                                                                    1.3116883
##
   [3]
                             {airborne=FALSE} 0.2079208 1.0000000
        {breathes=FALSE} =>
                                                                     1.3116883
##
   [4]
                          => {airborne=FALSE} 0.2277228 1.0000000
        {legs=FALSE}
                                                                     1.3116883
   [5]
        {toothed=TRUE}
                             {airborne=FALSE} 0.5841584 0.9672131
                                                                     1.2686821
   [6]
                             {airborne=FALSE} 0.3960396 0.9523810
##
        {eggs=FALSE}
                                                                     1.2492270
##
   [7]
        {milk=TRUE}
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                     1.2477035
##
   [8]
        {type=mammal}
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                     1.2477035
   [9]
        {catsize=TRUE}
                          => {airborne=FALSE} 0.4059406 0.9318182
                                                                     1.2222550
   [10]
       {predator=TRUE}
                             {airborne=FALSE} 0.4851485 0.8750000
                                                                     1.1477273
##
   [11]
       {aquatic=TRUE}
                             {airborne=FALSE} 0.3069307 0.8611111
                                                                     1.1295094
   [12]
       {hair=TRUE}
                             {airborne=FALSE} 0.3663366 0.8604651
                                                                     1.1286620
  [13] {backbone=TRUE}
                          => {airborne=FALSE} 0.6435644 0.7831325
                                                                     1.0272258
   [14]
        {tail=FALSE}
                             {airborne=FALSE} 0.1980198 0.7692308
                                                                     1.0089910
       {tail=TRUE}
##
   [15]
                          => {airborne=FALSE} 0.5643564 0.7600000
                                                                     0.9968831
## [16] {aquatic=FALSE}
                          => {airborne=FALSE} 0.4554455 0.7076923
                                                                     0.9282717
## [17] {hair=FALSE}
                          => {airborne=FALSE} 0.3960396 0.6896552
                                                                     0.9046126
## [18] {backbone=FALSE} => {airborne=FALSE} 0.1188119 0.6666667
```

```
## [19] {milk=FALSE}
                         => {airborne=FALSE} 0.3762376 0.6333333 0.8307359
                         => {airborne=FALSE} 0.3663366 0.6271186
## [20] {eggs=TRUE}
                                                                   0.8225842
  [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.6222222
  [22] {toothed=FALSE} => {airborne=FALSE} 0.1782178 0.4500000
                                                                   0.5902597
                                        rhs
                                                         support
                                                                   confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
## [2] {eggs=TRUE,backbone=TRUE}
                                     => {airborne=TRUE} 0.1584158 0.3809524
## [3] {milk=FALSE,backbone=TRUE}
                                     => {airborne=TRUE} 0.1584158 0.3809524
##
  [4] {backbone=TRUE, catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift
## [1] 3.060606
## [2] 1.603175
  [3] 1.603175
## [4] 1.578125
##
       lhs
                                    rhs
                                                     support
                                                               confidence
## [1] {toothed=FALSE,tail=TRUE} => {airborne=TRUE} 0.1584158 0.6956522
  [2] {eggs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4102564
## [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
                                 => {airborne=TRUE} 0.1584158 0.4000000
## [4] {milk=FALSE,tail=TRUE}
## [5] {hair=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.3809524
## [6] {legs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1782178 0.3157895
## [7] {fins=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1782178 0.3050847
##
       lift
## [1] 2.927536
## [2] 1.726496
## [3] 1.706081
## [4] 1.683333
## [5] 1.603175
## [6] 1.328947
## [7] 1.283898
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
  [2] {eggs=TRUE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5862069
## [3] {milk=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5666667
   [4] {aquatic=FALSE, catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
  [5] {hair=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1287129 0.5000000
##
  [6] {aquatic=FALSE,legs=TRUE}
                                     => {airborne=TRUE} 0.1881188 0.3166667
##
       lift
## [1] 2.649691
  [2] 2.466954
##
  [3] 2.384722
  [4] 2.104167
##
  [5] 2.104167
##
  [6] 1.332639
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
  [2] {hair=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1287129 0.5000000
  [3] {hair=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.5000000
## [4] {hair=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.4864865
## [5] {hair=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.1782178 0.4186047
                                   => {airborne=TRUE} 0.1584158 0.3809524
## [6] {hair=FALSE,tail=TRUE}
## [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
##
       lift
## [1] 2.104167
```

```
## [2] 2.104167
  [3] 2.104167
  [4] 2.047297
  [5] 1.761628
   [6] 1.603175
##
   [7] 1.456731
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
   [2] {milk=FALSE,aquatic=FALSE}
                                    => {airborne=TRUE} 0.1683168 0.5666667
   [3] {milk=FALSE,breathes=TRUE}
                                    => {airborne=TRUE} 0.2178218 0.5641026
  [4] {milk=FALSE,legs=TRUE}
                                    => {airborne=TRUE} 0.2178218 0.5500000
                                    => {airborne=TRUE} 0.2178218 0.4680851
   [5] {milk=FALSE,fins=FALSE}
   [6] {milk=FALSE,tail=TRUE}
                                    => {airborne=TRUE} 0.1584158 0.4000000
  [7] {milk=FALSE,catsize=FALSE}
                                   => {airborne=TRUE} 0.1881188 0.3958333
  [8] {milk=FALSE,venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
   [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
       lift
##
  [1] 2.427885
  [2] 2.384722
##
   [3] 2.373932
##
  [4] 2.314583
  [5] 1.969858
##
  [6] 1.683333
   [7] 1.665799
  [8] 1.618590
##
   [9] 1.603175
##
       lhs
                                      rhs
                                                      support
                                                                 confidence
##
  [1] {eggs=TRUE,aquatic=FALSE}
                                      {airborne=TRUE} 0.1683168 0.5862069
   [2] {eggs=TRUE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
  [3] {eggs=TRUE,breathes=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5641026
  [4] {eggs=TRUE,legs=TRUE}
                                      {airborne=TRUE} 0.2178218 0.5500000
  [5] {eggs=TRUE,fins=FALSE}
                                   => {airborne=TRUE} 0.2178218 0.4782609
  [6] {eggs=TRUE,catsize=FALSE}
                                   => {airborne=TRUE} 0.1881188 0.4130435
   [7] {eggs=TRUE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.4102564
   [8] {eggs=TRUE,backbone=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
   [9] {eggs=TRUE,venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
##
       lift
## [1] 2.466954
   [2] 2.427885
##
  [3] 2.373932
  [4] 2.314583
  [5] 2.012681
   [6] 1.738225
##
   [7] 1.726496
## [8] 1.603175
## [9] 1.588050
##
       lhs
                                           rhs
                                                           support
  [1] {predator=FALSE,toothed=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [2] {eggs=TRUE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
   [3] {milk=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [4] {predator=FALSE, catsize=FALSE}
                                        => {airborne=TRUE} 0.1485149
## [5] {hair=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1089109
## [6] {predator=FALSE,legs=TRUE}
                                        => {airborne=TRUE} 0.1683168
## [7] {predator=FALSE,breathes=TRUE}
                                        => {airborne=TRUE} 0.1683168
```

```
## [8] {predator=FALSE,fins=FALSE}
                                        => {airborne=TRUE} 0.1683168
   [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
##
##
       confidence lift
  [1] 0.7142857
                  3.005952
##
   [2] 0.5769231
                  2.427885
  [3] 0.5769231
                  2.427885
  [4] 0.5172414
                  2.176724
                  2.104167
  [5] 0.5000000
   [6] 0.4358974
                  1.834402
  [7] 0.4146341
                  1.744919
  [8] 0.4146341
                  1.744919
  [9] 0.3823529
##
                  1.609069
##
       lhs
                                          rhs
                                                          support
                                                                     confidence
##
  [1] {toothed=FALSE,backbone=TRUE}
                                          {airborne=TRUE} 0.1584158 0.7272727
  [2] {predator=FALSE,toothed=FALSE} =>
                                          {airborne=TRUE} 0.1485149 0.7142857
  [3] {toothed=FALSE,tail=TRUE}
                                          {airborne=TRUE} 0.1584158 0.6956522
  [4] {toothed=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6666667
  [5] {aquatic=FALSE,toothed=FALSE}
                                       => {airborne=TRUE} 0.1683168 0.6296296
  [6] {toothed=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1881188 0.6129032
   [7] {toothed=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6111111
##
   [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
       lift.
## [1] 3.060606
   [2] 3.005952
  [3] 2.927536
  [4] 2.805556
  [5] 2.649691
##
   [6] 2.579301
##
  [7] 2.571759
  [8] 2.337963
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                              support
##
  [1]
        {toothed=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
  [2]
##
        {feathers=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
   [3]
        {eggs=TRUE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
  [4]
##
        {milk=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
  [5]
        {hair=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1287129
  [6]
        {tail=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
##
  [7]
        {tail=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
##
  [8]
        {aquatic=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1089109
        {fins=FALSE,tail=FALSE}
  [9]
                                            {backbone=FALSE} 0.1683168
  [10] {airborne=FALSE,toothed=FALSE}
                                           {backbone=FALSE} 0.1188119
## [11] {toothed=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
## [12] {toothed=FALSE,domestic=FALSE}
                                           {backbone=FALSE} 0.1683168
## [13] {milk=FALSE,toothed=FALSE}
                                         => {backbone=FALSE} 0.1782178
## [14] {toothed=FALSE}
                                           {backbone=FALSE} 0.1782178
  [15] {feathers=FALSE,milk=FALSE}
                                            {backbone=FALSE} 0.1782178
  [16] {feathers=FALSE,eggs=TRUE}
                                           {backbone=FALSE} 0.1683168
## [17] {milk=FALSE,aquatic=FALSE}
                                         => {backbone=FALSE} 0.1188119
## [18] {feathers=FALSE, catsize=FALSE}
                                           {backbone=FALSE} 0.1683168
## [19] {milk=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
## [20] {eggs=TRUE,aquatic=FALSE}
                                           {backbone=FALSE} 0.1089109
## [21] {eggs=TRUE,fins=FALSE}
                                         => {backbone=FALSE} 0.1683168
## [22] {hair=FALSE, feathers=FALSE}
                                         => {backbone=FALSE} 0.1386139
```

```
## [23] {milk=FALSE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1683168
                                            {backbone=FALSE} 0.1683168
  [24] {fins=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1188119
  [25] {aquatic=FALSE, catsize=FALSE}
  [26] {milk=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
  [27] {eggs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
  [28] {hair=FALSE,fins=FALSE}
##
                                            {backbone=FALSE} 0.1386139
  [29] {eggs=TRUE,legs=TRUE}
                                            {backbone=FALSE} 0.1287129
## [30] {domestic=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
   [31] {legs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1287129
   [32] {milk=FALSE,airborne=FALSE}
                                            {backbone=FALSE} 0.1188119
  [33] {milk=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
       {airborne=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1089109
  [34]
   [35]
        {eggs=TRUE,airborne=FALSE}
                                            {backbone=FALSE} 0.1089109
       {eggs=TRUE,domestic=FALSE}
                                         => {backbone=FALSE} 0.1584158
   [36]
       {eggs=TRUE}
                                         => {backbone=FALSE} 0.1683168
  [37]
  [38]
        {feathers=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
   [39]
        {hair=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1386139
       {feathers=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
  [41] {feathers=FALSE,domestic=FALSE} =>
                                            {backbone=FALSE} 0.1683168
  [42] {fins=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
##
  [43] {feathers=FALSE, aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
  [44] {aquatic=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1089109
   [45] {legs=TRUE,domestic=FALSE}
                                         => {backbone=FALSE} 0.1287129
   [46] {aquatic=FALSE}
                                         => {backbone=FALSE} 0.1188119
##
##
        confidence lift
  [1]
        1.0000000 5.611111
##
   [2]
        0.9000000
                   5.050000
##
   [3]
        0.8500000
                   4.769444
##
  [4]
                   4.769444
        0.8500000
##
  [5]
        0.8125000
                   4.559028
##
  [6]
        0.8000000
                   4.488889
##
   [7]
        0.6956522
                   3.903382
##
  [8]
        0.6875000
                   3.857639
##
  [9]
        0.6800000
                   3.815556
   [10]
        0.6666667
                   3.740741
##
  [11] 0.5483871
                   3.077061
  [12] 0.4722222
                   2.649691
## [13] 0.4615385
                   2.589744
  [14] 0.4500000
                   2.525000
  [15] 0.4500000
                   2.525000
  [16] 0.4358974
                   2.445869
  [17] 0.4000000
                   2.244444
  [18] 0.3953488
                   2.218346
  [19] 0.3829787
                   2.148936
## [20] 0.3793103
                   2.128352
## [21] 0.3695652
                   2.073671
  [22] 0.3684211
                   2.067251
  [23] 0.3541667
                   1.987269
  [24] 0.3541667
                   1.987269
  [25]
       0.3529412
                   1.980392
##
  [26] 0.3500000
                   1.963889
## [27] 0.3478261
                   1.951691
## [28] 0.3255814
                   1.826873
## [29] 0.3250000
                   1.823611
```

```
## [30] 0.3200000
                   1.795556
   [31] 0.3170732
                   1.779133
  [32] 0.3157895
                   1.771930
  [33] 0.3090909
                   1.734343
   [34] 0.3055556
                   1.714506
##
  [35] 0.2972973
                   1.668168
   [36] 0.2962963
                   1.662551
                   1.616761
  [37] 0.2881356
   [38] 0.2812500
                   1.578125
   [39] 0.2592593
                   1.454733
  [40] 0.2413793
                   1.354406
   [41] 0.2394366
                   1.343505
   [42] 0.2361111
                   1.324846
  [43] 0.2352941
                   1.320261
  [44] 0.2075472
                   1.164570
   [45] 0.1969697
                   1.105219
   [46] 0.1846154
##
                   1.035897
##
        lhs
                                                        confidence lift
                                             support
        {type=fish}
##
  [1]
                          => {backbone=TRUE} 0.1287129 1.0000000
                                                                  1.2168675
##
   [2]
        {fins=TRUE}
                             {backbone=TRUE} 0.1683168 1.0000000
                                                                   1.2168675
##
  [3]
        {type=bird}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                   1.2168675
  [4]
                             {backbone=TRUE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                                   1.2168675
  [5]
                             {backbone=TRUE} 0.4059406 1.0000000
##
        {milk=TRUE}
                                                                   1.2168675
##
   [6]
        {type=mammal}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                   1.2168675
        {toothed=TRUE}
##
  [7]
                             {backbone=TRUE} 0.6039604 1.0000000
                                                                   1.2168675
  [8]
        {tail=TRUE}
                             {backbone=TRUE} 0.7326733 0.9866667
                                                                   1.2006426
##
  [9]
        {catsize=TRUE}
                          => {backbone=TRUE} 0.4257426 0.9772727
                                                                   1.1892114
   [10]
       {domestic=TRUE}
                             {backbone=TRUE} 0.1188119 0.9230769
                                                                   1.1232623
## [11] {breathes=TRUE}
                         => {backbone=TRUE} 0.6831683 0.8625000
                                                                   1.0495482
## [12] {legs=FALSE}
                          => {backbone=TRUE} 0.1881188 0.8260870
                                                                   1.0052383
## [13] {legs=TRUE}
                         => {backbone=TRUE} 0.6336634 0.8205128
                                                                   0.9984554
  [14]
       {aquatic=FALSE}
                             {backbone=TRUE} 0.5247525 0.8153846
                                                                   0.9922150
  [15] {predator=FALSE} =>
                             {backbone=TRUE} 0.3564356 0.8000000
                                                                   0.9734940
  [16] {feathers=FALSE} => {backbone=TRUE} 0.6237624 0.7777778
                                                                   0.9464525
   [17] {airborne=TRUE}
                         => {backbone=TRUE} 0.1782178 0.7500000
                                                                   0.9126506
                          => {backbone=TRUE} 0.4158416 0.7118644
##
  [18] {eggs=TRUE}
                                                                   0.8662446
  [19] {catsize=FALSE}
                         => {backbone=TRUE} 0.3960396 0.7017544
  [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
##
                                                                   0.8112450
  [21] {toothed=FALSE} => {backbone=TRUE} 0.2178218 0.5500000
##
                                                                   0.6692771
##
       lhs
                                      rhs
                                                        support
                                                                  confidence
  [1] {milk=FALSE,legs=TRUE}
                                   => {backbone=FALSE} 0.1386139 0.3500000
   [2] {eggs=TRUE,legs=TRUE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
   [3] {legs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1287129 0.3170732
   [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
##
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
       lift
##
  [1] 1.963889
   [2] 1.823611
   [3] 1.779133
##
   [4] 1.354406
##
   [5] 1.105219
##
       lhs
                                          rhs
                                                            support
## [1] {aquatic=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1089109
## [2] {milk=FALSE,aquatic=FALSE}
                                          {backbone=FALSE} 0.1188119
```

```
## [3] {eggs=TRUE,aquatic=FALSE}
                                      => {backbone=FALSE} 0.1089109
  [4] {aquatic=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1188119
  [5] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
   [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
       confidence lift
## [1] 0.6875000 3.857639
  [2] 0.4000000
                  2.244444
## [3] 0.3793103
                  2.128352
   [4] 0.3529412
                  1.980392
  [5] 0.2352941
                  1.320261
  [6] 0.2075472 1.164570
##
       lhs
                                           rhs
                                                            support
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
## [2] {feathers=FALSE,milk=FALSE}
                                       => {backbone=FALSE} 0.1782178
## [3] {feathers=FALSE,eggs=TRUE}
                                       => {backbone=FALSE} 0.1683168
## [4] {feathers=FALSE,catsize=FALSE}
                                          {backbone=FALSE} 0.1683168
  [5] {hair=FALSE, feathers=FALSE}
                                       => {backbone=FALSE} 0.1386139
  [6] {feathers=FALSE,fins=FALSE}
                                       => {backbone=FALSE} 0.1782178
  [7] {feathers=FALSE,legs=TRUE}
                                       => {backbone=FALSE} 0.1386139
   [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
##
   [9] {feathers=FALSE,aquatic=FALSE}
                                       => {backbone=FALSE} 0.1188119
##
       confidence lift
## [1] 0.9000000 5.050000
   [2] 0.4500000
                  2.525000
## [3] 0.4358974 2.445869
  [4] 0.3953488
                  2.218346
  [5] 0.3684211
                  2.067251
  [6] 0.2812500
                  1.578125
  [7] 0.2413793
                  1.354406
## [8] 0.2394366
                  1.343505
## [9] 0.2352941
                  1.320261
##
       lhs
                                     rhs
                                                                 confidence
                                                       support
  [1] {eggs=TRUE,tail=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.8500000
  [2] {feathers=FALSE,eggs=TRUE} => {backbone=FALSE} 0.1683168 0.4358974
   [3] {eggs=TRUE,aquatic=FALSE}
                                  => {backbone=FALSE} 0.1089109 0.3793103
## [4] {eggs=TRUE,fins=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.3695652
## [5] {eggs=TRUE,catsize=FALSE}
                                  => {backbone=FALSE} 0.1584158 0.3478261
                                  => {backbone=FALSE} 0.1287129 0.3250000
## [6] {eggs=TRUE,legs=TRUE}
  [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
   [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
##
       lift
## [1] 4.769444
##
  [2] 2.445869
  [3] 2.128352
## [4] 2.073671
## [5] 1.951691
##
  [6] 1.823611
  [7] 1.668168
  [8] 1.662551
##
##
                                           rhs
        lhs
                                                            support
## [1]
        {tail=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1584158
## [2]
        {toothed=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
        {feathers=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1683168
## [3]
## [4]
        {milk=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
```

```
[5]
        {fins=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
   [6]
        {aquatic=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1188119
                                        => {backbone=FALSE} 0.1584158
   [7]
        {eggs=TRUE,catsize=FALSE}
   [8]
        {domestic=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1584158
##
##
   [9]
        {legs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1287129
   [10] {airborne=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1089109
##
##
        confidence lift
##
  [1]
        0.8000000 4.488889
##
   [2]
        0.5483871
                   3.077061
##
   [3]
        0.3953488
                   2.218346
   [4]
        0.3541667
                   1.987269
##
   [5]
        0.3541667
                   1.987269
##
   [6]
        0.3529412
                   1.980392
        0.3478261
##
   [7]
                   1.951691
  [8]
        0.3200000
                   1.795556
##
##
   [9]
        0.3170732
                   1.779133
##
   [10] 0.3055556
                   1.714506
##
       lhs
                                                            support
##
  [1] {toothed=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1683168
   [2] {feathers=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1782178
  [3] {airborne=FALSE, toothed=FALSE} => {backbone=FALSE} 0.1188119
  [4] {toothed=FALSE,catsize=FALSE}
                                          {backbone=FALSE} 0.1683168
   [5] {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
   [6] {milk=FALSE.toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
##
##
       confidence lift
  [1] 1.0000000 5.611111
   [2] 0.9000000
                  5.050000
   [3] 0.6666667
                  3.740741
  [4] 0.5483871
                  3.077061
  [5] 0.4722222
                  2.649691
##
   [6] 0.4615385
                  2.589744
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                              support
##
  [1]
        {toothed=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
   [2]
        {feathers=FALSE, toothed=FALSE}
                                             {backbone=FALSE} 0.1782178
   [3]
##
        {eggs=TRUE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
  [4]
        {milk=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
  [5]
        {hair=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1287129
##
   [6]
        {tail=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1584158
##
        {tail=FALSE,domestic=FALSE}
##
  [7]
                                            {backbone=FALSE} 0.1584158
  [8]
        {aquatic=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1089109
        {fins=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
  [9]
  [10] {airborne=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1188119
  [11] {toothed=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
## [12] {toothed=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
## [13] {milk=FALSE,toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
  [14] {toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
  [15] {feathers=FALSE,milk=FALSE}
                                            {backbone=FALSE} 0.1782178
  [16] {feathers=FALSE,eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
  [17] {milk=FALSE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
## [18] {feathers=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
## [19] {milk=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
## [20] {eggs=TRUE,aquatic=FALSE}
                                         => {backbone=FALSE} 0.1089109
## [21] {eggs=TRUE,fins=FALSE}
                                            {backbone=FALSE} 0.1683168
```

```
## [22] {hair=FALSE,feathers=FALSE}
                                         => {backbone=FALSE} 0.1386139
  [23] {milk=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
  [24] {fins=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
  [25] {aquatic=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1188119
##
  [26] {milk=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
##
  [27]
       {eggs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
       {hair=FALSE,fins=FALSE}
  Г281
                                            {backbone=FALSE} 0.1386139
  [29] {eggs=TRUE,legs=TRUE}
                                            {backbone=FALSE} 0.1287129
   [30]
       {domestic=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
   [31] {legs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1287129
  [32] {milk=FALSE,airborne=FALSE}
                                            {backbone=FALSE} 0.1188119
   [33] {milk=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
   [34]
       {airborne=FALSE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1089109
       {eggs=TRUE,airborne=FALSE}
                                         => {backbone=FALSE} 0.1089109
       {eggs=TRUE,domestic=FALSE}
                                         => {backbone=FALSE} 0.1584158
   [36]
   [37]
        {eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
   [38]
        {feathers=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
       {hair=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1386139
                                            {backbone=FALSE} 0.1386139
   [40] {feathers=FALSE,legs=TRUE}
   [41] {feathers=FALSE,domestic=FALSE} =>
                                            {backbone=FALSE} 0.1683168
##
  [42] {fins=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
  [43] {feathers=FALSE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
  [44] {aquatic=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1089109
   [45] {legs=TRUE,domestic=FALSE}
                                            {backbone=FALSE} 0.1287129
##
##
   [46] {aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
        confidence lift
##
   [1]
        1.0000000
                   5.611111
##
   [2]
        0.9000000
                   5.050000
##
   [3]
        0.8500000
                   4.769444
                   4.769444
##
  [4]
        0.8500000
##
   [5]
        0.8125000
                   4.559028
##
   [6]
        0.8000000
                   4.488889
##
   [7]
        0.6956522
                   3.903382
   [8]
##
        0.6875000
                   3.857639
   [9]
        0.6800000
                   3.815556
##
  [10] 0.6666667
                   3.740741
  [11] 0.5483871
                   3.077061
  [12] 0.4722222
                   2.649691
  [13] 0.4615385
                   2.589744
  [14] 0.4500000
                   2.525000
  [15] 0.4500000
                   2.525000
   [16] 0.4358974
                   2.445869
   [17] 0.4000000
                   2.244444
  [18] 0.3953488
                   2.218346
  [19] 0.3829787
                   2.148936
  [20] 0.3793103
                   2.128352
  [21] 0.3695652
                   2.073671
  [22] 0.3684211
                   2.067251
  [23] 0.3541667
                   1.987269
  [24]
        0.3541667
                   1.987269
##
  [25]
       0.3529412
                   1.980392
## [26] 0.3500000
                   1.963889
## [27] 0.3478261
                   1.951691
## [28] 0.3255814
                  1.826873
```

```
## [29] 0.3250000
                   1.823611
  [30] 0.3200000
                   1.795556
  [31] 0.3170732
                   1.779133
  [32] 0.3157895
                   1.771930
   [33] 0.3090909
                   1.734343
  [34] 0.3055556
                   1.714506
  [35] 0.2972973
                   1.668168
  [36] 0.2962963
                   1.662551
   [37] 0.2881356
                   1.616761
   [38] 0.2812500
                   1.578125
  [39] 0.2592593
                   1.454733
   [40] 0.2413793
                   1.354406
  [41] 0.2394366
                   1.343505
                   1.324846
  [42] 0.2361111
  [43] 0.2352941
                   1.320261
   [44] 0.2075472
                   1.164570
   [45] 0.1969697
                   1.105219
   [46] 0.1846154
                   1.035897
##
        lhs
                                             support
                                                       confidence lift
##
  [1]
        {type=fish}
                            {backbone=TRUE} 0.1287129 1.0000000
##
  [2]
        {fins=TRUE}
                          => {backbone=TRUE} 0.1683168 1.0000000
                                                                   1.2168675
  [3]
                          => {backbone=TRUE} 0.1980198 1.0000000
        {type=bird}
  [4]
                             {backbone=TRUE} 0.1980198 1.0000000
##
        {feathers=TRUE}
                                                                   1.2168675
##
  [5]
        {milk=TRUE}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                   1.2168675
##
  [6]
        {type=mammal}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                   1.2168675
  [7]
        {toothed=TRUE}
                          => {backbone=TRUE} 0.6039604 1.0000000
                                                                   1.2168675
  [8]
        {tail=TRUE}
                          => {backbone=TRUE} 0.7326733 0.9866667
##
                                                                   1.2006426
   [9]
        {catsize=TRUE}
                          => {backbone=TRUE} 0.4257426 0.9772727
                                                                   1.1892114
## [10] {domestic=TRUE}
                         => {backbone=TRUE} 0.1188119 0.9230769
                                                                   1.1232623
                                                                   1.0495482
       {breathes=TRUE}
                         => {backbone=TRUE} 0.6831683 0.8625000
## [11]
## [12]
        {legs=FALSE}
                          => {backbone=TRUE} 0.1881188 0.8260870
                                                                   1.0052383
##
  [13]
       {legs=TRUE}
                          => {backbone=TRUE} 0.6336634 0.8205128
                                                                   0.9984554
  [14] {aquatic=FALSE}
                         => {backbone=TRUE} 0.5247525 0.8153846
                                                                   0.9922150
  [15] {predator=FALSE} => {backbone=TRUE} 0.3564356 0.8000000
                                                                   0.9734940
   [16] {feathers=FALSE} =>
                             {backbone=TRUE} 0.6237624 0.7777778
                                                                   0.9464525
##
  [17] {airborne=TRUE}
                         => {backbone=TRUE} 0.1782178 0.7500000
                                                                   0.9126506
  [18] {eggs=TRUE}
                          => {backbone=TRUE} 0.4158416 0.7118644
                         => {backbone=TRUE} 0.3960396 0.7017544
  [19] {catsize=FALSE}
                                                                   0.8539421
   [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                   0.8112450
##
  [21] {toothed=FALSE} => {backbone=TRUE} 0.2178218 0.5500000
                                                                   0.6692771
##
       lhs
                                      rhs
                                                        support
                                                                  confidence
  [1] {milk=FALSE,legs=TRUE}
                                   => {backbone=FALSE} 0.1386139 0.3500000
##
   [2] {eggs=TRUE,legs=TRUE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
   [3] {legs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1287129 0.3170732
  [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
##
       lift
##
  [1] 1.963889
  [2] 1.823611
  [3] 1.779133
##
  [4] 1.354406
##
  [5] 1.105219
##
       lhs
                                          rhs
                                                            support
## [1] {aquatic=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1089109
```

```
## [2] {milk=FALSE,aquatic=FALSE}
                                      => {backbone=FALSE} 0.1188119
                                      => {backbone=FALSE} 0.1089109
## [3] {eggs=TRUE,aquatic=FALSE}
  [4] {aquatic=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1188119
  [5] {feathers=FALSE, aquatic=FALSE} => {backbone=FALSE} 0.1188119
##
   [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
##
       confidence lift
  [1] 0.6875000 3.857639
## [2] 0.4000000
                  2.244444
  [3] 0.3793103
                  2.128352
  [4] 0.3529412
                  1.980392
  [5] 0.2352941
                  1.320261
##
  [6] 0.2075472
                  1.164570
##
       lhs
                                           rhs
                                                            support
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
                                       => {backbone=FALSE} 0.1782178
## [2] {feathers=FALSE,milk=FALSE}
  [3] {feathers=FALSE,eggs=TRUE}
                                        => {backbone=FALSE} 0.1683168
  [4] {feathers=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
## [5] {hair=FALSE,feathers=FALSE}
                                       => {backbone=FALSE} 0.1386139
## [6] {feathers=FALSE,fins=FALSE}
                                       => {backbone=FALSE} 0.1782178
  [7] {feathers=FALSE,legs=TRUE}
                                        => {backbone=FALSE} 0.1386139
## [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
  [9] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
##
       confidence lift
## [1] 0.9000000 5.050000
  [2] 0.4500000 2.525000
  [3] 0.4358974
                  2.445869
## [4] 0.3953488
                  2.218346
  [5] 0.3684211
                  2.067251
## [6] 0.2812500
                  1.578125
## [7] 0.2413793
                  1.354406
## [8] 0.2394366
                  1.343505
##
  [9] 0.2352941
                  1.320261
##
       lhs
                                                       support
                                                                 confidence
## [1] {eggs=TRUE,tail=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.8500000
  [2] {feathers=FALSE,eggs=TRUE} => {backbone=FALSE} 0.1683168 0.4358974
## [3] {eggs=TRUE,aquatic=FALSE}
                                  => {backbone=FALSE} 0.1089109 0.3793103
## [4] {eggs=TRUE,fins=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.3695652
                                  => {backbone=FALSE} 0.1584158 0.3478261
## [5] {eggs=TRUE,catsize=FALSE}
                                  => {backbone=FALSE} 0.1287129 0.3250000
## [6] {eggs=TRUE,legs=TRUE}
  [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
   [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
       lift.
## [1] 4.769444
## [2] 2.445869
## [3] 2.128352
## [4] 2.073671
## [5] 1.951691
  [6] 1.823611
  [7] 1.668168
##
  [8] 1.662551
##
        lhs
                                           rhs
                                                            support
## [1]
        {tail=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1584158
        {toothed=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1683168
## [2]
## [3]
        {feathers=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1683168
```

```
[4]
        {milk=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
                                        => {backbone=FALSE} 0.1683168
##
  [5]
        {fins=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1188119
##
  [6]
        {aquatic=FALSE, catsize=FALSE}
  [7]
        {eggs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
##
##
   [8]
        {domestic=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
        {legs=TRUE,catsize=FALSE}
##
   [9]
                                        => {backbone=FALSE} 0.1287129
   [10] {airborne=FALSE.catsize=FALSE} => {backbone=FALSE} 0.1089109
##
        confidence lift
##
  [1]
        0.8000000
                  4.488889
   [2]
##
        0.5483871
                   3.077061
  [3]
        0.3953488
                   2.218346
   [4]
##
        0.3541667
                   1.987269
##
   [5]
        0.3541667
                   1.987269
##
   [6]
        0.3529412
                   1.980392
  [7]
##
        0.3478261
                   1.951691
##
   [8]
        0.3200000
                   1.795556
##
   [9]
        0.3170732
                   1.779133
##
   [10] 0.3055556
                   1.714506
##
       lhs
                                          rhs
                                                            support
##
  [1] {toothed=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1683168
##
  [2] {feathers=FALSE, toothed=FALSE} => {backbone=FALSE} 0.1782178
  [3] {airborne=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1188119
   [4] {toothed=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
   [5] {toothed=FALSE.domestic=FALSE} => {backbone=FALSE} 0.1683168
##
   [6] {milk=FALSE, toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
       confidence lift
##
  [1] 1.0000000 5.611111
   [2] 0.9000000
                  5.050000
  [3] 0.6666667
                  3.740741
## [4] 0.5483871
                  3.077061
  [5] 0.4722222
                  2.649691
   [6] 0.4615385
                  2.589744
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                              support
##
   [1]
        {toothed=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
   [2]
        {feathers=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
  [3]
        {eggs=TRUE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
  ۲4٦
        {milk=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
  [5]
        {hair=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1287129
##
  [6]
##
        {tail=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
  [7]
        {tail=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
  [8]
        {aquatic=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1089109
##
   [9]
        {fins=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
  [10] {airborne=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1188119
## [11] {toothed=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
## [12] {toothed=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
## [13] {milk=FALSE,toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
## [14] {toothed=FALSE}
                                         => {backbone=FALSE} 0.1782178
## [15] {feathers=FALSE,milk=FALSE}
                                         => {backbone=FALSE} 0.1782178
## [16] {feathers=FALSE,eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
## [17] {milk=FALSE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
## [18] {feathers=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
## [19] {milk=FALSE,fins=FALSE}
                                         => {backbone=FALSE} 0.1782178
## [20] {eggs=TRUE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1089109
```

```
## [21] {eggs=TRUE,fins=FALSE}
                                            {backbone=FALSE} 0.1683168
  [22] {hair=FALSE,feathers=FALSE}
                                            {backbone=FALSE} 0.1386139
  [23] {milk=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
  [24] {fins=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
   [25]
       {aquatic=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1188119
       {milk=FALSE,legs=TRUE}
##
  [26]
                                             {backbone=FALSE} 0.1386139
       {eggs=TRUE,catsize=FALSE}
  [27]
                                             {backbone=FALSE} 0.1584158
  [28]
       {hair=FALSE,fins=FALSE}
                                             {backbone=FALSE} 0.1386139
##
   [29]
        {eggs=TRUE,legs=TRUE}
                                             {backbone=FALSE} 0.1287129
   [30]
       {domestic=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
   [31] {legs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1287129
   [32]
       {milk=FALSE,airborne=FALSE}
                                            {backbone=FALSE} 0.1188119
   [33]
       {milk=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
  [34]
       {airborne=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1089109
                                            {backbone=FALSE} 0.1089109
  [35]
       {eggs=TRUE,airborne=FALSE}
   [36]
        {eggs=TRUE,domestic=FALSE}
                                             {backbone=FALSE} 0.1584158
##
   [37]
        {eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
       {feathers=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
   [38]
                                            {backbone=FALSE} 0.1386139
   [39] {hair=FALSE,domestic=FALSE}
   [40] {feathers=FALSE,legs=TRUE}
                                             {backbone=FALSE} 0.1386139
##
  [41] {feathers=FALSE,domestic=FALSE} =>
                                             {backbone=FALSE} 0.1683168
  [42] {fins=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
  [43] {feathers=FALSE, aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
   [44] {aquatic=FALSE,domestic=FALSE}
##
                                            {backbone=FALSE} 0.1089109
   [45]
       {legs=TRUE,domestic=FALSE}
                                            {backbone=FALSE} 0.1287129
   [46]
       {aquatic=FALSE}
                                         => {backbone=FALSE} 0.1188119
##
        confidence lift
##
   [1]
        1.0000000
                   5.611111
##
   [2]
        0.9000000
                   5.050000
##
   [3]
        0.8500000
                   4.769444
##
   [4]
        0.8500000
                   4.769444
##
   [5]
        0.8125000
                   4.559028
##
   [6]
        0.8000000
                   4.488889
   [7]
##
        0.6956522
                   3.903382
   [8]
        0.6875000
                   3.857639
##
##
   [9]
        0.6800000
                   3.815556
  [10] 0.6666667
                   3.740741
  [11] 0.5483871
                   3.077061
   [12] 0.4722222
                   2.649691
  [13] 0.4615385
                   2.589744
  [14] 0.4500000
                   2.525000
   [15] 0.4500000
                   2.525000
   [16] 0.4358974
                   2.445869
  [17] 0.4000000
                   2.244444
  [18] 0.3953488
                   2.218346
  [19] 0.3829787
                   2.148936
   [20] 0.3793103
                   2.128352
  [21] 0.3695652
                   2.073671
  [22] 0.3684211
                   2.067251
  [23]
        0.3541667
                   1.987269
##
  [24] 0.3541667
                   1.987269
## [25] 0.3529412
                   1.980392
## [26] 0.3500000
                   1.963889
## [27] 0.3478261
                   1.951691
```

```
## [28] 0.3255814
                   1.826873
   [29] 0.3250000
                   1.823611
   [30] 0.3200000
                   1.795556
  [31] 0.3170732
                   1.779133
   [32] 0.3157895
                   1.771930
##
   [33] 0.3090909
                   1.734343
   [34] 0.3055556
                   1.714506
   [35] 0.2972973
                   1.668168
   [36] 0.2962963
                   1.662551
   [37] 0.2881356
                   1.616761
   [38] 0.2812500
                   1.578125
   [39] 0.2592593
                   1.454733
   [40] 0.2413793
                   1.354406
  [41] 0.2394366
                   1.343505
  [42] 0.2361111
                   1.324846
   [43]
       0.2352941
                   1.320261
   [44] 0.2075472
                   1.164570
   [45] 0.1969697
                   1.105219
   Γ46]
##
       0.1846154
                   1.035897
##
        lhs
                                              support
                                                        confidence lift
                             {backbone=TRUE} 0.1287129 1.0000000
##
  [1]
        {type=fish}
                                                                   1.2168675
  [2]
        {fins=TRUE}
                             {backbone=TRUE} 0.1683168 1.0000000
##
  [3]
                             {backbone=TRUE} 0.1980198 1.0000000
##
        {type=bird}
                                                                   1.2168675
   [4]
##
        {feathers=TRUE}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                    1.2168675
##
  [5]
        {milk=TRUE}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                   1.2168675
        {type=mammal}
   [6]
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                   1.2168675
   [7]
                             {backbone=TRUE} 0.6039604 1.0000000
##
        {toothed=TRUE}
                                                                   1.2168675
##
   [8]
        {tail=TRUE}
                             {backbone=TRUE} 0.7326733 0.9866667
                                                                    1.2006426
##
  [9]
                          => {backbone=TRUE} 0.4257426 0.9772727
        {catsize=TRUE}
                                                                    1.1892114
  [10]
       {domestic=TRUE}
                             {backbone=TRUE} 0.1188119 0.9230769
                                                                    1.1232623
  [11]
        {breathes=TRUE}
                             {backbone=TRUE} 0.6831683 0.8625000
                                                                    1.0495482
##
  [12]
        {legs=FALSE}
                             {backbone=TRUE} 0.1881188 0.8260870
                                                                    1.0052383
  [13]
       {legs=TRUE}
                          => {backbone=TRUE} 0.6336634 0.8205128
                                                                    0.9984554
                          => {backbone=TRUE} 0.5247525 0.8153846
  [14] {aquatic=FALSE}
                                                                   0.9922150
   [15] {predator=FALSE}
                             {backbone=TRUE} 0.3564356 0.8000000
                         =>
                                                                   0.9734940
  [16] {feathers=FALSE}
                         =>
                             {backbone=TRUE} 0.6237624 0.7777778
                                                                   0.9464525
  [17] {airborne=TRUE}
                          => {backbone=TRUE} 0.1782178 0.7500000
                                                                    0.9126506
  [18] {eggs=TRUE}
                          => {backbone=TRUE} 0.4158416 0.7118644
                                                                    0.8662446
                          => {backbone=TRUE} 0.3960396 0.7017544
   [19] {catsize=FALSE}
                                                                    0.8539421
   [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                   0.8112450
   [21] {toothed=FALSE} => {backbone=TRUE} 0.2178218 0.5500000
                                                                   0.6692771
##
       lhs
                                      rhs
                                                        support
                                                                   confidence
##
  [1] {milk=FALSE,legs=TRUE}
                                   =>
                                      {backbone=FALSE} 0.1386139 0.3500000
   [2] {eggs=TRUE,legs=TRUE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
   [3] {legs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1287129 0.3170732
   [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
##
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
       lift
  [1] 1.963889
   [2] 1.823611
##
   [3] 1.779133
##
  [4] 1.354406
## [5] 1.105219
##
       lhs
                                          rhs
                                                            support
```

```
## [1] {aguatic=FALSE,tail=FALSE}
                                      => {backbone=FALSE} 0.1089109
## [2] {milk=FALSE,aquatic=FALSE}
                                      => {backbone=FALSE} 0.1188119
  [3] {eggs=TRUE,aquatic=FALSE}
                                      => {backbone=FALSE} 0.1089109
  [4] {aquatic=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1188119
  [5] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
   [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
       confidence lift
## [1] 0.6875000 3.857639
   [2] 0.4000000
                  2.244444
  [3] 0.3793103
                  2.128352
  [4] 0.3529412
                  1.980392
  [5] 0.2352941
                  1.320261
   [6] 0.2075472 1.164570
##
       lhs
                                           rhs
                                                            support
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
## [2] {feathers=FALSE,milk=FALSE}
                                        => {backbone=FALSE} 0.1782178
  [3] {feathers=FALSE,eggs=TRUE}
                                        => {backbone=FALSE} 0.1683168
  [4] {feathers=FALSE, catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
## [5] {hair=FALSE,feathers=FALSE}
                                       => {backbone=FALSE} 0.1386139
## [6] {feathers=FALSE,fins=FALSE}
                                        => {backbone=FALSE} 0.1782178
## [7] {feathers=FALSE,legs=TRUE}
                                       => {backbone=FALSE} 0.1386139
## [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
  [9] {feathers=FALSE, aquatic=FALSE}
                                       => {backbone=FALSE} 0.1188119
       confidence lift
## [1] 0.9000000 5.050000
## [2] 0.4500000
                  2.525000
## [3] 0.4358974
                  2.445869
## [4] 0.3953488
                  2.218346
## [5] 0.3684211
                  2.067251
## [6] 0.2812500
                  1.578125
## [7] 0.2413793
                  1.354406
  [8] 0.2394366
                  1.343505
##
  [9] 0.2352941
                  1.320261
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
  [1] {eggs=TRUE,tail=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE} => {backbone=FALSE} 0.1683168 0.4358974
## [3] {eggs=TRUE,aquatic=FALSE}
                                  => {backbone=FALSE} 0.1089109 0.3793103
## [4] {eggs=TRUE,fins=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.3695652
## [5] {eggs=TRUE,catsize=FALSE}
                                  => {backbone=FALSE} 0.1584158 0.3478261
## [6] {eggs=TRUE,legs=TRUE}
                                  => {backbone=FALSE} 0.1287129 0.3250000
  [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
  [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
       lift
## [1] 4.769444
## [2] 2.445869
## [3] 2.128352
## [4] 2.073671
## [5] 1.951691
## [6] 1.823611
## [7] 1.668168
##
  [8] 1.662551
##
        lhs
                                           rhs
                                                            support
## [1]
        {tail=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1584158
## [2]
        {toothed=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1683168
```

```
{feathers=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1683168
##
   [4]
        {milk=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
  [5]
        {fins=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
   [6]
        {aquatic=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1188119
##
##
   [7]
        {eggs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
        {domestic=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1584158
##
   [8]
   [9]
        {legs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1287129
##
   [10] {airborne=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1089109
##
        confidence lift
##
  [1]
        0.8000000
                   4.488889
   [2]
        0.5483871
                   3.077061
   [3]
##
        0.3953488
                   2.218346
##
   [4]
        0.3541667
                   1.987269
##
   [5]
        0.3541667
                   1.987269
  [6]
        0.3529412
##
                   1.980392
##
   [7]
        0.3478261
                   1.951691
##
   [8]
        0.3200000
                   1.795556
        0.3170732
                   1.779133
##
   [10] 0.3055556
                   1.714506
##
       lhs
                                                            support
##
  [1] {toothed=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1683168
  [2] {feathers=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1782178
  [3] {airborne=FALSE, toothed=FALSE} => {backbone=FALSE} 0.1188119
   [4] {toothed=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
   [5] {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
   [6] {milk=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
##
       confidence lift
##
   [1] 1.0000000
                  5.611111
   [2] 0.9000000
                  5.050000
  [3] 0.6666667
                  3.740741
  [4] 0.5483871
                  3.077061
   [5] 0.4722222
                  2.649691
   [6] 0.4615385
                  2.589744
##
       "Número de reglas con consecuente negado"
##
                                                              support
##
  [1]
        {toothed=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
  [2]
        {feathers=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
  [3]
        {eggs=TRUE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
   [4]
        {milk=FALSE,tail=FALSE}
                                             {backbone=FALSE} 0.1683168
##
##
  [5]
        {hair=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1287129
  [6]
        {tail=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
  [7]
        {tail=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
##
##
   [8]
        {aquatic=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1089109
##
        {fins=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
  [9]
## [10] {airborne=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1188119
        {toothed=FALSE,catsize=FALSE}
## [11]
                                            {backbone=FALSE} 0.1683168
  [12] {toothed=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
  [13] {milk=FALSE,toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
## [14] {toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
## [15] {feathers=FALSE,milk=FALSE}
                                            {backbone=FALSE} 0.1782178
## [16] {feathers=FALSE,eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
## [17] {milk=FALSE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
## [18] {feathers=FALSE,catsize=FALSE}
                                         =>
                                            {backbone=FALSE} 0.1683168
## [19] {milk=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
```

```
## [20] {eggs=TRUE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1089109
   [21] {eggs=TRUE,fins=FALSE}
                                            {backbone=FALSE} 0.1683168
   [22] {hair=FALSE, feathers=FALSE}
                                             {backbone=FALSE} 0.1386139
   [23] {milk=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
   [24] {fins=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
   [25] {aquatic=FALSE, catsize=FALSE}
##
                                             {backbone=FALSE} 0.1188119
       {milk=FALSE,legs=TRUE}
   Г261
                                             {backbone=FALSE} 0.1386139
        {eggs=TRUE,catsize=FALSE}
   [27]
                                             {backbone=FALSE} 0.1584158
   [28]
        {hair=FALSE,fins=FALSE}
                                             {backbone=FALSE} 0.1386139
   [29]
        {eggs=TRUE,legs=TRUE}
                                             {backbone=FALSE} 0.1287129
   [30] {domestic=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1584158
   [31] {legs=TRUE,catsize=FALSE}
                                             {backbone=FALSE} 0.1287129
   [32]
       {milk=FALSE,airborne=FALSE}
                                             {backbone=FALSE} 0.1188119
       {milk=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
   [34]
       {airborne=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1089109
        {eggs=TRUE,airborne=FALSE}
                                             {backbone=FALSE} 0.1089109
##
   [36]
        {eggs=TRUE,domestic=FALSE}
                                             {backbone=FALSE} 0.1584158
        {eggs=TRUE}
                                             {backbone=FALSE} 0.1683168
   [37]
                                            {backbone=FALSE} 0.1782178
   [38] {feathers=FALSE,fins=FALSE}
   [39] {hair=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1386139
##
   [40] {feathers=FALSE,legs=TRUE}
                                             {backbone=FALSE} 0.1386139
   [41] {feathers=FALSE,domestic=FALSE} =>
                                             {backbone=FALSE} 0.1683168
   [42] {fins=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
       {feathers=FALSE,aquatic=FALSE}
##
   Γ431
                                             {backbone=FALSE} 0.1188119
       {aquatic=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1089109
   [45]
       {legs=TRUE,domestic=FALSE}
                                            {backbone=FALSE} 0.1287129
##
       {aquatic=FALSE}
                                          => {backbone=FALSE} 0.1188119
   [46]
##
        confidence lift
##
   [1]
        1.0000000
                   5.611111
##
   [2]
        0.9000000
                   5.050000
##
   [3]
        0.8500000
                   4.769444
##
   [4]
        0.8500000
                   4.769444
##
   [5]
        0.8125000
                   4.559028
##
   [6]
        0.8000000
                   4.488889
   [7]
##
        0.6956522
                   3.903382
##
   [8]
        0.6875000
                   3.857639
   [9]
        0.6800000
                   3.815556
   [10] 0.6666667
                   3.740741
   [11] 0.5483871
                   3.077061
   [12] 0.4722222
                   2.649691
   [13] 0.4615385
                   2.589744
   [14] 0.4500000
                   2.525000
   [15] 0.4500000
                   2.525000
   [16] 0.4358974
                   2.445869
   [17] 0.4000000
                   2.244444
   [18] 0.3953488
                   2.218346
   [19] 0.3829787
                   2.148936
   [20] 0.3793103
                   2.128352
   [21] 0.3695652
                   2.073671
   [22]
        0.3684211
                   2.067251
##
  [23]
       0.3541667
                   1.987269
## [24] 0.3541667
                   1.987269
## [25] 0.3529412
                   1.980392
## [26] 0.3500000
                   1.963889
```

```
## [27] 0.3478261
                   1.951691
   [28] 0.3255814
                   1.826873
   [29] 0.3250000
                   1.823611
   [30] 0.3200000
                   1.795556
   [31] 0.3170732
                   1.779133
   [32] 0.3157895
##
                   1.771930
   [33] 0.3090909
                   1.734343
   [34] 0.3055556
                   1.714506
   [35] 0.2972973
                   1.668168
   [36] 0.2962963
                   1.662551
   [37] 0.2881356
                   1.616761
   [38] 0.2812500
                   1.578125
   [39] 0.2592593
##
                   1.454733
   [40] 0.2413793
                   1.354406
   [41] 0.2394366
                   1.343505
   [42]
       0.2361111
                   1.324846
##
   [43] 0.2352941
                   1.320261
   [44] 0.2075472
                   1.164570
   [45] 0.1969697
                   1.105219
   [46] 0.1846154
                   1.035897
##
        lhs
                                              support
                                                        confidence lift
                             rhs
##
  [1]
        {type=fish}
                             {backbone=TRUE} 0.1287129 1.0000000
                                                                   1.2168675
   [2]
##
        {fins=TRUE}
                             {backbone=TRUE} 0.1683168 1.0000000
                                                                   1.2168675
##
   [3]
        {type=bird}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                    1.2168675
##
   [4]
        {feathers=TRUE}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                   1.2168675
   [5]
        {milk=TRUE}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                   1.2168675
   [6]
                             {backbone=TRUE} 0.4059406 1.0000000
##
        {type=mammal}
                                                                   1.2168675
##
   [7]
        {toothed=TRUE}
                             {backbone=TRUE} 0.6039604 1.0000000
                                                                    1.2168675
##
   [8]
                             {backbone=TRUE} 0.7326733 0.9866667
        {tail=TRUE}
                                                                    1.2006426
  [9]
        {catsize=TRUE}
                             {backbone=TRUE} 0.4257426 0.9772727
                                                                    1.1892114
   [10]
        {domestic=TRUE}
                             {backbone=TRUE} 0.1188119 0.9230769
                                                                    1.1232623
   [11]
        {breathes=TRUE}
                             {backbone=TRUE} 0.6831683 0.8625000
                                                                    1.0495482
   [12]
       {legs=FALSE}
                          => {backbone=TRUE} 0.1881188 0.8260870
                                                                    1.0052383
                          => {backbone=TRUE} 0.6336634 0.8205128
   [13]
       {legs=TRUE}
##
                                                                   0.9984554
       {aquatic=FALSE}
                             {backbone=TRUE} 0.5247525 0.8153846
   [14]
                                                                   0.9922150
##
   [15] {predator=FALSE} => {backbone=TRUE} 0.3564356 0.8000000
                                                                   0.9734940
   [16] {feathers=FALSE} =>
                             {backbone=TRUE} 0.6237624 0.7777778
                                                                    0.9464525
   [17] {airborne=TRUE}
                          => {backbone=TRUE} 0.1782178 0.7500000
##
                                                                    0.9126506
                             {backbone=TRUE} 0.4158416 0.7118644
##
   [18] {eggs=TRUE}
                                                                    0.8662446
   [19] {catsize=FALSE}
                          => {backbone=TRUE} 0.3960396 0.7017544
                                                                   0.8539421
   [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                   0.8112450
   [21] {toothed=FALSE} => {backbone=TRUE} 0.2178218 0.5500000
##
                                                                   0.6692771
##
       lhs
                                      rhs
                                                        support
                                                                   confidence
##
   [1] {milk=FALSE,legs=TRUE}
                                      {backbone=FALSE} 0.1386139 0.3500000
   [2] {eggs=TRUE,legs=TRUE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
   [3] {legs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1287129 0.3170732
##
   [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
##
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
       lift
##
   [1] 1.963889
##
   [2] 1.823611
  [3] 1.779133
## [4] 1.354406
## [5] 1.105219
```

```
##
                                                           support
## [1] {aquatic=FALSE,tail=FALSE}
                                      => {backbone=FALSE} 0.1089109
  [2] {milk=FALSE,aquatic=FALSE}
                                       => {backbone=FALSE} 0.1188119
  [3] {eggs=TRUE,aquatic=FALSE}
                                      => {backbone=FALSE} 0.1089109
  [4] {aquatic=FALSE,catsize=FALSE}
                                      => {backbone=FALSE} 0.1188119
  [5] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
   [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
##
       confidence lift
## [1] 0.6875000
                  3.857639
  [2] 0.4000000
                  2.244444
  [3] 0.3793103
                  2.128352
  [4] 0.3529412
                  1.980392
  [5] 0.2352941
                  1.320261
  [6] 0.2075472 1.164570
##
##
       lhs
                                           rhs
                                                            support
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
  [2] {feathers=FALSE,milk=FALSE}
                                       => {backbone=FALSE} 0.1782178
  [3] {feathers=FALSE,eggs=TRUE}
                                        => {backbone=FALSE} 0.1683168
## [4] {feathers=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
## [5] {hair=FALSE, feathers=FALSE}
                                       => {backbone=FALSE} 0.1386139
## [6] {feathers=FALSE,fins=FALSE}
                                       => {backbone=FALSE} 0.1782178
## [7] {feathers=FALSE,legs=TRUE}
                                       => {backbone=FALSE} 0.1386139
## [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
  [9] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
##
##
       confidence lift
## [1] 0.9000000 5.050000
## [2] 0.4500000
                  2.525000
## [3] 0.4358974
                  2.445869
## [4] 0.3953488
                  2.218346
## [5] 0.3684211
                  2.067251
## [6] 0.2812500
                  1.578125
## [7] 0.2413793
                  1.354406
## [8] 0.2394366
                  1.343505
## [9] 0.2352941
                  1.320261
##
       lhs
                                                       support
                                                                 confidence
## [1] {eggs=TRUE,tail=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE} => {backbone=FALSE} 0.1683168 0.4358974
## [3] {eggs=TRUE,aquatic=FALSE}
                                  => {backbone=FALSE} 0.1089109 0.3793103
## [4] {eggs=TRUE,fins=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.3695652
                                  => {backbone=FALSE} 0.1584158 0.3478261
## [5] {eggs=TRUE,catsize=FALSE}
## [6] {eggs=TRUE,legs=TRUE}
                                  => {backbone=FALSE} 0.1287129 0.3250000
  [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
##
   [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
       lift
## [1] 4.769444
## [2] 2.445869
## [3] 2.128352
## [4] 2.073671
## [5] 1.951691
## [6] 1.823611
## [7] 1.668168
## [8] 1.662551
##
        lhs
                                           rhs
                                                            support
## [1] {tail=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1584158
```

```
{toothed=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1683168
##
   [3]
        {feathers=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1683168
        {milk=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
  [4]
                                        => {backbone=FALSE} 0.1683168
  [5]
        {fins=FALSE,catsize=FALSE}
##
##
   [6]
        {aquatic=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1188119
##
   [7]
        {eggs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
        {domestic=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1584158
   [8]
##
  [9]
        {legs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1287129
##
   [10] {airborne=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1089109
##
        confidence lift
##
  [1]
        0.8000000
                   4.488889
   [2]
                   3.077061
##
        0.5483871
##
   [3]
        0.3953488
                   2.218346
##
   [4]
        0.3541667
                   1.987269
  [5]
##
        0.3541667
                   1.987269
##
   [6]
        0.3529412
                   1.980392
##
   [7]
        0.3478261
                   1.951691
   [8]
        0.3200000
                   1.795556
##
   [9]
        0.3170732
                   1.779133
##
   [10] 0.3055556
                   1.714506
##
       lhs
                                                            support
                                          rhs
  [1] {toothed=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1683168
  [2] {feathers=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1782178
   [3] {airborne=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1188119
   [4] {toothed=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
   [5] {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
   [6] {milk=FALSE, toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
##
##
       confidence lift
##
  [1] 1.0000000 5.611111
  [2] 0.9000000
                  5.050000
  [3] 0.6666667
                  3.740741
##
   [4] 0.5483871
                  3.077061
   [5] 0.4722222
                  2.649691
   [6] 0.4615385
                  2.589744
##
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                              support
##
  Г17
        {toothed=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
  [2]
        {feathers=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
  [3]
        {eggs=TRUE,tail=FALSE}
                                             {backbone=FALSE} 0.1683168
##
  [4]
##
        {milk=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
  [5]
        {hair=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1287129
                                            {backbone=FALSE} 0.1584158
##
  [6]
        {tail=FALSE,catsize=FALSE}
##
   [7]
        {tail=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
   [8]
##
        {aquatic=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1089109
  [9]
        {fins=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
## [10] {airborne=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1188119
  [11] {toothed=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
  [12] {toothed=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
## [13] {milk=FALSE,toothed=FALSE}
                                         => {backbone=FALSE} 0.1782178
## [14] {toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
## [15] {feathers=FALSE,milk=FALSE}
                                            {backbone=FALSE} 0.1782178
## [16] {feathers=FALSE,eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
## [17] {milk=FALSE,aquatic=FALSE}
                                         => {backbone=FALSE} 0.1188119
## [18] {feathers=FALSE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1683168
```

```
## [19] {milk=FALSE,fins=FALSE}
                                             {backbone=FALSE} 0.1782178
   [20] {eggs=TRUE,aquatic=FALSE}
                                             {backbone=FALSE} 0.1089109
   [21] {eggs=TRUE,fins=FALSE}
                                             {backbone=FALSE} 0.1683168
   [22] {hair=FALSE,feathers=FALSE}
                                             {backbone=FALSE} 0.1386139
   [23] {milk=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
##
   [24] {fins=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
   [25] {aquatic=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1188119
   [26]
       {milk=FALSE,legs=TRUE}
                                             {backbone=FALSE} 0.1386139
##
   [27]
       {eggs=TRUE,catsize=FALSE}
                                             {backbone=FALSE} 0.1584158
   [28]
       {hair=FALSE,fins=FALSE}
                                             {backbone=FALSE} 0.1386139
   [29] {eggs=TRUE,legs=TRUE}
                                            {backbone=FALSE} 0.1287129
   [30] {domestic=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1584158
   [31]
       {legs=TRUE,catsize=FALSE}
                                             {backbone=FALSE} 0.1287129
                                            {backbone=FALSE} 0.1188119
       {milk=FALSE,airborne=FALSE}
       {milk=FALSE,domestic=FALSE}
   [33]
                                            {backbone=FALSE} 0.1683168
   [34]
        {airborne=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1089109
   [35]
        {eggs=TRUE,airborne=FALSE}
                                             {backbone=FALSE} 0.1089109
       {eggs=TRUE,domestic=FALSE}
                                             {backbone=FALSE} 0.1584158
                                             {backbone=FALSE} 0.1683168
   [37] {eggs=TRUE}
   [38]
       {feathers=FALSE,fins=FALSE}
                                             {backbone=FALSE} 0.1782178
##
   [39]
       {hair=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1386139
   [40] {feathers=FALSE,legs=TRUE}
                                             {backbone=FALSE} 0.1386139
   [41] {feathers=FALSE,domestic=FALSE} =>
                                             {backbone=FALSE} 0.1683168
   [42] {fins=FALSE,domestic=FALSE}
##
                                             {backbone=FALSE} 0.1683168
   [43] {feathers=FALSE, aquatic=FALSE}
                                             {backbone=FALSE} 0.1188119
   [44] {aquatic=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1089109
       {legs=TRUE,domestic=FALSE}
##
   [45]
                                            {backbone=FALSE} 0.1287129
##
   [46]
        {aquatic=FALSE}
                                         => {backbone=FALSE} 0.1188119
##
        confidence lift
##
   [1]
        1.0000000 5.611111
##
   [2]
        0.9000000
                   5.050000
##
   [3]
        0.8500000
                   4.769444
##
   [4]
        0.8500000
                   4.769444
   [5]
##
        0.8125000
                   4.559028
   [6]
        0.8000000
                   4.488889
##
##
   [7]
        0.6956522
                   3.903382
   [8]
        0.6875000
                   3.857639
   [9]
        0.6800000
##
                   3.815556
   [10] 0.6666667
                   3.740741
   [11] 0.5483871
                   3.077061
   [12] 0.4722222
                   2.649691
   [13] 0.4615385
                   2.589744
   [14] 0.4500000
                   2.525000
   [15] 0.4500000
                   2.525000
   [16] 0.4358974
                   2.445869
   [17] 0.4000000
                   2.244444
##
   [18] 0.3953488
                   2.218346
   [19] 0.3829787
                   2.148936
   [20] 0.3793103
                   2.128352
   [21]
        0.3695652
                   2.073671
##
  [22]
        0.3684211
                   2.067251
## [23] 0.3541667
                   1.987269
## [24] 0.3541667
                   1.987269
## [25] 0.3529412
                   1.980392
```

```
[26] 0.3500000
                   1.963889
   [27] 0.3478261
                   1.951691
   [28] 0.3255814
                   1.826873
   [29] 0.3250000
                   1.823611
   [30] 0.3200000
                   1.795556
   [31] 0.3170732
                   1.779133
##
   [32] 0.3157895
                   1.771930
   [33] 0.3090909
                   1.734343
##
   [34] 0.3055556
                   1.714506
   [35] 0.2972973
                   1.668168
   [36] 0.2962963
                   1.662551
   [37] 0.2881356
                   1.616761
##
   [38] 0.2812500
                   1.578125
   [39] 0.2592593
                   1.454733
   [40] 0.2413793
                   1.354406
   [41] 0.2394366
                   1.343505
##
   [42] 0.2361111
                   1.324846
   [43] 0.2352941
                   1.320261
   [44] 0.2075472
                   1.164570
   [45] 0.1969697
                   1.105219
##
   [46] 0.1846154
                   1.035897
##
        lhs
                                              support
                                                        confidence lift
##
  [1]
                             {backbone=TRUE} 0.1287129 1.0000000
                                                                   1.2168675
        {type=fish}
##
   [2]
        {fins=TRUE}
                             {backbone=TRUE} 0.1683168 1.0000000
                                                                   1.2168675
##
   [3]
        {type=bird}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                   1.2168675
   [4]
        {feathers=TRUE}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                   1.2168675
   [5]
        {milk=TRUE}
                             {backbone=TRUE} 0.4059406 1.0000000
##
                                                                   1.2168675
##
   [6]
        {type=mammal}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                   1.2168675
   [7]
                             {backbone=TRUE} 0.6039604 1.0000000
##
        {toothed=TRUE}
                                                                   1.2168675
##
   [8]
        {tail=TRUE}
                             {backbone=TRUE} 0.7326733 0.9866667
                                                                    1.2006426
##
   [9]
        {catsize=TRUE}
                             {backbone=TRUE} 0.4257426 0.9772727
                                                                    1.1892114
##
   [10]
       {domestic=TRUE}
                             {backbone=TRUE} 0.1188119 0.9230769
                                                                    1.1232623
   [11]
       {breathes=TRUE}
                             {backbone=TRUE} 0.6831683 0.8625000
                                                                    1.0495482
                          => {backbone=TRUE} 0.1881188 0.8260870
   [12]
       {legs=FALSE}
##
                                                                   1.0052383
       {legs=TRUE}
                             {backbone=TRUE} 0.6336634 0.8205128
   [13]
                                                                    0.9984554
##
   [14] {aquatic=FALSE}
                          => {backbone=TRUE} 0.5247525 0.8153846
                                                                   0.9922150
   [15] {predator=FALSE} => {backbone=TRUE} 0.3564356 0.8000000
                                                                    0.9734940
   [16] {feathers=FALSE} => {backbone=TRUE} 0.6237624 0.7777778
                                                                    0.9464525
   [17] {airborne=TRUE}
                          => {backbone=TRUE} 0.1782178 0.7500000
                                                                    0.9126506
##
   [18] {eggs=TRUE}
                          => {backbone=TRUE} 0.4158416 0.7118644
                                                                    0.8662446
   [19] {catsize=FALSE}
                          => {backbone=TRUE} 0.3960396 0.7017544
                                                                   0.8539421
   [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                   0.8112450
##
   [21] {toothed=FALSE} => {backbone=TRUE} 0.2178218 0.5500000
                                                                   0.6692771
##
       lhs
                                      rhs
                                                        support
                                                                   confidence
##
  [1] {milk=FALSE,legs=TRUE}
                                   => {backbone=FALSE} 0.1386139 0.3500000
                                   => {backbone=FALSE} 0.1287129 0.3250000
   [2] {eggs=TRUE,legs=TRUE}
   [3] {legs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1287129 0.3170732
   [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
##
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
       lift
##
   [1] 1.963889
   [2] 1.823611
## [3] 1.779133
## [4] 1.354406
```

```
## [5] 1.105219
##
       lhs
                                          rhs
                                                           support
## [1] {aquatic=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1089109
  [2] {milk=FALSE,aquatic=FALSE}
                                      => {backbone=FALSE} 0.1188119
  [3] {eggs=TRUE,aquatic=FALSE}
                                       => {backbone=FALSE} 0.1089109
## [4] {aquatic=FALSE,catsize=FALSE}
                                      => {backbone=FALSE} 0.1188119
## [5] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
## [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
##
       confidence lift
## [1] 0.6875000 3.857639
## [2] 0.400000
                  2.244444
## [3] 0.3793103
                  2.128352
## [4] 0.3529412
                  1.980392
## [5] 0.2352941
                  1.320261
## [6] 0.2075472 1.164570
##
       lhs
                                           rhs
                                                            support
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
  [2] {feathers=FALSE,milk=FALSE}
                                       => {backbone=FALSE} 0.1782178
  [3] {feathers=FALSE,eggs=TRUE}
                                       => {backbone=FALSE} 0.1683168
## [4] {feathers=FALSE, catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
## [5] {hair=FALSE,feathers=FALSE}
                                       => {backbone=FALSE} 0.1386139
## [6] {feathers=FALSE,fins=FALSE}
                                        => {backbone=FALSE} 0.1782178
## [7] {feathers=FALSE,legs=TRUE}
                                       => {backbone=FALSE} 0.1386139
## [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
##
  [9] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
       confidence lift
## [1] 0.9000000 5.050000
## [2] 0.4500000
                  2.525000
## [3] 0.4358974
                  2.445869
## [4] 0.3953488
                  2.218346
## [5] 0.3684211
                  2.067251
## [6] 0.2812500
                  1.578125
## [7] 0.2413793
                  1.354406
## [8] 0.2394366
                  1.343505
##
   [9] 0.2352941
                  1.320261
##
                                                                 confidence
       lhs
                                     rhs
                                                       support
## [1] {eggs=TRUE,tail=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE} => {backbone=FALSE} 0.1683168 0.4358974
## [3] {eggs=TRUE,aquatic=FALSE}
                                  => {backbone=FALSE} 0.1089109 0.3793103
                                  => {backbone=FALSE} 0.1683168 0.3695652
## [4] {eggs=TRUE,fins=FALSE}
                                  => {backbone=FALSE} 0.1584158 0.3478261
## [5] {eggs=TRUE,catsize=FALSE}
  [6] {eggs=TRUE,legs=TRUE}
                                  => {backbone=FALSE} 0.1287129 0.3250000
  [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
##
   [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
       lift
## [1] 4.769444
  [2] 2.445869
## [3] 2.128352
## [4] 2.073671
## [5] 1.951691
## [6] 1.823611
## [7] 1.668168
## [8] 1.662551
##
        lhs
                                           rhs
                                                            support
```

```
[1]
        {tail=FALSE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1584158
##
   [2]
        {toothed=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
        {feathers=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1683168
##
   [3]
   [4]
        {milk=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
##
   [5]
        {fins=FALSE,catsize=FALSE}
                                           {backbone=FALSE} 0.1683168
##
   [6]
        {aquatic=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1188119
##
   [7]
        {eggs=TRUE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1584158
##
   [8]
        {domestic=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1584158
##
   [9]
        {legs=TRUE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1287129
##
   [10] {airborne=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1089109
##
        confidence lift
                   4.488889
##
   [1]
        0.8000000
##
   [2]
        0.5483871
                   3.077061
##
   [3]
        0.3953488
                   2.218346
   [4]
##
        0.3541667
                    1.987269
##
   [5]
        0.3541667
                    1.987269
##
   [6]
        0.3529412
                    1.980392
   [7]
        0.3478261
##
                    1.951691
   [8]
##
        0.3200000
                    1.795556
##
   [9]
        0.3170732
                    1.779133
##
   [10] 0.3055556
                   1.714506
##
                                                            support
##
   [1] {toothed=FALSE,tail=FALSE}
                                        => {backbone=FALSE} 0.1683168
   [2] {feathers=FALSE, toothed=FALSE} =>
                                          {backbone=FALSE} 0.1782178
   [3] {airborne=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1188119
   [4] {toothed=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
       {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
##
       {milk=FALSE,toothed=FALSE}
                                        => {backbone=FALSE} 0.1782178
##
       confidence lift
   [1] 1.0000000 5.611111
##
   [2] 0.9000000
                  5.050000
##
   [3] 0.6666667
                  3.740741
   [4] 0.5483871
                  3.077061
   [5] 0.4722222
                  2.649691
       0.4615385
                  2.589744
##
   Γ17
       "Número de reglas con consecuente negado"
##
                                             rhs
                                                               support
##
  [1]
        {toothed=FALSE,tail=FALSE}
                                          => {backbone=FALSE} 0.1683168
   [2]
        {feathers=FALSE, toothed=FALSE}
                                             {backbone=FALSE} 0.1782178
   [3]
##
        {eggs=TRUE,tail=FALSE}
                                             {backbone=FALSE} 0.1683168
   [4]
        {milk=FALSE,tail=FALSE}
                                             {backbone=FALSE} 0.1683168
   [5]
        {hair=FALSE,tail=FALSE}
                                             {backbone=FALSE} 0.1287129
##
##
   [6]
        {tail=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1584158
##
   [7]
        {tail=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1584158
  [8]
        {aquatic=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1089109
  [9]
        {fins=FALSE,tail=FALSE}
##
                                            {backbone=FALSE} 0.1683168
   [10] {airborne=FALSE, toothed=FALSE}
                                             {backbone=FALSE} 0.1188119
   [11] {toothed=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
   [12] {toothed=FALSE,domestic=FALSE}
                                         => {backbone=FALSE} 0.1683168
   [13] {milk=FALSE,toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
## [14] {toothed=FALSE}
                                             {backbone=FALSE} 0.1782178
## [15] {feathers=FALSE,milk=FALSE}
                                            {backbone=FALSE} 0.1782178
## [16] {feathers=FALSE,eggs=TRUE}
                                          =>
                                            {backbone=FALSE} 0.1683168
## [17] {milk=FALSE,aquatic=FALSE}
                                             {backbone=FALSE} 0.1188119
```

```
## [18] {feathers=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
       {milk=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
  [19]
  [20] {eggs=TRUE,aquatic=FALSE}
                                             {backbone=FALSE} 0.1089109
  [21] {eggs=TRUE,fins=FALSE}
                                             {backbone=FALSE} 0.1683168
  [22] {hair=FALSE, feathers=FALSE}
                                             {backbone=FALSE} 0.1386139
  [23] {milk=FALSE,catsize=FALSE}
##
                                             {backbone=FALSE} 0.1683168
  [24] {fins=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
  [25] {aquatic=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1188119
##
   [26]
       {milk=FALSE,legs=TRUE}
                                             {backbone=FALSE} 0.1386139
   [27]
        {eggs=TRUE,catsize=FALSE}
                                             {backbone=FALSE} 0.1584158
   [28] {hair=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1386139
   [29] {eggs=TRUE,legs=TRUE}
                                            {backbone=FALSE} 0.1287129
##
   [30]
       {domestic=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1584158
                                            {backbone=FALSE} 0.1287129
       {legs=TRUE,catsize=FALSE}
       {milk=FALSE,airborne=FALSE}
  [32]
                                            {backbone=FALSE} 0.1188119
   [33]
        {milk=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
   [34]
        {airborne=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1089109
       {eggs=TRUE,airborne=FALSE}
                                            {backbone=FALSE} 0.1089109
   [36] {eggs=TRUE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
   [37] {eggs=TRUE}
                                             {backbone=FALSE} 0.1683168
##
   [38]
       {feathers=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
  [39] {hair=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1386139
  [40] {feathers=FALSE,legs=TRUE}
                                             {backbone=FALSE} 0.1386139
   [41] {feathers=FALSE.domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
   [42] {fins=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
   [43] {feathers=FALSE, aquatic=FALSE}
                                             {backbone=FALSE} 0.1188119
   [44] {aquatic=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1089109
##
   [45]
       {legs=TRUE,domestic=FALSE}
                                            {backbone=FALSE} 0.1287129
   [46] {aquatic=FALSE}
                                         => {backbone=FALSE} 0.1188119
##
##
        confidence lift
##
   [1]
        1.0000000
                   5.611111
##
   [2]
        0.9000000
                   5.050000
##
   [3]
        0.8500000
                   4.769444
   [4]
##
        0.8500000
                   4.769444
   [5]
        0.8125000
                   4.559028
##
##
   [6]
        0.8000000
                   4.488889
   [7]
        0.6956522
                   3.903382
  [8]
        0.6875000
##
                   3.857639
   [9]
        0.6800000
                   3.815556
##
  [10] 0.6666667
                   3.740741
  [11] 0.5483871
                   3.077061
   [12] 0.4722222
                   2.649691
   [13] 0.4615385
                   2.589744
##
  [14] 0.4500000
                   2.525000
  [15] 0.4500000
                   2.525000
  [16] 0.4358974
                   2.445869
##
   [17] 0.4000000
                   2.244444
   [18] 0.3953488
                   2.218346
  [19] 0.3829787
                   2.148936
   [20]
        0.3793103
                   2.128352
##
  [21] 0.3695652
                   2.073671
## [22] 0.3684211
                   2.067251
## [23] 0.3541667
                   1.987269
## [24] 0.3541667
                   1.987269
```

```
[25] 0.3529412
                    1.980392
   [26] 0.3500000
                    1.963889
   [27] 0.3478261
                    1.951691
   [28] 0.3255814
                    1.826873
   [29] 0.3250000
                    1.823611
   [30] 0.3200000
                    1.795556
##
   [31] 0.3170732
                    1.779133
   [32] 0.3157895
                    1.771930
##
   [33] 0.3090909
                    1.734343
   [34] 0.3055556
                    1.714506
   [35] 0.2972973
                    1.668168
   [36] 0.2962963
                    1.662551
   [37] 0.2881356
##
                    1.616761
   [38] 0.2812500
                    1.578125
   [39] 0.2592593
                    1.454733
   [40] 0.2413793
                    1.354406
   [41] 0.2394366
##
                    1.343505
   [42] 0.2361111
                    1.324846
   [43] 0.2352941
                    1.320261
   [44] 0.2075472
                    1.164570
##
   [45] 0.1969697
                    1.105219
##
   [46] 0.1846154
                   1.035897
##
        lhs
                             rhs
                                              support
                                                        confidence lift
##
   [1]
        {type=fish}
                            {backbone=TRUE} 0.1287129 1.0000000
                                                                   1.2168675
##
   [2]
        {fins=TRUE}
                             {backbone=TRUE} 0.1683168 1.0000000
                                                                   1.2168675
        {type=bird}
   [3]
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                   1.2168675
   [4]
##
        {feathers=TRUE}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                    1.2168675
##
   [5]
        {milk=TRUE}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                    1.2168675
   [6]
##
        {type=mammal}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                    1.2168675
##
   [7]
        {toothed=TRUE}
                             {backbone=TRUE} 0.6039604 1.0000000
                                                                    1.2168675
##
   [8]
        {tail=TRUE}
                             {backbone=TRUE} 0.7326733 0.9866667
                                                                    1.2006426
##
   [9]
        {catsize=TRUE}
                             {backbone=TRUE} 0.4257426 0.9772727
                                                                    1.1892114
   [10]
       {domestic=TRUE}
                             {backbone=TRUE} 0.1188119 0.9230769
                                                                    1.1232623
       {breathes=TRUE}
                             {backbone=TRUE} 0.6831683 0.8625000
   [11]
                                                                    1.0495482
       {legs=FALSE}
                             {backbone=TRUE} 0.1881188 0.8260870
   [12]
                                                                    1.0052383
                                                                    0.9984554
##
   [13] {legs=TRUE}
                          => {backbone=TRUE} 0.6336634 0.8205128
   [14] {aquatic=FALSE}
                             {backbone=TRUE} 0.5247525 0.8153846
                                                                    0.9922150
   [15] {predator=FALSE} => {backbone=TRUE} 0.3564356 0.8000000
                                                                    0.9734940
                             {backbone=TRUE} 0.6237624 0.7777778
   [16] {feathers=FALSE} =>
                                                                    0.9464525
##
   [17] {airborne=TRUE}
                          => {backbone=TRUE} 0.1782178 0.7500000
                                                                    0.9126506
   [18] {eggs=TRUE}
                          => {backbone=TRUE} 0.4158416 0.7118644
                                                                    0.8662446
                          => {backbone=TRUE} 0.3960396 0.7017544
   [19] {catsize=FALSE}
                                                                    0.8539421
##
   [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                    0.8112450
##
   [21] {toothed=FALSE}
                          => {backbone=TRUE} 0.2178218 0.5500000
                                                                    0.6692771
##
       lhs
                                                                   confidence
                                                        support
##
   [1] {milk=FALSE,legs=TRUE}
                                   => {backbone=FALSE} 0.1386139 0.3500000
##
   [2] {eggs=TRUE,legs=TRUE}
                                   =>
                                      {backbone=FALSE} 0.1287129 0.3250000
   [3] {legs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1287129 0.3170732
   [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
##
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
       lift
## [1] 1.963889
## [2] 1.823611
## [3] 1.779133
```

```
## [4] 1.354406
  [5] 1.105219
##
##
       lhs
                                                           support
## [1] {aquatic=FALSE,tail=FALSE}
                                      => {backbone=FALSE} 0.1089109
##
  [2] {milk=FALSE,aquatic=FALSE}
                                       => {backbone=FALSE} 0.1188119
  [3] {eggs=TRUE,aquatic=FALSE}
                                      => {backbone=FALSE} 0.1089109
  [4] {aquatic=FALSE, catsize=FALSE}
                                      => {backbone=FALSE} 0.1188119
  [5] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
##
   [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
##
       confidence lift
  [1] 0.6875000
                  3.857639
  [2] 0.4000000
                  2.244444
##
  [3] 0.3793103
                  2.128352
                  1.980392
## [4] 0.3529412
## [5] 0.2352941
                  1.320261
## [6] 0.2075472
                  1.164570
##
       lhs
                                           rhs
                                                            support
  [1] {feathers=FALSE, toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
  [2] {feathers=FALSE,milk=FALSE}
                                        => {backbone=FALSE} 0.1782178
  [3] {feathers=FALSE,eggs=TRUE}
                                        => {backbone=FALSE} 0.1683168
## [4] {feathers=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
## [5] {hair=FALSE,feathers=FALSE}
                                        => {backbone=FALSE} 0.1386139
## [6] {feathers=FALSE,fins=FALSE}
                                       => {backbone=FALSE} 0.1782178
## [7] {feathers=FALSE,legs=TRUE}
                                       => {backbone=FALSE} 0.1386139
  [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
   [9] {feathers=FALSE, aquatic=FALSE} => {backbone=FALSE} 0.1188119
##
       confidence lift
## [1] 0.9000000
                  5.050000
## [2] 0.4500000
                  2.525000
## [3] 0.4358974
                  2.445869
## [4] 0.3953488
                  2.218346
  [5] 0.3684211
                  2.067251
  [6] 0.2812500
                  1.578125
  [7] 0.2413793
                  1.354406
   [8] 0.2394366
                  1.343505
   [9] 0.2352941
##
                  1.320261
##
       lhs
                                                       support
                                                                 confidence
                                  => {backbone=FALSE} 0.1683168 0.8500000
## [1] {eggs=TRUE,tail=FALSE}
## [2] {feathers=FALSE,eggs=TRUE} => {backbone=FALSE} 0.1683168 0.4358974
                                  => {backbone=FALSE} 0.1089109 0.3793103
  [3] {eggs=TRUE,aquatic=FALSE}
## [4] {eggs=TRUE,fins=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.3695652
  [5] {eggs=TRUE,catsize=FALSE}
                                  => {backbone=FALSE} 0.1584158 0.3478261
  [6] {eggs=TRUE,legs=TRUE}
                                  => {backbone=FALSE} 0.1287129 0.3250000
  [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
##
  [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
       lift
## [1] 4.769444
## [2] 2.445869
## [3] 2.128352
## [4] 2.073671
## [5] 1.951691
## [6] 1.823611
## [7] 1.668168
## [8] 1.662551
```

```
##
        lhs
                                            rhs
                                                              support
##
   [1]
        {tail=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
   [2]
        {toothed=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
   [3]
        {feathers=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1683168
##
##
   [4]
        {milk=FALSE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1683168
   [5]
        {fins=FALSE,catsize=FALSE}
##
                                        => {backbone=FALSE} 0.1683168
##
   [6]
        {aquatic=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1188119
##
   [7]
        {eggs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
##
   [8]
        {domestic=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1584158
##
   [9]
        {legs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1287129
   [10]
        {airborne=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1089109
##
        confidence lift
##
   [1]
        0.8000000
                   4.488889
##
   [2]
        0.5483871
                   3.077061
   [3]
##
        0.3953488
                   2.218346
##
   [4]
        0.3541667
                    1.987269
##
   [5]
        0.3541667
                    1.987269
   [6]
        0.3529412
                   1.980392
##
##
   [7]
        0.3478261
                   1.951691
##
   [8]
        0.3200000
                    1.795556
##
   [9]
        0.3170732
                    1.779133
   [10] 0.3055556
                   1.714506
##
       lhs
                                           rhs
                                                             support
##
   [1] {toothed=FALSE.tail=FALSE}
                                        => {backbone=FALSE} 0.1683168
   [2] {feathers=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1782178
   [3] {airborne=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1188119
   [4] {toothed=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
   [5] {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
   [6] {milk=FALSE, toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
##
##
       confidence lift
##
   [1] 1.0000000 5.611111
   [2] 0.9000000
                  5.050000
   [3] 0.6666667
                  3.740741
   [4] 0.5483871
                  3.077061
       0.4722222
   [5]
                  2.649691
##
   [6] 0.4615385
                  2.589744
##
       "Número de reglas con consecuente negado"
##
                                                               support
        {toothed=FALSE,tail=FALSE}
                                             {backbone=FALSE} 0.1683168
##
   [1]
   [2]
##
        {feathers=FALSE, toothed=FALSE}
                                             {backbone=FALSE} 0.1782178
   [3]
        {eggs=TRUE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
   [4]
        {milk=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
##
   [5]
        {hair=FALSE,tail=FALSE}
                                             {backbone=FALSE} 0.1287129
##
   [6]
                                             {backbone=FALSE} 0.1584158
        {tail=FALSE,catsize=FALSE}
   [7]
        {tail=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
   [8]
##
        {aquatic=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1089109
##
   [9]
        {fins=FALSE,tail=FALSE}
                                             {backbone=FALSE} 0.1683168
   [10] {airborne=FALSE,toothed=FALSE}
                                            {backbone=FALSE} 0.1188119
   [11] {toothed=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
   [12] {toothed=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
## [13] {milk=FALSE,toothed=FALSE}
                                             {backbone=FALSE} 0.1782178
## [14] {toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
## [15] {feathers=FALSE,milk=FALSE}
                                          => {backbone=FALSE} 0.1782178
## [16] {feathers=FALSE,eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
```

```
## [17] {milk=FALSE,aquatic=FALSE}
                                             {backbone=FALSE} 0.1188119
                                             {backbone=FALSE} 0.1683168
  [18] {feathers=FALSE, catsize=FALSE}
  [19] {milk=FALSE,fins=FALSE}
                                             {backbone=FALSE} 0.1782178
  [20] {eggs=TRUE,aquatic=FALSE}
                                             {backbone=FALSE} 0.1089109
  [21] {eggs=TRUE,fins=FALSE}
                                             {backbone=FALSE} 0.1683168
  [22] {hair=FALSE,feathers=FALSE}
                                             {backbone=FALSE} 0.1386139
  [23] {milk=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
  [24] {fins=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
   [25]
       {aquatic=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1188119
   [26]
       {milk=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
   [27] {eggs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
   [28] {hair=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1386139
   [29]
       {eggs=TRUE,legs=TRUE}
                                            {backbone=FALSE} 0.1287129
                                            {backbone=FALSE} 0.1584158
       {domestic=FALSE,catsize=FALSE}
       {legs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1287129
  [31]
        {milk=FALSE,airborne=FALSE}
                                            {backbone=FALSE} 0.1188119
   [33]
        {milk=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
       {airborne=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1089109
                                            {backbone=FALSE} 0.1089109
   [35] {eggs=TRUE,airborne=FALSE}
   [36] {eggs=TRUE,domestic=FALSE}
                                             {backbone=FALSE} 0.1584158
##
   [37]
       {eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
       {feathers=FALSE,fins=FALSE}
                                             {backbone=FALSE} 0.1782178
  [38]
       {hair=FALSE,domestic=FALSE}
  [39]
                                            {backbone=FALSE} 0.1386139
       {feathers=FALSE,legs=TRUE}
   Γ401
                                             {backbone=FALSE} 0.1386139
   [41] {feathers=FALSE,domestic=FALSE} =>
                                             {backbone=FALSE} 0.1683168
   [42] {fins=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
   [43] {feathers=FALSE, aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
##
   [44] {aquatic=FALSE,domestic=FALSE}
                                         => {backbone=FALSE} 0.1089109
       {legs=TRUE,domestic=FALSE}
##
   [45]
                                         => {backbone=FALSE} 0.1287129
##
   [46] {aquatic=FALSE}
                                         => {backbone=FALSE} 0.1188119
##
        confidence lift
##
   [1]
        1.0000000
                   5.611111
##
   [2]
        0.9000000
                   5.050000
   [3]
                   4.769444
##
        0.8500000
   [4]
        0.8500000
                   4.769444
##
   [5]
##
        0.8125000
                   4.559028
##
   [6]
        0.8000000
                   4.488889
  [7]
        0.6956522
                   3.903382
##
   [8]
        0.6875000
##
                   3.857639
##
   [9]
        0.6800000
                   3.815556
  [10] 0.6666667
                   3.740741
   [11] 0.5483871
                   3.077061
   [12] 0.4722222
                   2.649691
  [13] 0.4615385
                   2.589744
  [14] 0.4500000
                   2.525000
  [15] 0.4500000
                   2.525000
##
   [16] 0.4358974
                   2.445869
   [17] 0.4000000
                   2.244444
  [18] 0.3953488
                   2.218346
   [19]
        0.3829787
                   2.148936
##
  [20] 0.3793103
                   2.128352
## [21] 0.3695652
                   2.073671
## [22] 0.3684211
                   2.067251
## [23] 0.3541667
                   1.987269
```

```
[24] 0.3541667
                    1.987269
   [25] 0.3529412
                    1.980392
   [26] 0.3500000
                    1.963889
   [27] 0.3478261
                    1.951691
   [28] 0.3255814
                    1.826873
   [29] 0.3250000
                    1.823611
##
   [30] 0.3200000
                    1.795556
   [31] 0.3170732
                    1.779133
   [32] 0.3157895
                    1.771930
   [33] 0.3090909
                    1.734343
   [34] 0.3055556
                    1.714506
   [35] 0.2972973
                    1.668168
                    1.662551
##
   [36] 0.2962963
   [37] 0.2881356
                    1.616761
   [38] 0.2812500
                    1.578125
   [39]
       0.2592593
                    1.454733
                   1.354406
##
   [40] 0.2413793
   [41] 0.2394366
                    1.343505
   [42] 0.2361111
                    1.324846
   [43] 0.2352941
                    1.320261
##
   [44] 0.2075472
                    1.164570
   [45] 0.1969697
                    1.105219
   [46] 0.1846154
                   1.035897
##
##
        lhs
                                              support
                                                        confidence lift
                                                                   1.2168675
##
   [1]
        {type=fish}
                          =>
                             {backbone=TRUE} 0.1287129 1.0000000
   [2]
        {fins=TRUE}
                             {backbone=TRUE} 0.1683168 1.0000000
                                                                    1.2168675
   [3]
                             {backbone=TRUE} 0.1980198 1.0000000
##
        {type=bird}
                                                                    1.2168675
##
   [4]
        {feathers=TRUE}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                    1.2168675
##
   [5]
        {milk=TRUE}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                    1.2168675
##
   [6]
                             {backbone=TRUE} 0.4059406 1.0000000
        {type=mammal}
                                                                    1.2168675
##
   [7]
        {toothed=TRUE}
                             {backbone=TRUE} 0.6039604 1.0000000
                                                                    1.2168675
##
   [8]
        {tail=TRUE}
                             {backbone=TRUE} 0.7326733 0.9866667
                                                                    1.2006426
##
   [9]
        {catsize=TRUE}
                             {backbone=TRUE} 0.4257426 0.9772727
                                                                    1.1892114
   [10]
       {domestic=TRUE}
                             {backbone=TRUE} 0.1188119 0.9230769
                                                                    1.1232623
        {breathes=TRUE}
                             {backbone=TRUE} 0.6831683 0.8625000
   [11]
                                                                    1.0495482
##
   [12] {legs=FALSE}
                             {backbone=TRUE} 0.1881188 0.8260870
                                                                    1.0052383
   [13] {legs=TRUE}
                             {backbone=TRUE} 0.6336634 0.8205128
                                                                    0.9984554
                             {backbone=TRUE} 0.5247525 0.8153846
##
   [14] {aquatic=FALSE}
                          =>
                                                                    0.9922150
   [15] {predator=FALSE}
                             {backbone=TRUE} 0.3564356 0.8000000
                          =>
                                                                    0.9734940
   [16] {feathers=FALSE} =>
                             {backbone=TRUE} 0.6237624 0.7777778
                                                                    0.9464525
   [17] {airborne=TRUE}
                          => {backbone=TRUE} 0.1782178 0.7500000
                                                                    0.9126506
                          => {backbone=TRUE} 0.4158416 0.7118644
   [18] {eggs=TRUE}
                                                                    0.8662446
   [19] {catsize=FALSE}
                          => {backbone=TRUE} 0.3960396 0.7017544
                                                                    0.8539421
   [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                    0.8112450
##
   [21] {toothed=FALSE}
                          => {backbone=TRUE} 0.2178218 0.5500000
                                                                    0.6692771
##
       lhs
                                      rhs
                                                        support
                                                                   confidence
##
   [1] {milk=FALSE,legs=TRUE}
                                   => {backbone=FALSE} 0.1386139 0.3500000
   [2] {eggs=TRUE,legs=TRUE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
   [3] {legs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1287129 0.3170732
   [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
##
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
       lift
## [1] 1.963889
## [2] 1.823611
```

```
## [3] 1.779133
  [4] 1.354406
  [5] 1.105219
##
       lhs
                                          rhs
                                                           support
##
  [1] {aquatic=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1089109
  [2] {milk=FALSE,aquatic=FALSE}
                                      => {backbone=FALSE} 0.1188119
  [3] {eggs=TRUE,aquatic=FALSE}
                                      => {backbone=FALSE} 0.1089109
  [4] {aquatic=FALSE,catsize=FALSE}
                                      => {backbone=FALSE} 0.1188119
   [5] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
##
   [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
##
       confidence lift
##
  [1] 0.6875000 3.857639
  [2] 0.4000000
                  2.244444
## [3] 0.3793103
                  2.128352
## [4] 0.3529412
                  1.980392
  [5] 0.2352941
                  1.320261
##
  [6] 0.2075472 1.164570
##
       lhs
                                           rhs
                                                            support
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
  [2] {feathers=FALSE,milk=FALSE}
                                        => {backbone=FALSE} 0.1782178
## [3] {feathers=FALSE,eggs=TRUE}
                                       => {backbone=FALSE} 0.1683168
## [4] {feathers=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
## [5] {hair=FALSE,feathers=FALSE}
                                       => {backbone=FALSE} 0.1386139
## [6] {feathers=FALSE,fins=FALSE}
                                        => {backbone=FALSE} 0.1782178
  [7] {feathers=FALSE,legs=TRUE}
                                       => {backbone=FALSE} 0.1386139
  [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
   [9] {feathers=FALSE, aquatic=FALSE} => {backbone=FALSE} 0.1188119
##
       confidence lift
## [1] 0.9000000 5.050000
## [2] 0.4500000
                  2.525000
## [3] 0.4358974
                  2.445869
## [4] 0.3953488
                  2.218346
## [5] 0.3684211
                  2.067251
## [6] 0.2812500
                  1.578125
   [7] 0.2413793
                  1.354406
##
  [8] 0.2394366
                  1.343505
##
  [9] 0.2352941
                  1.320261
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
## [1] {eggs=TRUE,tail=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.8500000
  [2] {feathers=FALSE,eggs=TRUE} => {backbone=FALSE} 0.1683168 0.4358974
  [3] {eggs=TRUE,aquatic=FALSE}
                                  => {backbone=FALSE} 0.1089109 0.3793103
  [4] {eggs=TRUE,fins=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.3695652
  [5] {eggs=TRUE,catsize=FALSE}
                                  => {backbone=FALSE} 0.1584158 0.3478261
                                  => {backbone=FALSE} 0.1287129 0.3250000
  [6] {eggs=TRUE,legs=TRUE}
## [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
  [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
##
       lift
## [1] 4.769444
## [2] 2.445869
## [3] 2.128352
## [4] 2.073671
## [5] 1.951691
## [6] 1.823611
## [7] 1.668168
```

```
[8] 1.662551
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {tail=FALSE, catsize=FALSE}
                                         => {backbone=FALSE} 0.1584158
   [2]
        {toothed=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
##
   [3]
        {feathers=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
   [4]
        {milk=FALSE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1683168
##
   [5]
        {fins=FALSE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1683168
##
   [6]
        {aquatic=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1188119
##
   [7]
        {eggs=TRUE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1584158
##
   [8]
        {domestic=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1584158
   [9]
        {legs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1287129
        {airborne=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1089109
##
   [10]
        confidence lift
##
##
   [1]
        0.8000000
                   4.488889
   [2]
        0.5483871
                   3.077061
##
##
   [3]
        0.3953488
                   2.218346
   [4]
##
        0.3541667
                   1.987269
   [5]
        0.3541667
                   1.987269
##
   [6]
        0.3529412
                   1.980392
##
   [7]
        0.3478261
                   1.951691
##
   [8]
        0.3200000
                   1.795556
   [9]
        0.3170732
                   1.779133
   [10] 0.3055556
##
                   1.714506
##
                                                            support
##
   [1] {toothed=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1683168
   [2] {feathers=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1782178
   [3] {airborne=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1188119
   [4] {toothed=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
   [5] {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
##
   [6] {milk=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
##
       confidence lift
##
   [1] 1.0000000 5.611111
   [2] 0.9000000
                  5.050000
                  3.740741
   [3] 0.6666667
   [4] 0.5483871
                  3.077061
##
   [5] 0.4722222
                  2.649691
   [6] 0.4615385
                  2.589744
  [1]
       "Número de reglas con consecuente negado"
##
##
                                             rhs
                                                            support
##
  [1]
        {type=fish}
                                          => {aquatic=TRUE} 0.1287129
   [2]
        {fins=TRUE}
                                            {aquatic=TRUE} 0.1683168
   [3]
        {breathes=FALSE,tail=TRUE}
                                            {aquatic=TRUE} 0.1386139
##
##
   [4]
        {backbone=TRUE, breathes=FALSE}
                                         => {aquatic=TRUE} 0.1386139
##
   [5]
        {breathes=FALSE}
                                            {aquatic=TRUE} 0.1980198
##
  [6]
        {backbone=TRUE,legs=FALSE}
                                            {aquatic=TRUE} 0.1683168
  [7]
##
        {hair=FALSE,toothed=TRUE}
                                            {aquatic=TRUE} 0.1980198
##
   [8]
        {milk=FALSE,toothed=TRUE}
                                            {aquatic=TRUE} 0.1782178
   [9]
        {eggs=TRUE,toothed=TRUE}
                                            {aquatic=TRUE} 0.1683168
   [10]
       {predator=TRUE,legs=FALSE}
                                            {aquatic=TRUE} 0.1386139
       {venomous=FALSE,legs=FALSE}
                                            {aquatic=TRUE} 0.1485149
   [11]
##
       {legs=FALSE}
                                            {aquatic=TRUE} 0.1782178
  [12]
## [13] {eggs=TRUE,predator=TRUE}
                                            {aquatic=TRUE} 0.2277228
## [14] {hair=FALSE,predator=TRUE}
                                         => {aquatic=TRUE} 0.2475248
## [15] {hair=FALSE,feathers=FALSE}
                                            {aquatic=TRUE} 0.2574257
```

```
## [16] {milk=FALSE,predator=TRUE}
                                         => {aguatic=TRUE} 0.2277228
   [17] {eggs=TRUE,airborne=FALSE}
                                            {aquatic=TRUE} 0.2475248
                                            {aquatic=TRUE} 0.2673267
  [18] {hair=FALSE,airborne=FALSE}
  [19] {milk=FALSE,airborne=FALSE}
                                            {aquatic=TRUE} 0.2475248
##
  [20] {feathers=FALSE,eggs=TRUE}
                                            {aquatic=TRUE} 0.2376238
  [21] {predator=TRUE, catsize=FALSE}
                                            {aquatic=TRUE} 0.1683168
  [22] {feathers=FALSE,milk=FALSE}
                                            {aquatic=TRUE} 0.2376238
  [23] {hair=FALSE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2574257
   [24]
       {predator=TRUE, toothed=FALSE}
                                            {aquatic=TRUE} 0.1089109
   [25]
       {hair=FALSE,domestic=FALSE}
                                            {aquatic=TRUE} 0.3069307
   [26] {eggs=TRUE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2376238
   [27] {milk=FALSE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2376238
   [28]
       {toothed=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1386139
                                            {aquatic=TRUE} 0.2079208
       {eggs=TRUE,tail=TRUE}
  [30] {predator=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
       {eggs=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
   [32]
       {airborne=FALSE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1881188
   [33] {milk=FALSE,domestic=FALSE}
                                            {aguatic=TRUE} 0.2871287
   [34] {milk=FALSE,tail=TRUE}
                                            {aquatic=TRUE} 0.2079208
   [35] {backbone=TRUE, catsize=FALSE}
                                            {aquatic=TRUE} 0.1782178
##
   [36] {feathers=FALSE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1881188
       {airborne=FALSE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2970297
   [38]
       {domestic=FALSE,catsize=FALSE}
                                            {aquatic=TRUE} 0.2178218
        {toothed=TRUE,domestic=FALSE}
   [39]
                                            {aquatic=TRUE} 0.2178218
   [40]
       {feathers=FALSE,domestic=FALSE} =>
                                            {aquatic=TRUE} 0.2871287
   [41] {backbone=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
        {tail=TRUE,catsize=FALSE}
   [42]
                                            {aquatic=TRUE} 0.1485149
   [43]
       {feathers=FALSE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2376238
  [44]
       {backbone=TRUE}
                                            {aquatic=TRUE} 0.2970297
  [45] {tail=TRUE}
                                            {aquatic=TRUE} 0.2574257
   [46]
        {venomous=FALSE}
                                            {aquatic=TRUE} 0.3168317
   [47]
        {toothed=FALSE}
                                            {aquatic=TRUE} 0.1287129
##
   [48]
        {breathes=TRUE}
                                            {aquatic=TRUE} 0.1584158
##
        confidence lift
   [1]
        1.0000000
##
                   2.8055556
   [2]
##
        1.0000000
                   2.8055556
   [3]
        1.0000000
                   2.8055556
  [4]
##
        1.0000000
                   2.8055556
   [5]
##
        0.9523810
                   2.6719577
##
   [6]
        0.8947368
                   2.5102339
   [7]
        0.8695652
                   2.4396135
   [8]
##
        0.8571429
                   2.4047619
##
   [9]
        0.8500000
                   2.3847222
##
   [10] 0.8235294
                   2.3104575
                   2.2149123
  [11] 0.7894737
   [12] 0.7826087
                   2.1956522
##
   [13] 0.6969697
                   1.9553872
   [14] 0.6944444
                   1.9483025
   [15] 0.6842105
                   1.9195906
   [16]
       0.6764706
                   1.8978758
##
                   1.8956456
   [17]
       0.6756757
  [18] 0.6750000
                   1.8937500
## [19] 0.6578947
                   1.8457602
## [20] 0.6153846
                   1.7264957
```

```
## [21] 0.6071429
                    1.7033730
   [22] 0.6000000
                    1.6833333
   [23] 0.5909091
                    1.6578283
   [24] 0.5789474
                    1.6242690
   [25] 0.5740741
                    1.6105967
   [26] 0.5714286
                    1.6031746
   [27] 0.5714286
                    1.6031746
   [28] 0.5384615
                    1.5106838
   [29] 0.5384615
                    1.5106838
   [30] 0.5370370
                    1.5066872
   [31] 0.5370370
                    1.5066872
   [32] 0.5277778
                    1.4807099
   [33] 0.5272727
                    1.4792929
   [34] 0.5250000
                    1.4729167
   [35] 0.4500000
                    1.2625000
   [36] 0.4418605
                    1.2396641
   [37] 0.4411765
                    1.2377451
   [38] 0.4400000
                    1.2344444
   [39] 0.4230769
                    1.1869658
   [40] 0.4084507
                    1.1459311
##
   [41] 0.4084507
                    1.1459311
   [42] 0.4054054
                    1.1373874
   [43] 0.3809524
                   1.0687831
   [44] 0.3614458
                    1.0140562
   [45] 0.3466667
                   0.9725926
   [46] 0.3440860
                   0.9653524
        0.3250000
   [47]
                   0.9118056
##
   [48]
        0.2000000
                   0.5611111
##
        lhs
                                              support
                                                        confidence lift
##
  [1]
                          => {aquatic=FALSE} 0.1188119 0.9230769
        {domestic=TRUE}
                                                                    1.4343195
##
   [2]
        {hair=TRUE}
                             {aquatic=FALSE} 0.3861386 0.9069767
                                                                    1.4093023
##
   [3]
        {eggs=FALSE}
                          => {aquatic=FALSE} 0.3564356 0.8571429
                                                                    1.3318681
##
   [4]
        {milk=TRUE}
                          => {aquatic=FALSE} 0.3465347 0.8536585
                                                                    1.3264540
   [5]
##
        {type=mammal}
                          => {aquatic=FALSE} 0.3465347 0.8536585
                                                                    1.3264540
   [6]
        {predator=FALSE}
                          => {aquatic=FALSE} 0.3762376 0.8444444
##
                                                                    1.3121368
##
   [7]
        {fins=FALSE}
                          => {aquatic=FALSE} 0.6435644 0.7738095
                                                                    1.2023810
   [8]
        {toothed=FALSE}
                          => {aquatic=FALSE} 0.2673267 0.6750000
                                                                    1.0488462
##
  [9]
        {toothed=TRUE}
                          => {aquatic=FALSE} 0.3762376 0.6229508
                                                                    0.9679697
   [10] {tail=FALSE}
                          => {aquatic=FALSE} 0.1584158 0.6153846
                                                                    0.9562130
   [11] {domestic=FALSE} => {aquatic=FALSE} 0.5247525 0.6022727
                                                                    0.9358392
                          => {aquatic=FALSE} 0.3366337 0.5964912
   [12] {catsize=FALSE}
                                                                    0.9268556
                          => {aquatic=FALSE} 0.2871287 0.4915254
##
   [13] {eggs=TRUE}
                                                                    0.7637549
                                                                    confidence
##
       lhs
                                          rhs
                                                         support
##
   [1] {predator=TRUE,toothed=FALSE} => {aquatic=TRUE} 0.1089109 0.5789474
##
       lift
##
   [1] 1.624269
##
       lhs
                                          rhs
                                                         support
                                                                    confidence
##
   [1] {hair=FALSE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1980198 0.8695652
   [2] {milk=FALSE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1782178 0.8571429
   [3] {eggs=TRUE, toothed=TRUE}
                                      => {aquatic=TRUE} 0.1683168 0.8500000
   [4] {toothed=TRUE,catsize=FALSE}
                                      => {aquatic=TRUE} 0.1386139 0.5384615
##
   [5] {toothed=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2178218 0.4230769
##
       lift
## [1] 2.439614
```

```
## [2] 2.404762
  [3] 2.384722
  [4] 1.510684
  [5] 1.186966
##
##
       lhs
                                           rhs
                                                          support
                                                                     confidence
## [1] {hair=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.3069307 0.5740741
## [2] {predator=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
  [3] {eggs=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
  [4] {milk=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5272727
  [5] {airborne=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2970297 0.4411765
  [6] {domestic=FALSE,catsize=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4400000
   [7] {toothed=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4230769
   [8] {feathers=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.4084507
   [9] {backbone=TRUE,domestic=FALSE}
##
                                        => {aquatic=TRUE} 0.2871287 0.4084507
##
       lift
##
  [1] 1.610597
##
   [2] 1.506687
  [3] 1.506687
  [4] 1.479293
  [5] 1.237745
##
  [6] 1.234444
  [7] 1.186966
  [8] 1.145931
##
##
   [9] 1.145931
##
       lhs
                                          rhs
                                                         support
                                                                   confidence
## [1] {predator=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1683168 0.6071429
  [2] {toothed=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1386139 0.5384615
  [3] {airborne=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.5277778
  [4] {backbone=TRUE, catsize=FALSE}
                                       => {aquatic=TRUE} 0.1782178 0.4500000
  [5] {feathers=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.4418605
   [6] {domestic=FALSE, catsize=FALSE} => {aquatic=TRUE} 0.2178218 0.4400000
##
   [7] {tail=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1485149 0.4054054
##
       lift
  [1] 1.703373
##
   [2] 1.510684
##
   [3] 1.480710
  [4] 1.262500
  [5] 1.239664
##
   [6] 1.234444
  [7] 1.137387
##
##
       lhs
                                      rhs
                                                     support
                                                               confidence
  [1] {eggs=TRUE,toothed=TRUE}
                                   => {aquatic=TRUE} 0.1683168 0.8500000
   [2] {eggs=TRUE,predator=TRUE}
                                   => {aquatic=TRUE} 0.2277228 0.6969697
   [3] {eggs=TRUE,airborne=FALSE} => {aquatic=TRUE} 0.2475248 0.6756757
  [4] {feathers=FALSE,eggs=TRUE} => {aquatic=TRUE} 0.2376238 0.6153846
   [5] {eggs=TRUE,backbone=TRUE}
                                   => {aquatic=TRUE} 0.2376238 0.5714286
   [6] {eggs=TRUE,tail=TRUE}
                                   => {aquatic=TRUE} 0.2079208 0.5384615
##
   [7] {eggs=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.5370370
##
       lift.
##
  [1] 2.384722
##
  [2] 1.955387
## [3] 1.895646
## [4] 1.726496
## [5] 1.603175
```

```
[6] 1.510684
   [7] 1.506687
   [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                        support
                                                                  confidence
##
   [1]
        {type=fish}
                                           {fins=TRUE} 0.1287129 1.0000000
##
   [2]
        {toothed=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
##
   [3]
        {breathes=FALSE.tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.9285714
  [4]
##
        {backbone=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.9285714
##
   [5]
        {aquatic=TRUE,legs=FALSE}
                                            {fins=TRUE} 0.1584158 0.8888889
   [6]
##
        {toothed=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
   [7]
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
   [8]
                                           {fins=TRUE} 0.1485149 0.8333333
##
        {legs=FALSE,tail=TRUE}
##
   [9]
        {breathes=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1287129 0.8125000
  [10] {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
  [11] {aquatic=TRUE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.7391304
   [12] {predator=TRUE,legs=FALSE}
                                            {fins=TRUE} 0.1188119 0.7058824
  [13] {breathes=FALSE, venomous=FALSE} =>
                                           {fins=TRUE} 0.1188119 0.6666667
  [14] {hair=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1485149 0.6521739
                                         => {fins=TRUE} 0.1287129 0.6500000
  [15] {aquatic=TRUE, breathes=FALSE}
  [16] {eggs=TRUE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.6500000
##
  [17] {breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6190476
  [18] {milk=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6190476
                                         => {fins=TRUE} 0.1584158 0.6153846
## [19] {aquatic=TRUE,tail=TRUE}
  [20] {feathers=FALSE,aquatic=TRUE}
                                           {fins=TRUE} 0.1683168 0.5666667
  [21] {aquatic=TRUE, backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
  [22] {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
  [23] {aquatic=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1584158 0.5000000
  [24] {hair=FALSE, feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
## [25] {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [26] {hair=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3571429
  [27] {predator=TRUE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.3513514
  [28] {eggs=TRUE,airborne=FALSE}
                                           {fins=TRUE} 0.1287129 0.3513514
  [29] {milk=FALSE,airborne=FALSE}
                                           {fins=TRUE} 0.1287129 0.3421053
                                         => {fins=TRUE} 0.1485149 0.3409091
  [30] {hair=FALSE,backbone=TRUE}
   [31] {eggs=TRUE,tail=TRUE}
                                            {fins=TRUE} 0.1287129 0.3333333
##
  [32] {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
  [33] {milk=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.3250000
  [34] {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
  [35] {eggs=TRUE,backbone=TRUE}
                                            {fins=TRUE} 0.1287129 0.3095238
  [36] {milk=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [37] {toothed=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.3076923
  [38] {toothed=TRUE,domestic=FALSE}
                                           {fins=TRUE} 0.1584158 0.3076923
  [39] {hair=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1089109 0.3055556
## [40] {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
## [41] {airborne=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
                                         => {fins=TRUE} 0.1188119 0.2857143
## [42] {predator=TRUE,tail=TRUE}
## [43] {toothed=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1584158 0.2807018
## [44] {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [45] {feathers=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
  [46] {predator=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.2765957
## [47] {feathers=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2698413
## [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
## [49] {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
## [50] {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
```

```
## [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
                                         => {fins=TRUE} 0.1485149 0.2586207
  [52] {hair=FALSE}
  [53] {predator=TRUE, venomous=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2400000
  [54] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [57] {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
## [58] {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
   [59] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [60] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [61] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
                                         => {fins=TRUE} 0.1188119 0.2222222
   [62] {eggs=TRUE,domestic=FALSE}
   [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
                                         => {fins=TRUE} 0.1188119 0.2181818
   [64] {milk=FALSE,domestic=FALSE}
  [65] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
##
   [66] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
##
  [1]
        5.941176
  [2]
       5.516807
##
##
   [3]
       5.516807
##
  [4]
       5.516807
  [5]
##
        5.281046
  [6]
##
       5.003096
##
  [7]
       5.003096
##
  [8]
        4.950980
  [9]
        4.827206
  [10] 4.690402
##
## [11] 4.391304
## [12] 4.193772
## [13] 3.960784
## [14] 3.874680
##
  [15] 3.861765
  [16] 3.861765
## [17] 3.677871
  [18] 3.677871
## [19] 3.656109
## [20] 3.366667
## [21] 3.366667
  [22] 3.258065
## [23] 2.970588
  [24] 2.345201
  [25] 2.227941
##
  [26] 2.121849
##
  [27] 2.087440
## [28] 2.087440
## [29] 2.032508
##
  [30] 2.025401
  [31] 1.980392
## [32] 1.980392
## [33] 1.930882
## [34] 1.930882
## [35] 1.838936
## [36] 1.838936
## [37] 1.828054
```

```
## [38] 1.828054
   [39] 1.815359
  [40] 1.728342
  [41] 1.711864
  [42] 1.697479
##
  [43] 1.667699
  [44] 1.667699
  [45] 1.643304
   [46] 1.643304
  [47] 1.603175
  [48] 1.599548
  [49] 1.576230
##
   [50] 1.553846
   [51] 1.540305
  [52] 1.536511
   [53] 1.425882
##
   [54] 1.397924
   [55] 1.383562
   [56] 1.371041
   [57] 1.371041
##
   [58] 1.345172
  [59] 1.338857
##
  [60] 1.338857
##
   [61] 1.338857
   [62] 1.320261
   [63] 1.302176
##
   [64] 1.296257
##
   [65] 1.284579
##
   [66] 1.100218
##
        lhs
                             rhs
                                          support
                                                     confidence lift
##
  [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000
                                                                1.2023810
##
   [2]
        {type=bird}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
   [3]
        {feathers=TRUE}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
   [4]
##
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
                                                                1.2023810
##
   [5]
                          => {fins=FALSE} 0.3960396 1.0000000
        {toothed=FALSE}
                                                                1.2023810
##
                          => {fins=FALSE} 0.7623762 0.9871795
   [6]
        {legs=TRUE}
                                                                1.1869658
##
  [7]
        {hair=TRUE}
                          => {fins=FALSE} 0.4059406 0.9534884
##
  [8]
                          => {fins=FALSE} 0.7524752 0.9500000
        {breathes=TRUE}
                                                                1.1422619
        {domestic=TRUE}
                          => {fins=FALSE} 0.1188119 0.9230769
   [9]
                                                                1.1098901
  [10] {predator=FALSE} => {fins=FALSE} 0.4059406 0.9111111
##
                                                                1.0955026
                          => {fins=FALSE} 0.3762376 0.9047619
  [11] {eggs=FALSE}
                                                                1.0878685
                          => {fins=FALSE} 0.3663366 0.9024390
  [12] {milk=TRUE}
                                                                1.0850755
  [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
   [14] {catsize=FALSE}
                          => {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
  [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
                          => {fins=FALSE} 0.3564356 0.8181818
  [16] {catsize=TRUE}
                                                                0.9837662
   [17]
       {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                0.9837662
  [18] {backbone=TRUE}
                         => {fins=FALSE} 0.6534653 0.7951807
                                                                0.9561102
  [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
  [20]
       {tail=TRUE}
                          => {fins=FALSE} 0.5841584 0.7866667
                                                                0.9458730
                          => {fins=FALSE} 0.4554455 0.7796610
##
  [21]
                                                                0.9374496
       {eggs=TRUE}
## [22] {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                0.9369202
## [23] {predator=TRUE}
                          => {fins=FALSE} 0.4257426 0.7678571
                                                                0.9232568
## [24] {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
```

```
## [25] {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115 0.8672912
                          => {fins=FALSE} 0.1881188 0.5277778 0.6345899
##
   [26] {aquatic=TRUE}
##
        lhs
                                                         support
                                                                    confidence
##
  [1]
                                         => {fins=TRUE} 0.1485149 0.7894737
        {venomous=FALSE,legs=FALSE}
##
   [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
   [3]
        {aquatic=TRUE, venomous=FALSE}
##
                                         => {fins=TRUE} 0.1584158 0.5000000
##
   [4]
        {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
  [5]
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
##
   [6]
        {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
##
   [7]
        {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [8]
        {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
   [9]
##
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   Γ10]
   [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
        lift
##
  [1]
        4.690402
   [2]
##
        3.960784
   [3]
        2.970588
##
   [4]
##
        1.667699
##
   [5]
        1.599548
##
   [6]
        1.425882
  [7]
##
        1.371041
  [8]
##
        1.345172
##
   [9]
        1.338857
  [10] 1.302176
##
   [11] 1.100218
##
       lhs
                                            rhs
                                                        support
                                                                  confidence
##
  [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
                                        => {fins=TRUE} 0.1386139 0.2592593
  [2] {hair=FALSE,domestic=FALSE}
## [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
  [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
  [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
   [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
   [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
       lift
## [1] 1.828054
  [2] 1.540305
##
  [3] 1.397924
  [4] 1.371041
  [5] 1.338857
   [6] 1.338857
##
  [7] 1.320261
## [8] 1.296257
## [9] 1.100218
##
        lhs
                                            rhs
                                                        support
                                                                  confidence
##
  [1]
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
  [2]
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
##
   [3]
        {aquatic=TRUE, backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
   [4]
##
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
## [5]
        {eggs=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
## [6]
        {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
## [7]
        {predator=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
```

```
{feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
  [9]
  [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [11] {backbone=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
        lift.
## [1]
        5.516807
  [2]
        5.003096
## [3]
        3.366667
##
  [4]
        2.025401
##
  [5]
        1.838936
  [6]
        1.838936
   [7]
##
        1.643304
##
   [8]
        1.603175
##
  [9]
        1.553846
## [10] 1.338857
##
  [11] 1.284579
##
        lhs
                                                                    confidence
                                                         support
                                            rhs
##
  [1]
        {feathers=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
##
  [2]
        {hair=FALSE,feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
   [3]
        {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
##
  [4]
        {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
  [5]
        {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
##
                                         => {fins=TRUE} 0.1287129 0.2765957
  [6]
        {feathers=FALSE,predator=TRUE}
##
##
  [7]
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
##
  [8]
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
   [10]
##
        lift
## [1]
        3.366667
##
  [2]
        2.345201
##
  [3]
        1.980392
##
  [4]
        1.930882
##
  [5]
        1.728342
  [6]
        1.643304
##
   [7]
##
        1.603175
  [8]
##
        1.383562
  [9]
        1.338857
  [10] 1.302176
##
##
        lhs
                                       rhs
                                                    support
                                                              confidence
## [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
  [2]
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.8333333
  [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
##
##
   [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
##
  [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
  [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
## [7]
                                    => {fins=TRUE} 0.1584158 0.3076923
        {toothed=TRUE,tail=TRUE}
##
  [8]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
  [9]
        {predator=TRUE, tail=TRUE} => {fins=TRUE} 0.1188119 0.2857143
  [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
   [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
        {backbone=TRUE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
   [12]
##
        lift
## [1]
        5.516807
## [2]
        4.950980
```

```
## [3]
        3.656109
##
   [4]
        2.121849
  [5]
        1.980392
  [6]
##
        1.930882
##
   [7]
        1.828054
##
   [8]
        1.728342
  [9]
        1.697479
## [10] 1.667699
  [11] 1.371041
##
  [12] 1.284579
##
       lhs
                                      rhs
                                                             confidence
                                                   support
                                   => {fins=TRUE} 0.1287129 0.6500000
##
  [1] {eggs=TRUE,toothed=TRUE}
   [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
  [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
   [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
   [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
   [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
       lift
## [1] 3.861765
##
  [2] 2.087440
  [3] 1.980392
## [4] 1.980392
   [5] 1.838936
  [6] 1.345172
   [7] 1.320261
##
        lhs
                                             rhs
                                                         support
                                                                    confidence
##
  [1]
        {airborne=FALSE,aquatic=TRUE}
                                            {fins=TRUE} 0.1683168 0.5483871
##
  [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
##
   [5]
        {airborne=FALSE, toothed=TRUE}
                                            {fins=TRUE} 0.1683168 0.2881356
  [6]
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
  [7]
        {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
   [8]
        {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
##
  [9]
  [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
##
        lift
##
        3.258065
  [1]
  [2]
        2.227941
  [3]
        2.087440
##
##
   [4]
        2.032508
##
   [5]
        1.711864
##
  [6]
        1.667699
  [7]
##
        1.576230
##
  [8]
        1.553846
##
  [9]
        1.397924
  [10] 1.383562
##
   [11] 1.338857
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
## [2] {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
## [3] {hair=FALSE,predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
```

```
## [4] {predator=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1188119 0.2857143
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
##
   [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
## [4] 1.697479
## [5] 1.643304
## [6] 1.643304
## [7] 1.576230
## [8] 1.425882
##
       lhs
                                       rhs
                                                   support
                                                             confidence
## [1] {hair=FALSE,toothed=TRUE}
                                    => {fins=TRUE} 0.1485149 0.6521739
## [2] {hair=FALSE,feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
                                   => {fins=TRUE} 0.1485149 0.3571429
## [4] {hair=FALSE,tail=TRUE}
## [5] {hair=FALSE,backbone=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3409091
## [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
## [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
## [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
       lift
##
## [1] 3.874680
## [2] 2.345201
## [3] 2.227941
## [4] 2.121849
## [5] 2.025401
## [6] 1.815359
## [7] 1.599548
## [8] 1.540305
                                                                confidence
##
        lhs
                                                      support
## [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
##
  [2]
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
## [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
## [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
## [5]
        {eggs=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
## [6]
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
        {predator=TRUE,toothed=TRUE}
                                      => {fins=TRUE} 0.1287129 0.3513514
## [7]
        {toothed=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.3076923
## [9]
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
  [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
  [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
##
        lift
## [1]
       5.516807
##
  [2]
       5.003096
## [3]
        4.391304
## [4]
        3.874680
##
  [5]
        3.861765
  [6]
##
        3.677871
## [7]
        2.087440
## [8]
        1.828054
## [9]
       1.828054
```

```
## [10] 1.711864
##
  [11] 1.667699
##
       lhs
                                                     support
                                                                confidence
                                      => {fins=TRUE} 0.1584158 0.8888889
## [1] {aquatic=TRUE,legs=FALSE}
##
  [2] {aquatic=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
  [3] {aquatic=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
## [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
## [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [6] {aquatic=TRUE,backbone=TRUE}
                                     => {fins=TRUE} 0.1683168 0.5666667
   [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
   [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
## [1] 5.281046
## [2] 4.391304
## [3] 3.861765
## [4] 3.656109
##
  [5] 3.366667
  [6] 3.366667
##
  [7] 3.258065
   [8] 2.970588
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                                   confidence
                                                        support
## [1]
                                         => {fins=TRUE} 0.1287129 1.0000000
        {type=fish}
##
   [2]
        {toothed=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.9285714
##
  [3]
        {breathes=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.9285714
  [4]
        {backbone=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
   [5]
                                         => {fins=TRUE} 0.1584158 0.8888889
##
        {aquatic=TRUE,legs=FALSE}
##
   [6]
        {toothed=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
  [7]
##
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
## [8]
        {legs=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.8333333
## [9]
        {breathes=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1287129 0.8125000
  [10] {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
  [11] {aquatic=TRUE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.7391304
                                         => {fins=TRUE} 0.1188119 0.7058824
## [12] {predator=TRUE,legs=FALSE}
## [13] {breathes=FALSE, venomous=FALSE}
                                        => {fins=TRUE} 0.1188119 0.6666667
## [14] {hair=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1485149 0.6521739
## [15] {aquatic=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6500000
## [16] {eggs=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6500000
## [17] {breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.6190476
## [18] {milk=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6190476
## [19] {aquatic=TRUE, tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.6153846
## [20] {feathers=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
## [21] {aquatic=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
                                         => {fins=TRUE} 0.1683168 0.5483871
## [22] {airborne=FALSE,aquatic=TRUE}
## [23] {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
                                         => {fins=TRUE} 0.1485149 0.3947368
## [24] {hair=FALSE,feathers=FALSE}
## [25] {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [26] {hair=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3571429
## [27] {predator=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [28] {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [29] {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
## [30] {hair=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3409091
## [31] {eggs=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
## [32] {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
```

```
## [33] {milk=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3250000
                                         => {fins=TRUE} 0.1287129 0.3250000
  [34] {feathers=FALSE,milk=FALSE}
  [35] {eggs=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.3095238
  [36] {milk=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.3095238
  [37] {toothed=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.3076923
##
  [38] {toothed=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.3076923
  [39] {hair=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1089109 0.3055556
  [40] {feathers=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.2909091
  [41] {airborne=FALSE,toothed=TRUE}
                                            {fins=TRUE} 0.1683168 0.2881356
  [42] {predator=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1188119 0.2857143
  [43] {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
                                         => {fins=TRUE} 0.1584158 0.2807018
  [44] {airborne=FALSE,tail=TRUE}
  [45] {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
## [46] {predator=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
## [47] {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
  [48]
       {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
                                         => {fins=TRUE} 0.1287129 0.2653061
  [49] {airborne=FALSE,predator=TRUE}
   [50] {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
  [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
   [52] {hair=FALSE}
                                           {fins=TRUE} 0.1485149 0.2586207
##
  [53] {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
  [54] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
##
   [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
##
  [57] {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
  [58] {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
   [59] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [60] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [61] {backbone=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2253521
   [62] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
   [63]
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
   [64]
       {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
       {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
       {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
   [66]
##
        lift
##
  [1]
       5.941176
##
  [2]
       5.516807
  [3]
##
       5.516807
   [4]
##
        5.516807
##
   [5]
       5.281046
  [6]
        5.003096
   [7]
##
        5.003096
##
   [8]
        4.950980
##
   [9]
        4.827206
## [10] 4.690402
## [11] 4.391304
##
  [12] 4.193772
  [13] 3.960784
  [14] 3.874680
  [15] 3.861765
## [16] 3.861765
## [17] 3.677871
## [18] 3.677871
## [19] 3.656109
```

```
## [20] 3.366667
  [21] 3.366667
  [22] 3.258065
  [23] 2.970588
  [24] 2.345201
  [25] 2.227941
##
  [26] 2.121849
## [27] 2.087440
   [28] 2.087440
  [29] 2.032508
  [30] 2.025401
  [31] 1.980392
   [32] 1.980392
  [33] 1.930882
  [34] 1.930882
   [35] 1.838936
   [36] 1.838936
   [37] 1.828054
  [38] 1.828054
  [39] 1.815359
## [40] 1.728342
## [41] 1.711864
## [42] 1.697479
  [43] 1.667699
## [44] 1.667699
  [45] 1.643304
  [46] 1.643304
##
  [47] 1.603175
## [48] 1.599548
  [49] 1.576230
  [50] 1.553846
##
   [51] 1.540305
   [52] 1.536511
  [53] 1.425882
   [54] 1.397924
  [55] 1.383562
##
  [56] 1.371041
  [57] 1.371041
##
   [58] 1.345172
  [59] 1.338857
##
  [60] 1.338857
   [61] 1.338857
   [62] 1.320261
##
   [63] 1.302176
   [64] 1.296257
##
   [65] 1.284579
##
   [66] 1.100218
##
        lhs
                             rhs
                                          support
                                                     confidence lift
##
  [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000
                                                                1.2023810
##
   [2]
        {type=bird}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
   [3]
                          => {fins=FALSE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                                1.2023810
##
  [4]
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
## [5]
        {toothed=FALSE}
                          => {fins=FALSE} 0.3960396 1.0000000
                                                                1.2023810
                          => {fins=FALSE} 0.7623762 0.9871795 1.1869658
## [6]
        {legs=TRUE}
```

```
## [7]
        {hair=TRUE}
                          => {fins=FALSE} 0.4059406 0.9534884
                                                                1.1464563
##
  [8]
                         => {fins=FALSE} 0.7524752 0.9500000
        {breathes=TRUE}
                                                                1.1422619
  [9]
        {domestic=TRUE}
                         => {fins=FALSE} 0.1188119 0.9230769
  [10] {predator=FALSE} => {fins=FALSE} 0.4059406 0.9111111
                                                                1.0955026
##
  [11] {eggs=FALSE}
                          => {fins=FALSE} 0.3762376 0.9047619
                                                                1.0878685
                          => {fins=FALSE} 0.3663366 0.9024390
##
  [12] {milk=TRUE}
                                                                1.0850755
                          => {fins=FALSE} 0.3663366 0.9024390
  [13] {type=mammal}
                                                                1.0850755
## [14] {catsize=FALSE}
                         => {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
  [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
  [16] {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                0.9837662
## [17] {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                0.9837662
                         => {fins=FALSE} 0.6534653 0.7951807
## [18] {backbone=TRUE}
                                                                0.9561102
## [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
## [20] {tail=TRUE}
                         => {fins=FALSE} 0.5841584 0.7866667
                                                                0.9458730
                          => {fins=FALSE} 0.4554455 0.7796610
                                                                0.9374496
## [21] {eggs=TRUE}
        {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                0.9369202
  [22]
                         => {fins=FALSE} 0.4257426 0.7678571
##
  [23] {predator=TRUE}
                                                                0.9232568
  [24] {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
                                                                0.8914204
  [25] {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115
                                                                0.8672912
   [26] {aquatic=TRUE}
                          => {fins=FALSE} 0.1881188 0.5277778
                                                                0.6345899
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
  [1]
        {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
  [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
##
##
   [3]
        {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
##
  [4]
        {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
  [5]
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
   [6]
                                         => {fins=TRUE} 0.1188119 0.2400000
##
        {predator=TRUE, venomous=FALSE}
##
   [7]
        {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
   [8]
        {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
##
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
   [11]
       {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
        4.690402
##
  [1]
##
   [2]
        3.960784
##
   [3]
        2.970588
##
  [4]
        1.667699
  [5]
        1.599548
##
   [6]
        1.425882
##
##
  [7]
        1.371041
  [8]
        1.345172
   [9]
##
        1.338857
##
   [10] 1.302176
##
   [11] 1.100218
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
                                        => {fins=TRUE} 0.1584158 0.3076923
## [1] {toothed=TRUE,domestic=FALSE}
   [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
  [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
  [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
## [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
## [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
## [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
```

```
##
       lift
## [1] 1.828054
   [2] 1.540305
   [3] 1.397924
   [4] 1.371041
##
   [5] 1.338857
   [6] 1.338857
   [7] 1.320261
   [8] 1.296257
##
   [9] 1.100218
##
        lhs
                                            rhs
                                                                   confidence
                                                         support
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
##
   [1]
##
   [2]
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
                                         => {fins=TRUE} 0.1683168 0.5666667
##
   [3]
        {aquatic=TRUE,backbone=TRUE}
##
  [4]
                                         => {fins=TRUE} 0.1485149 0.3409091
        {hair=FALSE,backbone=TRUE}
##
   [5]
        {eggs=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
   [6]
##
        {milk=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
   [7]
        {predator=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
##
   [8]
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
   [9]
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
##
   [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [11] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
##
        lift.
        5.516807
##
   Г17
   [2]
##
        5.003096
   [3]
        3.366667
   [4]
##
        2.025401
##
   [5]
        1.838936
   [6]
##
        1.838936
##
   [7]
        1.643304
##
   [8]
        1.603175
##
   [9]
        1.553846
   [10] 1.338857
##
   [11] 1.284579
##
                                             rhs
                                                          support
                                                                    confidence
## [1]
        {feathers=FALSE, aquatic=TRUE}
                                          => {fins=TRUE} 0.1683168 0.5666667
   [2]
        {hair=FALSE, feathers=FALSE}
                                          => {fins=TRUE} 0.1485149 0.3947368
  [3]
        {feathers=FALSE,eggs=TRUE}
                                          => {fins=TRUE} 0.1287129 0.3333333
##
   [4]
        {feathers=FALSE, milk=FALSE}
                                             {fins=TRUE} 0.1287129 0.3250000
##
   [5]
##
        {feathers=FALSE,tail=TRUE}
                                          => {fins=TRUE} 0.1584158 0.2909091
   [6]
        {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
   [7]
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
##
##
   [8]
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
##
        lift
## [1]
        3.366667
   [2]
##
        2.345201
##
   [3]
        1.980392
##
   [4]
        1.930882
   [5]
##
        1.728342
##
  [6]
        1.643304
## [7]
        1.603175
## [8]
        1.383562
```

```
## [9]
        1.338857
##
   [10] 1.302176
##
        lhs
                                                   support
                                                              confidence
##
  [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
##
   [2]
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.8333333
##
   [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
  [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
##
  [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
##
   [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
##
  [7]
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
  [8]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
        {predator=TRUE,tail=TRUE}
##
  [9]
                                   => {fins=TRUE} 0.1188119 0.2857143
  [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
  [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
  [12] {backbone=TRUE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
##
        lift
##
  [1]
        5.516807
   [2]
        4.950980
  [3]
##
        3.656109
##
   [4]
        2.121849
##
  [5]
        1.980392
  [6]
##
        1.930882
  [7]
##
        1.828054
  [8]
##
        1.728342
##
  [9]
        1.697479
  [10] 1.667699
##
  [11] 1.371041
##
   [12] 1.284579
##
       lhs
                                      rhs
                                                   support
                                                             confidence
                                   => {fins=TRUE} 0.1287129 0.6500000
  [1] {eggs=TRUE,toothed=TRUE}
   [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
  [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
  [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
  [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
   [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
   [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
##
       lift
## [1] 3.861765
   [2] 2.087440
##
  [3] 1.980392
  [4] 1.980392
   [5] 1.838936
##
   [6] 1.345172
##
   [7] 1.320261
##
        lhs
                                                         support
                                                                   confidence
## [1]
                                            {fins=TRUE} 0.1683168 0.5483871
        {airborne=FALSE,aquatic=TRUE}
##
   [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
##
  [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
  [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
##
   [5]
        {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
                                         => {fins=TRUE} 0.1584158 0.2807018
##
   [6]
        {airborne=FALSE,tail=TRUE}
  [7]
        {airborne=FALSE, predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
## [8]
        {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
## [9]
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
```

```
## [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
        lift
       3.258065
## [1]
##
  [2]
        2.227941
## [3]
       2.087440
## [4]
        2.032508
## [5]
        1.711864
##
  [6]
        1.667699
## [7]
        1.576230
## [8]
        1.553846
## [9]
        1.397924
## [10] 1.383562
## [11] 1.338857
##
       lhs
                                          rhs
                                                      support
                                                                confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
  [2] {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
## [3] {hair=FALSE, predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
## [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
## [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
       lift
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
## [4] 1.697479
## [5] 1.643304
## [6] 1.643304
## [7] 1.576230
## [8] 1.425882
##
       lhs
                                                   support
                                                             confidence
## [1] {hair=FALSE,toothed=TRUE}
                                   => {fins=TRUE} 0.1485149 0.6521739
## [2] {hair=FALSE,feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
## [4] {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
## [5] {hair=FALSE,backbone=TRUE} => {fins=TRUE} 0.1485149 0.3409091
## [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
## [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
  [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
       lift
## [1] 3.874680
## [2] 2.345201
## [3] 2.227941
## [4] 2.121849
## [5] 2.025401
## [6] 1.815359
## [7] 1.599548
## [8] 1.540305
##
        lhs
                                          rhs
                                                      support
                                                                confidence
## [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
## [2]
        {toothed=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8421053
## [3]
       {aquatic=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
```

```
## [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
##
                                       => {fins=TRUE} 0.1287129 0.6500000
  [5]
        {eggs=TRUE,toothed=TRUE}
  [6]
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
  [7]
        {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
##
  [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
##
  [9]
## [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
## [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
        lift
## [1]
        5.516807
  [2]
        5.003096
  [3]
##
        4.391304
##
   [4]
        3.874680
##
  [5]
        3.861765
  [6]
##
        3.677871
##
  [7]
        2.087440
  [8]
##
        1.828054
  [9]
        1.828054
## [10] 1.711864
## [11] 1.667699
##
       lhs
                                                                confidence
                                         rhs
                                                      support
## [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
## [2] {aquatic=TRUE,toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
## [3] {aquatic=TRUE, breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
## [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
## [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [6] {aquatic=TRUE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
  [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
## [1] 5.281046
  [2] 4.391304
## [3] 3.861765
## [4] 3.656109
  [5] 3.366667
## [6] 3.366667
## [7] 3.258065
## [8] 2.970588
  [1] "Número de reglas con consecuente negado"
##
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
  [1]
        {type=fish}
                                         => {fins=TRUE} 0.1287129 1.0000000
  [2]
        {toothed=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
##
  [3]
        {breathes=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.9285714
## [4]
                                         => {fins=TRUE} 0.1287129 0.9285714
        {backbone=TRUE, breathes=FALSE}
## [5]
        {aquatic=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8888889
## [6]
                                         => {fins=TRUE} 0.1584158 0.8421053
        {toothed=TRUE,legs=FALSE}
##
  [7]
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
## [8]
        {legs=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.8333333
## [9]
        {breathes=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1287129 0.8125000
## [10] {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
                                         => {fins=TRUE} 0.1683168 0.7391304
## [11] {aquatic=TRUE, toothed=TRUE}
## [12] {predator=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1188119 0.7058824
## [13] {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
## [14] {hair=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1485149 0.6521739
```

```
## [15] {aquatic=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6500000
                                         => {fins=TRUE} 0.1287129 0.6500000
  [16] {eggs=TRUE,toothed=TRUE}
  [17] {breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.6190476
  [18] {milk=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.6190476
  [19] {aquatic=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.6153846
  [20] {feathers=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
## [21] {aquatic=TRUE, backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
## [22] {airborne=FALSE,aquatic=TRUE}
                                           {fins=TRUE} 0.1683168 0.5483871
  [23] {aquatic=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1584158 0.5000000
  [24] {hair=FALSE, feathers=FALSE}
                                        => {fins=TRUE} 0.1485149 0.3947368
  [25] {hair=FALSE,airborne=FALSE}
                                        => {fins=TRUE} 0.1485149 0.3750000
                                           {fins=TRUE} 0.1485149 0.3571429
   [26] {hair=FALSE,tail=TRUE}
  [27]
       {predator=TRUE, toothed=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3513514
  [28] {eggs=TRUE,airborne=FALSE}
                                        => {fins=TRUE} 0.1287129 0.3513514
                                         => {fins=TRUE} 0.1287129 0.3421053
  [29] {milk=FALSE,airborne=FALSE}
  [30]
       {hair=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1485149 0.3409091
  [31] {eggs=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3333333
  [32] {feathers=FALSE,eggs=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3333333
                                         => {fins=TRUE} 0.1287129 0.3250000
  [33] {milk=FALSE,tail=TRUE}
  [34] {feathers=FALSE,milk=FALSE}
                                           {fins=TRUE} 0.1287129 0.3250000
##
  [35] {eggs=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [36] {milk=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
                                        => {fins=TRUE} 0.1584158 0.3076923
  [37] {toothed=TRUE,tail=TRUE}
  [38]
       {toothed=TRUE,domestic=FALSE}
                                           {fins=TRUE} 0.1584158 0.3076923
  [39]
       {hair=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1089109 0.3055556
  [40] {feathers=FALSE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2909091
  [41] {airborne=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1683168 0.2881356
  [42] {predator=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1188119 0.2857143
## [43] {toothed=TRUE, venomous=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2807018
## [44] {airborne=FALSE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2807018
## [45] {feathers=FALSE,predator=TRUE}
                                           {fins=TRUE} 0.1287129 0.2765957
  [46] {predator=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.2765957
  [47] {feathers=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2698413
  [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
   [49] {airborne=FALSE,predator=TRUE}
                                           {fins=TRUE} 0.1287129 0.2653061
##
  [50] {airborne=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2615385
  [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
  [52] {hair=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2586207
##
  [53] {predator=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1188119 0.2400000
##
  [54] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
   [57] {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
  [58] {eggs=TRUE, venomous=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2264151
## [59] {airborne=FALSE,venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
                                           {fins=TRUE} 0.1584158 0.2253521
  [60] {feathers=FALSE,domestic=FALSE}
                                        =>
   [61]
##
       {backbone=TRUE,domestic=FALSE}
                                           {fins=TRUE} 0.1584158 0.2253521
   [62]
       {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
  [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [64] {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
                                         => {fins=TRUE} 0.1584158 0.2162162
   [65] {backbone=TRUE,tail=TRUE}
##
   [66] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
## [1]
      5.941176
```

- ## [2] 5.516807
- ## [3] 5.516807
- ## [4] 5.516807
- ## [5] 5.281046
- ## [6] 5.003096
- ## [7] 5.003096
- ## [8] 4.950980
- ## [9] 4.827206
- ## [10] 4.690402
- ## [10] 4.030402
- ## [11] 4.391304
- ## [12] 4.193772
- ## [13] 3.960784
- ## [14] 3.874680
- ## [15] 3.861765
- ## [16] 3.861765
- ## [17] 3.677871
- ## [18] 3.677871
- ## [19] 3.656109
- ## [20] 3.366667
- ## [21] 3.366667
- "" [22] 0.00000
- ## [22] 3.258065
- ## [23] 2.970588
- ## [24] 2.345201
- ## [25] 2.227941
- ## [26] 2.121849
- ## [27] 2.087440
- ## [28] 2.087440
- ## [29] 2.032508
- ## [30] 2.025401
- ## [31] 1.980392 ## [32] 1.980392
- ## [33] 1.930882
- ## [34] 1.930882
- ## [35] 1.838936
- ## [36] 1.838936
- ## [37] 1.828054
- ## [38] 1.828054
- ## [39] 1.815359
- ## [40] 1.728342
- ## [41] 1.711864
- ## [42] 1.697479
- ## [43] 1.667699
- ## [44] 1.667699
- ## [45] 1.643304
- ## [46] 1.643304
- ## [47] 1.603175
- ## [48] 1.599548
- ## [49] 1.576230
- ## [50] 1.553846
- ## [51] 1.540305
- ## [52] 1.536511
- ## [53] 1.425882 ## [54] 1.397924
- ## [55] 1.383562

```
[56] 1.371041
##
   [57] 1.371041
   [58] 1.345172
   [59] 1.338857
##
##
   [60] 1.338857
   [61] 1.338857
##
   [62] 1.320261
##
   [63] 1.302176
##
   [64] 1.296257
##
   [65] 1.284579
   [66] 1.100218
##
        lhs
                                          support
                                                     confidence lift
##
   [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000
                                                               1.2023810
##
   [2]
        {type=bird}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
   [3]
##
        {feathers=TRUE}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
   [4]
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
                                                                1.2023810
   [5]
##
                          => {fins=FALSE} 0.3960396 1.0000000
        {toothed=FALSE}
                                                                1.2023810
   [6]
        {legs=TRUE}
                          => {fins=FALSE} 0.7623762 0.9871795
##
                                                                1.1869658
##
   [7]
        {hair=TRUE}
                          => {fins=FALSE} 0.4059406 0.9534884
                                                                1.1464563
##
   [8]
        {breathes=TRUE}
                          => {fins=FALSE} 0.7524752 0.9500000
                                                                1.1422619
##
   [9]
        {domestic=TRUE}
                          => {fins=FALSE} 0.1188119 0.9230769
                                                                1.1098901
                         => {fins=FALSE} 0.4059406 0.9111111
  [10] {predator=FALSE}
                                                                1.0955026
                          => {fins=FALSE} 0.3762376 0.9047619
   [11] {eggs=FALSE}
##
                                                                1.0878685
##
   [12] {milk=TRUE}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
##
   [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
   [14] {catsize=FALSE}
                          => {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
   [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
   [16] {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                0.9837662
  [17] {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                0.9837662
  [18] {backbone=TRUE}
                          => {fins=FALSE} 0.6534653 0.7951807
                                                                0.9561102
   [19]
        {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
##
   [20]
       {tail=TRUE}
                          => {fins=FALSE} 0.5841584 0.7866667
                                                                0.9458730
   [21]
       {eggs=TRUE}
                          => {fins=FALSE} 0.4554455 0.7796610
                                                                0.9374496
   [22] {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                0.9369202
       {predator=TRUE}
                          => {fins=FALSE} 0.4257426 0.7678571
   [23]
                                                                0.9232568
##
   [24] {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
                                                                0.8914204
   [25] {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115
##
   [26] {aquatic=TRUE}
                          => {fins=FALSE} 0.1881188 0.5277778
                                                                0.6345899
##
        lhs
                                             rhs
                                                         support
                                                                    confidence
##
   [1]
        {venomous=FALSE,legs=FALSE}
                                          => {fins=TRUE} 0.1485149 0.7894737
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
   [3]
        {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
##
##
   [4]
        {toothed=TRUE, venomous=FALSE}
                                          => {fins=TRUE} 0.1584158 0.2807018
##
   [5]
        {hair=FALSE, venomous=FALSE}
                                          => {fins=TRUE} 0.1386139 0.2692308
##
   [6]
        {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
   [7]
                                          => {fins=TRUE} 0.1188119 0.2307692
##
        {milk=FALSE, venomous=FALSE}
##
   [8]
        {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
   [9]
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
        {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
## [1]
        4.690402
## [2]
        3.960784
## [3]
        2.970588
```

```
[4]
        1.667699
##
   [5]
        1.599548
##
   [6]
        1.425882
   [7]
##
        1.371041
##
   [8]
        1.345172
##
   [9]
        1.338857
  [10] 1.302176
## [11] 1.100218
##
       lhs
                                            rhs
                                                                   confidence
                                                        support
##
  [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
   [2] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
   [3] {airborne=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2352941
   [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
## [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
## [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
   [7] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
   [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
   [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
       lift
##
  [1] 1.828054
##
  [2] 1.540305
   [3] 1.397924
  [4] 1.371041
##
##
   [5] 1.338857
  [6] 1.338857
##
   [7] 1.320261
##
   [8] 1.296257
##
   [9] 1.100218
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
##
  [1]
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
##
   [2]
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
##
   [3]
        {aquatic=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
##
   [4]
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
   [5]
##
        {eggs=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
   [6]
        {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
##
##
   [7]
        {predator=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
   [9]
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
##
   [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [11] {backbone=TRUE,tail=TRUE}
##
                                        => {fins=TRUE} 0.1584158 0.2162162
##
        lift
##
   [1]
        5.516807
##
   [2]
        5.003096
##
   [3]
        3.366667
##
   [4]
        2.025401
   [5]
##
        1.838936
##
   [6]
        1.838936
##
   [7]
        1.643304
##
   [8]
        1.603175
##
   [9]
        1.553846
##
   [10]
       1.338857
##
   [11] 1.284579
##
        lhs
                                                         support
                                                                    confidence
                                            rhs
## [1] {feathers=FALSE,aquatic=TRUE}
                                          => {fins=TRUE} 0.1683168 0.5666667
```

```
{hair=FALSE, feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
##
  [3]
                                         => {fins=TRUE} 0.1287129 0.3333333
        {feathers=FALSE,eggs=TRUE}
  ۲4٦
        {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
  [5]
        {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
##
##
  [6]
        {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
  [7]
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
##
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
## [9]
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
        lift
## [1]
        3.366667
  [2]
        2.345201
##
##
   [3]
        1.980392
  [4]
##
        1.930882
##
  [5]
        1.728342
##
  [6]
        1.643304
  [7]
##
        1.603175
  [8]
        1.383562
  [9]
##
        1.338857
##
   Γ10]
       1.302176
##
        lhs
                                                   support
                                                              confidence
                                       rhs
## [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
## [2]
                                    => {fins=TRUE} 0.1485149 0.8333333
        {legs=FALSE,tail=TRUE}
##
  [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
## [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
  [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
  [6]
                                    => {fins=TRUE} 0.1287129 0.3250000
##
        {milk=FALSE,tail=TRUE}
  [7]
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
## [8]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
## [9]
        {predator=TRUE, tail=TRUE} => {fins=TRUE} 0.1188119 0.2857143
## [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
   [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
##
   [12] {backbone=TRUE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
        lift
##
   [1]
        5.516807
##
  [2]
        4.950980
## [3]
        3.656109
## [4]
        2.121849
  [5]
        1.980392
##
  [6]
##
        1.930882
  [7]
        1.828054
  [8]
        1.728342
##
##
   [9]
        1.697479
  [10] 1.667699
## [11] 1.371041
## [12] 1.284579
##
       lhs
                                      rhs
                                                  support
                                                             confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {fins=TRUE} 0.1287129 0.6500000
## [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
## [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
## [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
## [6] {eggs=TRUE,venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
## [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
```

```
##
       lift
## [1] 3.861765
  [2] 2.087440
  [3] 1.980392
  [4] 1.980392
##
  [5] 1.838936
  [6] 1.345172
## [7] 1.320261
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
  [1]
        {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
  [3]
                                         => {fins=TRUE} 0.1287129 0.3513514
##
        {eggs=TRUE,airborne=FALSE}
##
   [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
## [5]
        {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
## [6]
                                         => {fins=TRUE} 0.1584158 0.2807018
        {airborne=FALSE,tail=TRUE}
## [7]
        {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
                                         => {fins=TRUE} 0.1683168 0.2615385
##
  [8]
        {airborne=FALSE,backbone=TRUE}
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
   [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
        lift
## [1]
        3.258065
## [2]
        2.227941
  [3]
##
        2.087440
##
  ۲4٦
        2.032508
  [5]
        1.711864
   [6]
##
        1.667699
##
   [7]
        1.576230
  [8]
##
        1.553846
## [9]
        1.397924
## [10] 1.383562
##
  [11] 1.338857
##
       lhs
                                                       support
                                                                 confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
   [2] {predator=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
  [3] {hair=FALSE,predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
## [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE, backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
  [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
  [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
## [4] 1.697479
## [5] 1.643304
  [6] 1.643304
## [7] 1.576230
## [8] 1.425882
##
       lhs
                                       rhs
                                                    support
                                                              confidence
## [1] {hair=FALSE,toothed=TRUE}
                                    => {fins=TRUE} 0.1485149 0.6521739
## [2] {hair=FALSE,feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
```

```
## [4] {hair=FALSE,tail=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3571429
## [5] {hair=FALSE,backbone=TRUE} => {fins=TRUE} 0.1485149 0.3409091
## [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
  [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
##
   [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
       lift
## [1] 3.874680
## [2] 2.345201
## [3] 2.227941
## [4] 2.121849
## [5] 2.025401
## [6] 1.815359
##
  [7] 1.599548
## [8] 1.540305
##
        lhs
                                          rhs
                                                      support
                                                                 confidence
## [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
##
  [2]
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
  [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
  [4]
##
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
##
  [5]
        {eggs=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
##
  [6]
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
## [7]
        {predator=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
## [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
## [9]
## [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
  [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
        lift
## [1]
        5.516807
## [2]
       5.003096
## [3]
        4.391304
## [4]
        3.874680
##
  [5]
        3.861765
##
  [6]
        3.677871
  [7]
##
        2.087440
   [8]
##
        1.828054
## [9]
        1.828054
## [10] 1.711864
## [11] 1.667699
##
       lhs
                                         rhs
                                                     support
                                                                confidence
                                      => {fins=TRUE} 0.1584158 0.8888889
## [1] {aquatic=TRUE,legs=FALSE}
## [2] {aquatic=TRUE,toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
## [3] {aquatic=TRUE, breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
## [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
## [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
## [6] {aquatic=TRUE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
## [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
##
  [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
## [1] 5.281046
## [2] 4.391304
## [3] 3.861765
## [4] 3.656109
## [5] 3.366667
## [6] 3.366667
```

```
[7] 3.258065
   [8] 2.970588
   [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                        support
                                                                  confidence
##
   [1]
        {type=fish}
                                            {fins=TRUE} 0.1287129 1.0000000
##
   [2]
        {toothed=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
##
   [3]
        {breathes=FALSE.tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.9285714
  [4]
##
        {backbone=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.9285714
##
   [5]
        {aquatic=TRUE,legs=FALSE}
                                            {fins=TRUE} 0.1584158 0.8888889
   [6]
##
        {toothed=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
   [7]
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
   [8]
                                           {fins=TRUE} 0.1485149 0.8333333
##
        {legs=FALSE,tail=TRUE}
##
   [9]
        {breathes=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1287129 0.8125000
  [10] {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
  [11] {aquatic=TRUE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.7391304
   [12] {predator=TRUE,legs=FALSE}
                                            {fins=TRUE} 0.1188119 0.7058824
  [13] {breathes=FALSE, venomous=FALSE} =>
                                           {fins=TRUE} 0.1188119 0.6666667
  [14] {hair=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1485149 0.6521739
                                         => {fins=TRUE} 0.1287129 0.6500000
  [15] {aquatic=TRUE, breathes=FALSE}
  [16] {eggs=TRUE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.6500000
##
  [17] {breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6190476
  [18] {milk=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6190476
                                         => {fins=TRUE} 0.1584158 0.6153846
## [19] {aquatic=TRUE,tail=TRUE}
  [20] {feathers=FALSE,aquatic=TRUE}
                                           {fins=TRUE} 0.1683168 0.5666667
  [21] {aquatic=TRUE, backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
  [22] {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
  [23] {aquatic=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1584158 0.5000000
  [24] {hair=FALSE, feathers=FALSE}
                                           {fins=TRUE} 0.1485149 0.3947368
## [25] {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [26] {hair=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3571429
  [27] {predator=TRUE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.3513514
  [28] {eggs=TRUE,airborne=FALSE}
                                           {fins=TRUE} 0.1287129 0.3513514
  [29] {milk=FALSE,airborne=FALSE}
                                           {fins=TRUE} 0.1287129 0.3421053
                                         => {fins=TRUE} 0.1485149 0.3409091
  [30] {hair=FALSE,backbone=TRUE}
   [31] {eggs=TRUE,tail=TRUE}
                                            {fins=TRUE} 0.1287129 0.3333333
##
  [32] {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
  [33] {milk=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.3250000
  [34] {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
  [35] {eggs=TRUE,backbone=TRUE}
                                            {fins=TRUE} 0.1287129 0.3095238
  [36] {milk=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [37] {toothed=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.3076923
  [38] {toothed=TRUE,domestic=FALSE}
                                           {fins=TRUE} 0.1584158 0.3076923
  [39] {hair=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1089109 0.3055556
## [40] {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
## [41] {airborne=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
                                         => {fins=TRUE} 0.1188119 0.2857143
## [42] {predator=TRUE,tail=TRUE}
## [43] {toothed=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1584158 0.2807018
## [44] {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [45] {feathers=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
  [46] {predator=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.2765957
## [47] {feathers=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2698413
## [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
## [49] {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
## [50] {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
```

```
## [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
                                         => {fins=TRUE} 0.1485149 0.2586207
  [52] {hair=FALSE}
  [53] {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
## [54] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
## [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
## [57] {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
## [58] {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
  [59] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [60] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [61] {backbone=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2253521
   [62] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
   [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [64] {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
  [65] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
##
   [66] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
##
  [1]
        5.941176
  [2]
       5.516807
##
##
   [3]
       5.516807
##
  [4]
       5.516807
  [5]
        5.281046
##
  [6]
       5.003096
##
  [7]
##
       5.003096
##
  [8]
        4.950980
  [9]
        4.827206
## [10] 4.690402
## [11] 4.391304
## [12] 4.193772
## [13] 3.960784
## [14] 3.874680
##
  [15] 3.861765
## [16] 3.861765
## [17] 3.677871
  [18] 3.677871
## [19] 3.656109
## [20] 3.366667
## [21] 3.366667
## [22] 3.258065
## [23] 2.970588
  [24] 2.345201
  [25] 2.227941
## [26] 2.121849
## [27] 2.087440
## [28] 2.087440
## [29] 2.032508
## [30] 2.025401
## [31] 1.980392
## [32] 1.980392
## [33] 1.930882
## [34] 1.930882
## [35] 1.838936
## [36] 1.838936
## [37] 1.828054
```

```
## [38] 1.828054
   [39] 1.815359
  [40] 1.728342
  [41] 1.711864
  [42] 1.697479
##
  [43] 1.667699
  [44] 1.667699
  [45] 1.643304
   [46] 1.643304
  [47] 1.603175
  [48] 1.599548
  [49] 1.576230
##
   [50] 1.553846
   [51] 1.540305
  [52] 1.536511
   [53] 1.425882
##
   [54] 1.397924
   [55] 1.383562
  [56] 1.371041
   [57] 1.371041
##
  [58] 1.345172
  [59] 1.338857
##
  [60] 1.338857
##
   [61] 1.338857
   [62] 1.320261
   [63] 1.302176
##
   [64] 1.296257
##
   [65] 1.284579
##
   [66] 1.100218
##
        lhs
                             rhs
                                          support
                                                     confidence lift
##
  [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000
                                                                1.2023810
##
   [2]
        {type=bird}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
   [3]
        {feathers=TRUE}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
  [4]
##
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
                                                                1.2023810
##
   [5]
                          => {fins=FALSE} 0.3960396 1.0000000
        {toothed=FALSE}
                                                                1.2023810
##
                          => {fins=FALSE} 0.7623762 0.9871795
   [6]
        {legs=TRUE}
                                                                1.1869658
##
  [7]
        {hair=TRUE}
                          => {fins=FALSE} 0.4059406 0.9534884
##
  [8]
                          => {fins=FALSE} 0.7524752 0.9500000
        {breathes=TRUE}
                                                                1.1422619
   [9]
        {domestic=TRUE}
                          => {fins=FALSE} 0.1188119 0.9230769
                                                                1.1098901
  [10] {predator=FALSE} => {fins=FALSE} 0.4059406 0.9111111
##
                                                                1.0955026
                          => {fins=FALSE} 0.3762376 0.9047619
  [11] {eggs=FALSE}
                                                                1.0878685
                          => {fins=FALSE} 0.3663366 0.9024390
  [12] {milk=TRUE}
                                                                1.0850755
  [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
  [14] {catsize=FALSE}
                          => {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
  [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
                          => {fins=FALSE} 0.3564356 0.8181818
  [16] {catsize=TRUE}
                                                                0.9837662
  [17]
       {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                0.9837662
  [18] {backbone=TRUE}
                         => {fins=FALSE} 0.6534653 0.7951807
                                                                0.9561102
  [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
  [20]
       {tail=TRUE}
                          => {fins=FALSE} 0.5841584 0.7866667
                                                                0.9458730
                          => {fins=FALSE} 0.4554455 0.7796610
##
  [21]
       {eggs=TRUE}
                                                                0.9374496
## [22] {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                0.9369202
## [23] {predator=TRUE}
                          => {fins=FALSE} 0.4257426 0.7678571
                                                                0.9232568
## [24] {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
                                                                0.8914204
```

```
## [25] {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115 0.8672912
   [26] {aquatic=TRUE}
                          => {fins=FALSE} 0.1881188 0.5277778 0.6345899
##
##
        lhs
                                                         support
                                                                   confidence
##
  [1]
                                         => {fins=TRUE} 0.1485149 0.7894737
        {venomous=FALSE,legs=FALSE}
##
   [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
   [3]
        {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
##
##
  [4]
        {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
  [5]
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
##
   [6]
        {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
##
   [7]
        {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [8]
        {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
   [9]
##
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
        lift
##
  [1]
        4.690402
   [2]
##
        3.960784
##
   [3]
        2.970588
   [4]
##
        1.667699
##
   [5]
        1.599548
##
   [6]
        1.425882
  [7]
##
        1.371041
  [8]
##
        1.345172
##
   [9]
        1.338857
  [10] 1.302176
##
   [11] 1.100218
##
       lhs
                                            rhs
                                                        support
                                                                  confidence
##
  [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
                                        => {fins=TRUE} 0.1386139 0.2592593
  [2] {hair=FALSE,domestic=FALSE}
## [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
  [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
  [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
   [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
   [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
       lift
## [1] 1.828054
  [2] 1.540305
##
  [3] 1.397924
  [4] 1.371041
  [5] 1.338857
   [6] 1.338857
##
  [7] 1.320261
## [8] 1.296257
## [9] 1.100218
##
        lhs
                                            rhs
                                                        support
                                                                  confidence
##
  [1]
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
  [2]
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
##
  [3]
        {aquatic=TRUE, backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
   [4]
##
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
## [5]
        {eggs=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
## [6]
        {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
## [7]
        {predator=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
```

```
{feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
  [9]
  [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [11] {backbone=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
        lift.
## [1]
        5.516807
## [2]
        5.003096
## [3]
        3.366667
##
  [4]
        2.025401
##
  [5]
        1.838936
  [6]
        1.838936
  [7]
##
        1.643304
##
   [8]
        1.603175
##
  [9]
        1.553846
## [10] 1.338857
## [11] 1.284579
##
        lhs
                                                                   confidence
                                            rhs
                                                         support
##
  [1]
        {feathers=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
##
  [2]
        {hair=FALSE,feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
  [3]
        {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
##
  [4]
        {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
  [5]
        {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
                                         => {fins=TRUE} 0.1287129 0.2765957
  [6]
        {feathers=FALSE,predator=TRUE}
##
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
##
  [7]
##
  [8]
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
   [10]
##
        lift
## [1]
        3.366667
## [2]
        2.345201
## [3]
        1.980392
##
  [4]
        1.930882
##
  [5]
        1.728342
  [6]
##
        1.643304
   [7]
##
        1.603175
  [8]
##
        1.383562
## [9]
        1.338857
##
  [10] 1.302176
##
        lhs
                                       rhs
                                                    support
                                                              confidence
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
## [1]
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.8333333
  [2]
  [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
##
##
   [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
##
  [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
## [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
## [7]
                                    => {fins=TRUE} 0.1584158 0.3076923
        {toothed=TRUE,tail=TRUE}
##
  [8]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
  [9]
        {predator=TRUE, tail=TRUE} => {fins=TRUE} 0.1188119 0.2857143
  [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
   [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
        {backbone=TRUE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
   [12]
##
        lift
## [1]
        5.516807
## [2]
        4.950980
```

```
## [3]
        3.656109
##
   [4]
        2.121849
  [5]
        1.980392
  [6]
##
        1.930882
##
   [7]
        1.828054
  [8]
##
        1.728342
  [9]
        1.697479
## [10] 1.667699
  [11] 1.371041
##
  [12] 1.284579
##
       lhs
                                      rhs
                                                             confidence
                                                   support
  [1] {eggs=TRUE,toothed=TRUE}
                                   => {fins=TRUE} 0.1287129 0.6500000
##
   [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
  [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
   [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
   [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
   [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
       lift
## [1] 3.861765
##
  [2] 2.087440
  [3] 1.980392
## [4] 1.980392
   [5] 1.838936
  [6] 1.345172
   [7] 1.320261
##
        lhs
                                             rhs
                                                         support
                                                                    confidence
##
  [1]
        {airborne=FALSE,aquatic=TRUE}
                                            {fins=TRUE} 0.1683168 0.5483871
##
  [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
##
  [5]
        {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
  [6]
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
  [7]
                                         => {fins=TRUE} 0.1287129 0.2653061
##
        {airborne=FALSE,predator=TRUE}
   [8]
        {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
##
  [9]
  [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
##
        lift
## [1]
        3.258065
  [2]
        2.227941
  [3]
        2.087440
##
##
   [4]
        2.032508
##
   [5]
        1.711864
##
  [6]
        1.667699
  [7]
##
        1.576230
##
  [8]
        1.553846
##
  [9]
        1.397924
  [10] 1.383562
##
  [11] 1.338857
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
## [2] {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
## [3] {hair=FALSE,predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
```

```
## [4] {predator=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1188119 0.2857143
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
##
   [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
## [4] 1.697479
## [5] 1.643304
## [6] 1.643304
## [7] 1.576230
## [8] 1.425882
##
       lhs
                                       rhs
                                                   support
                                                             confidence
## [1] {hair=FALSE,toothed=TRUE}
                                   => {fins=TRUE} 0.1485149 0.6521739
## [2] {hair=FALSE,feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
## [4] {hair=FALSE,tail=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3571429
## [5] {hair=FALSE,backbone=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3409091
## [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
## [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
## [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
       lift
##
## [1] 3.874680
## [2] 2.345201
## [3] 2.227941
## [4] 2.121849
## [5] 2.025401
## [6] 1.815359
## [7] 1.599548
## [8] 1.540305
                                                                confidence
##
        lhs
                                                      support
## [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
##
  [2]
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
## [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
## [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
## [5]
        {eggs=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
## [6]
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
        {predator=TRUE,toothed=TRUE}
                                      => {fins=TRUE} 0.1287129 0.3513514
## [7]
        {toothed=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.3076923
## [9]
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
  [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
  [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
##
        lift
## [1]
       5.516807
##
  [2]
       5.003096
## [3]
        4.391304
## [4]
        3.874680
##
  [5]
        3.861765
  [6]
##
        3.677871
## [7]
        2.087440
## [8]
        1.828054
## [9]
       1.828054
```

```
## [10] 1.711864
##
  [11] 1.667699
##
       lhs
                                                     support
                                                               confidence
                                      => {fins=TRUE} 0.1584158 0.8888889
## [1] {aquatic=TRUE,legs=FALSE}
##
  [2] {aquatic=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
  [3] {aquatic=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
## [4] {aquatic=TRUE, tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
## [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [6] {aquatic=TRUE,backbone=TRUE}
                                     => {fins=TRUE} 0.1683168 0.5666667
   [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
   [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
## [1] 5.281046
## [2] 4.391304
## [3] 3.861765
## [4] 3.656109
##
  [5] 3.366667
  [6] 3.366667
  [7] 3.258065
##
   [8] 2.970588
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                        support
                                                                   confidence
## [1]
                                         => {fins=TRUE} 0.1287129 1.0000000
        {type=fish}
##
   [2]
        {toothed=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.9285714
##
  [3]
        {breathes=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.9285714
  [4]
        {backbone=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
  [5]
                                         => {fins=TRUE} 0.1584158 0.8888889
##
        {aquatic=TRUE,legs=FALSE}
##
   [6]
        {toothed=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
##
  [7]
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
## [8]
        {legs=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.8333333
## [9]
        {breathes=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1287129 0.8125000
  [10] {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
  [11] {aquatic=TRUE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.7391304
                                         => {fins=TRUE} 0.1188119 0.7058824
## [12] {predator=TRUE,legs=FALSE}
## [13] {breathes=FALSE, venomous=FALSE}
                                        => {fins=TRUE} 0.1188119 0.6666667
                                         => {fins=TRUE} 0.1485149 0.6521739
## [14] {hair=FALSE,toothed=TRUE}
## [15] {aquatic=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6500000
## [16] {eggs=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6500000
## [17] {breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.6190476
## [18] {milk=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6190476
## [19] {aquatic=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.6153846
## [20] {feathers=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
## [21] {aquatic=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
## [22] {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
## [23] {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
                                         => {fins=TRUE} 0.1485149 0.3947368
## [24] {hair=FALSE,feathers=FALSE}
## [25] {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [26] {hair=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3571429
## [27] {predator=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [28] {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
                                         => {fins=TRUE} 0.1287129 0.3421053
## [29] {milk=FALSE,airborne=FALSE}
## [30] {hair=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3409091
## [31] {eggs=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
## [32] {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
```

```
## [33] {milk=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3250000
                                         => {fins=TRUE} 0.1287129 0.3250000
  [34] {feathers=FALSE,milk=FALSE}
  [35] {eggs=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.3095238
  [36] {milk=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [37] {toothed=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.3076923
  [38] {toothed=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.3076923
  [39] {hair=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1089109 0.3055556
  [40] {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
  [41] {airborne=FALSE,toothed=TRUE}
                                            {fins=TRUE} 0.1683168 0.2881356
  [42] {predator=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1188119 0.2857143
  [43] {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
                                         => {fins=TRUE} 0.1584158 0.2807018
  [44] {airborne=FALSE,tail=TRUE}
## [45] {feathers=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
## [46] {predator=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
## [47] {feathers=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2698413
## [48]
       {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
                                        => {fins=TRUE} 0.1287129 0.2653061
  [49] {airborne=FALSE,predator=TRUE}
   [50] {airborne=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2615385
  [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
   [52] {hair=FALSE}
                                           {fins=TRUE} 0.1485149 0.2586207
##
  [53] {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
## [54] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
   [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
##
  [57] {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
  [58] {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
   [59] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [60] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [61] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
  [62] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
   [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
   [64]
       {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
       {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
       {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
   [66]
##
        lift
##
  [1]
       5.941176
##
  [2]
       5.516807
##
  [3]
       5.516807
   [4]
##
        5.516807
##
  [5]
       5.281046
  [6]
        5.003096
   [7]
##
        5.003096
##
   [8]
        4.950980
##
  [9]
        4.827206
## [10] 4.690402
## [11] 4.391304
##
  [12] 4.193772
  [13] 3.960784
  [14] 3.874680
## [15] 3.861765
## [16] 3.861765
## [17] 3.677871
## [18] 3.677871
## [19] 3.656109
```

```
## [20] 3.366667
  [21] 3.366667
  [22] 3.258065
  [23] 2.970588
  [24] 2.345201
  [25] 2.227941
##
  [26] 2.121849
## [27] 2.087440
   [28] 2.087440
  [29] 2.032508
  [30] 2.025401
  [31] 1.980392
   [32] 1.980392
  [33] 1.930882
  [34] 1.930882
   [35] 1.838936
   [36] 1.838936
   [37] 1.828054
  [38] 1.828054
  [39] 1.815359
## [40] 1.728342
## [41] 1.711864
## [42] 1.697479
  [43] 1.667699
## [44] 1.667699
  [45] 1.643304
  [46] 1.643304
  [47] 1.603175
## [48] 1.599548
  [49] 1.576230
  [50] 1.553846
##
   [51] 1.540305
   [52] 1.536511
  [53] 1.425882
   [54] 1.397924
  [55] 1.383562
##
  [56] 1.371041
  [57] 1.371041
   [58] 1.345172
  [59] 1.338857
##
  [60] 1.338857
   [61] 1.338857
   [62] 1.320261
##
   [63] 1.302176
   [64] 1.296257
##
   [65] 1.284579
##
   [66] 1.100218
##
        lhs
                             rhs
                                          support
                                                     confidence lift
##
  [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000
                                                                1.2023810
##
   [2]
        {type=bird}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
   [3]
                          => {fins=FALSE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                                1.2023810
##
  [4]
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
## [5]
        {toothed=FALSE}
                          => {fins=FALSE} 0.3960396 1.0000000
                                                                1.2023810
                          => {fins=FALSE} 0.7623762 0.9871795 1.1869658
## [6]
        {legs=TRUE}
```

```
## [7]
        {hair=TRUE}
                          => {fins=FALSE} 0.4059406 0.9534884
                                                                1.1464563
##
  [8]
                         => {fins=FALSE} 0.7524752 0.9500000
        {breathes=TRUE}
                                                                1.1422619
        {domestic=TRUE}
  [9]
                         => {fins=FALSE} 0.1188119 0.9230769
  [10] {predator=FALSE} => {fins=FALSE} 0.4059406 0.9111111
                                                                1.0955026
##
  [11] {eggs=FALSE}
                          => {fins=FALSE} 0.3762376 0.9047619
                                                                1.0878685
                          => {fins=FALSE} 0.3663366 0.9024390
##
  [12] {milk=TRUE}
                                                                1.0850755
  [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
## [14] {catsize=FALSE}
                         => {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
  [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
  [16] {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                0.9837662
## [17] {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                0.9837662
  [18] {backbone=TRUE}
                         => {fins=FALSE} 0.6534653 0.7951807
                                                                0.9561102
## [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
## [20] {tail=TRUE}
                         => {fins=FALSE} 0.5841584 0.7866667
                                                                0.9458730
                          => {fins=FALSE} 0.4554455 0.7796610
                                                                0.9374496
## [21] {eggs=TRUE}
        {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                0.9369202
  [22]
##
  [23] {predator=TRUE}
                         => {fins=FALSE} 0.4257426 0.7678571
                                                                0.9232568
  [24] {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
                                                                0.8914204
  [25] {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115
                                                                0.8672912
   [26] {aquatic=TRUE}
                          => {fins=FALSE} 0.1881188 0.5277778
                                                                0.6345899
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
  [1]
        {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
  [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
##
##
   [3]
        {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
##
  [4]
        {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
  [5]
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
   [6]
                                         => {fins=TRUE} 0.1188119 0.2400000
##
        {predator=TRUE, venomous=FALSE}
##
   [7]
        {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
   [8]
        {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
##
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
   [11]
       {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
        4.690402
##
  [1]
##
   [2]
        3.960784
##
   [3]
        2.970588
##
  [4]
        1.667699
  [5]
        1.599548
##
   [6]
##
        1.425882
##
  [7]
        1.371041
  [8]
        1.345172
   [9]
##
        1.338857
##
   [10] 1.302176
##
   [11] 1.100218
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
                                        => {fins=TRUE} 0.1584158 0.3076923
##
  [1] {toothed=TRUE,domestic=FALSE}
   [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
  [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
  [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
## [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
## [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
## [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
```

```
##
       lift
## [1] 1.828054
   [2] 1.540305
   [3] 1.397924
   [4] 1.371041
##
   [5] 1.338857
   [6] 1.338857
   [7] 1.320261
   [8] 1.296257
##
   [9] 1.100218
##
        lhs
                                            rhs
                                                                   confidence
                                                        support
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
##
   [1]
##
   [2]
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
        {aquatic=TRUE,backbone=TRUE}
##
   [3]
                                         => {fins=TRUE} 0.1683168 0.5666667
##
  [4]
                                         => {fins=TRUE} 0.1485149 0.3409091
        {hair=FALSE,backbone=TRUE}
##
   [5]
        {eggs=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
   [6]
##
        {milk=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
   [7]
        {predator=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
   [8]
   [9]
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
##
   [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [11] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
##
        lift
        5.516807
##
   Г17
   [2]
##
        5.003096
   [3]
        3.366667
   [4]
##
        2.025401
##
   [5]
        1.838936
   [6]
##
        1.838936
##
   [7]
        1.643304
##
   [8]
        1.603175
##
   [9]
        1.553846
   [10] 1.338857
##
   [11] 1.284579
##
                                             rhs
                                                         support
                                                                    confidence
## [1]
        {feathers=FALSE, aquatic=TRUE}
                                          => {fins=TRUE} 0.1683168 0.5666667
   [2]
        {hair=FALSE, feathers=FALSE}
                                          => {fins=TRUE} 0.1485149 0.3947368
  [3]
        {feathers=FALSE,eggs=TRUE}
                                          => {fins=TRUE} 0.1287129 0.3333333
##
   [4]
        {feathers=FALSE,milk=FALSE}
                                             {fins=TRUE} 0.1287129 0.3250000
##
   [5]
        {feathers=FALSE,tail=TRUE}
                                          => {fins=TRUE} 0.1584158 0.2909091
##
   [6]
        {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
   [7]
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
##
##
   [8]
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
##
        lift
## [1]
        3.366667
   [2]
##
        2.345201
##
   [3]
        1.980392
##
   [4]
        1.930882
   [5]
##
        1.728342
##
  [6]
        1.643304
## [7]
        1.603175
## [8]
        1.383562
```

```
## [9]
        1.338857
  [10] 1.302176
##
##
        lhs
                                                   support
                                                              confidence
##
  [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
##
   [2]
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.8333333
##
  [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
  [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
##
  [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
##
   [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
##
  [7]
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
  [8]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
        {predator=TRUE,tail=TRUE}
##
  [9]
                                   => {fins=TRUE} 0.1188119 0.2857143
  [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
  [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
  [12] {backbone=TRUE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
##
        lift
##
  [1]
        5.516807
   [2]
        4.950980
  [3]
##
        3.656109
##
   [4]
        2.121849
##
  [5]
        1.980392
  [6]
##
        1.930882
  [7]
##
        1.828054
  [8]
##
        1.728342
##
  [9]
        1.697479
  [10] 1.667699
##
  [11] 1.371041
##
   [12] 1.284579
##
       lhs
                                      rhs
                                                   support
                                                             confidence
                                   => {fins=TRUE} 0.1287129 0.6500000
  [1] {eggs=TRUE,toothed=TRUE}
   [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
  [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
  [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
  [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
   [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
   [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
##
       lift
## [1] 3.861765
   [2] 2.087440
##
  [3] 1.980392
  [4] 1.980392
  [5] 1.838936
##
   [6] 1.345172
##
   [7] 1.320261
##
        lhs
                                                         support
                                                                   confidence
## [1]
                                            {fins=TRUE} 0.1683168 0.5483871
        {airborne=FALSE,aquatic=TRUE}
##
   [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
##
  [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
  ۲4٦
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
##
  [5]
        {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
                                         => {fins=TRUE} 0.1584158 0.2807018
##
  [6]
        {airborne=FALSE,tail=TRUE}
  [7]
        {airborne=FALSE, predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
## [8]
        {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
## [9]
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
```

```
## [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
        lift
       3.258065
## [1]
##
  [2]
        2.227941
## [3]
       2.087440
## [4]
        2.032508
## [5]
        1.711864
##
  [6]
        1.667699
## [7]
        1.576230
## [8]
        1.553846
## [9]
        1.397924
## [10] 1.383562
## [11] 1.338857
##
       lhs
                                          rhs
                                                      support
                                                                confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
  [2] {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
## [3] {hair=FALSE, predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
## [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
## [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
       lift.
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
## [4] 1.697479
## [5] 1.643304
## [6] 1.643304
## [7] 1.576230
## [8] 1.425882
##
       lhs
                                                   support
                                                             confidence
## [1] {hair=FALSE,toothed=TRUE}
                                   => {fins=TRUE} 0.1485149 0.6521739
## [2] {hair=FALSE,feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
## [4] {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
## [5] {hair=FALSE,backbone=TRUE} => {fins=TRUE} 0.1485149 0.3409091
## [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
## [7] {hair=FALSE,venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
  [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
       lift
## [1] 3.874680
## [2] 2.345201
## [3] 2.227941
## [4] 2.121849
## [5] 2.025401
## [6] 1.815359
## [7] 1.599548
## [8] 1.540305
##
        lhs
                                          rhs
                                                      support
                                                                confidence
## [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
## [2]
        {toothed=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8421053
## [3]
       {aquatic=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
```

```
## [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
##
  [5]
                                       => {fins=TRUE} 0.1287129 0.6500000
        {eggs=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
  [6]
        {milk=FALSE,toothed=TRUE}
  [7]
        {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
##
##
   [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
##
  [9]
  [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
## [11] {toothed=TRUE,venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
        lift
##
  [1]
        5.516807
  [2]
        5.003096
  [3]
##
        4.391304
##
   [4]
        3.874680
##
  [5]
        3.861765
  [6]
        3.677871
##
##
   [7]
        2.087440
  [8]
##
        1.828054
  [9]
        1.828054
  [10] 1.711864
##
  [11] 1.667699
##
       lhs
                                                                confidence
                                         rhs
                                                      support
## [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
## [2] {aquatic=TRUE,toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
## [3] {aquatic=TRUE, breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
  [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
  [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [6] {aquatic=TRUE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
   [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
   [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
##
       lift
## [1] 5.281046
  [2] 4.391304
  [3] 3.861765
## [4] 3.656109
   [5] 3.366667
##
  [6] 3.366667
  [7] 3.258065
## [8] 2.970588
       "Número de reglas con consecuente negado"
##
##
        lhs
                                            rhs
                                                              support
        {toothed=FALSE,tail=FALSE}
##
  [1]
                                            {backbone=FALSE} 0.1683168
  [2]
        {feathers=FALSE, toothed=FALSE}
                                         => {backbone=FALSE} 0.1782178
##
        {eggs=TRUE,tail=FALSE}
##
  [3]
                                         => {backbone=FALSE} 0.1683168
##
  [4]
        {milk=FALSE,tail=FALSE}
                                         => {backbone=FALSE} 0.1683168
## [5]
        {hair=FALSE,tail=FALSE}
                                         => {backbone=FALSE} 0.1287129
## [6]
        {tail=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
##
  [7]
        {tail=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
  [8]
        {aquatic=FALSE,tail=FALSE}
                                         => {backbone=FALSE} 0.1089109
## [9]
        {fins=FALSE,tail=FALSE}
                                         => {backbone=FALSE} 0.1683168
## [10] {airborne=FALSE, toothed=FALSE}
                                         => {backbone=FALSE} 0.1188119
## [11] {toothed=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
## [12] {toothed=FALSE,domestic=FALSE}
                                         => {backbone=FALSE} 0.1683168
## [13] {milk=FALSE,toothed=FALSE}
                                         => {backbone=FALSE} 0.1782178
## [14] {toothed=FALSE}
                                         => {backbone=FALSE} 0.1782178
```

```
## [15] {feathers=FALSE,milk=FALSE}
                                            {backbone=FALSE} 0.1782178
                                            {backbone=FALSE} 0.1683168
   [16] {feathers=FALSE,eggs=TRUE}
  [17] {milk=FALSE,aquatic=FALSE}
                                             {backbone=FALSE} 0.1188119
  [18] {feathers=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
  [19]
       {milk=FALSE,fins=FALSE}
                                             {backbone=FALSE} 0.1782178
##
  [20] {eggs=TRUE,aquatic=FALSE}
                                             {backbone=FALSE} 0.1089109
  [21] {eggs=TRUE,fins=FALSE}
                                             {backbone=FALSE} 0.1683168
  [22] {hair=FALSE, feathers=FALSE}
                                             {backbone=FALSE} 0.1386139
   [23]
       {milk=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
   [24] {fins=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
   [25] {aquatic=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1188119
   [26] {milk=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
       {eggs=TRUE,catsize=FALSE}
   [27]
                                             {backbone=FALSE} 0.1584158
       {hair=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1386139
  [28]
       {eggs=TRUE,legs=TRUE}
                                            {backbone=FALSE} 0.1287129
  [29]
        {domestic=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1584158
##
   [31]
       {legs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1287129
   [32] {milk=FALSE,airborne=FALSE}
                                            {backbone=FALSE} 0.1188119
                                            {backbone=FALSE} 0.1683168
   [33] {milk=FALSE,domestic=FALSE}
       {airborne=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1089109
                                             {backbone=FALSE} 0.1089109
##
   [35]
       {eggs=TRUE,airborne=FALSE}
       {eggs=TRUE,domestic=FALSE}
                                             {backbone=FALSE} 0.1584158
  [36]
   [37]
##
        {eggs=TRUE}
                                             {backbone=FALSE} 0.1683168
        {feathers=FALSE,fins=FALSE}
##
   [38]
                                             {backbone=FALSE} 0.1782178
   [39]
       {hair=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1386139
   [40] {feathers=FALSE,legs=TRUE}
                                             {backbone=FALSE} 0.1386139
   [41] {feathers=FALSE,domestic=FALSE} =>
                                            {backbone=FALSE} 0.1683168
   [42] {fins=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
  [43] {feathers=FALSE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
   [44] {aquatic=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1089109
##
   [45]
        {legs=TRUE,domestic=FALSE}
                                            {backbone=FALSE} 0.1287129
##
   [46]
       {aquatic=FALSE}
                                         => {backbone=FALSE} 0.1188119
##
        confidence lift
##
   [1]
        1.0000000
                   5.611111
##
   [2]
        0.9000000
                   5.050000
   [3]
##
        0.8500000
                   4.769444
##
   [4]
        0.8500000
                   4.769444
  [5]
        0.8125000
                   4.559028
##
   [6]
                   4.488889
##
        0.8000000
##
   [7]
        0.6956522
                   3.903382
   [8]
        0.6875000
                   3.857639
   [9]
        0.6800000
##
                   3.815556
##
   Γ10]
       0.6666667
                   3.740741
##
   [11] 0.5483871
                   3.077061
  [12] 0.4722222
                   2.649691
  [13] 0.4615385
                   2.589744
##
   [14] 0.4500000
                   2.525000
   [15] 0.4500000
                   2.525000
   [16] 0.4358974
                   2.445869
   [17]
        0.4000000
                   2.244444
##
  [18] 0.3953488
                   2.218346
## [19] 0.3829787
                   2.148936
## [20] 0.3793103
                   2.128352
## [21] 0.3695652
                   2.073671
```

```
[22] 0.3684211
                    2.067251
   [23] 0.3541667
                    1.987269
   [24] 0.3541667
                    1.987269
   [25] 0.3529412
                    1.980392
   [26] 0.3500000
                    1.963889
##
   [27] 0.3478261
                    1.951691
   [28] 0.3255814
                    1.826873
   [29] 0.3250000
                    1.823611
   [30] 0.3200000
                    1.795556
   [31] 0.3170732
                    1.779133
   [32] 0.3157895
                    1.771930
   [33] 0.3090909
                    1.734343
##
   [34] 0.3055556
                    1.714506
   [35] 0.2972973
                    1.668168
   [36] 0.2962963
                    1.662551
   [37]
        0.2881356
                    1.616761
   [38] 0.2812500
                    1.578125
   [39] 0.2592593
                    1.454733
   [40] 0.2413793
                    1.354406
   [41] 0.2394366
                    1.343505
##
   [42] 0.2361111
                    1.324846
   [43] 0.2352941
                    1.320261
   [44] 0.2075472
                    1.164570
   [45] 0.1969697
                    1.105219
##
   [46] 0.1846154
                   1.035897
##
        lhs
                                              support
                                                        confidence lift
##
   [1]
                             {backbone=TRUE} 0.1287129 1.0000000
        {type=fish}
                                                                   1.2168675
##
   [2]
        {fins=TRUE}
                             {backbone=TRUE} 0.1683168 1.0000000
                                                                    1.2168675
##
   [3]
        {type=bird}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                    1.2168675
##
   [4]
        {feathers=TRUE}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                    1.2168675
##
   [5]
        {milk=TRUE}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                    1.2168675
##
   [6]
        {type=mammal}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                    1.2168675
##
   [7]
        {toothed=TRUE}
                             {backbone=TRUE} 0.6039604 1.0000000
                                                                    1.2168675
                             {backbone=TRUE} 0.7326733 0.9866667
   [8]
##
        {tail=TRUE}
                                                                    1.2006426
   [9]
        {catsize=TRUE}
                             {backbone=TRUE} 0.4257426 0.9772727
##
                                                                    1.1892114
##
   Γ10]
       {domestic=TRUE}
                             {backbone=TRUE} 0.1188119 0.9230769
                                                                    1.1232623
   [11] {breathes=TRUE}
                             {backbone=TRUE} 0.6831683 0.8625000
                                                                    1.0495482
   [12] {legs=FALSE}
                             {backbone=TRUE} 0.1881188 0.8260870
##
                                                                    1.0052383
                             {backbone=TRUE} 0.6336634 0.8205128
##
   [13] {legs=TRUE}
                                                                    0.9984554
##
   [14] {aquatic=FALSE}
                             {backbone=TRUE} 0.5247525 0.8153846
                                                                    0.9922150
   [15] {predator=FALSE} =>
                             {backbone=TRUE} 0.3564356 0.8000000
                                                                    0.9734940
   [16] {feathers=FALSE} =>
                             {backbone=TRUE} 0.6237624 0.7777778
                                                                    0.9464525
   [17] {airborne=TRUE}
                          =>
                             {backbone=TRUE} 0.1782178 0.7500000
                                                                    0.9126506
                             {backbone=TRUE} 0.4158416 0.7118644
##
   [18] {eggs=TRUE}
                                                                    0.8662446
                                                                    0.8539421
   [19] {catsize=FALSE}
                          => {backbone=TRUE} 0.3960396 0.7017544
   [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                    0.8112450
##
   [21] {toothed=FALSE} => {backbone=TRUE} 0.2178218 0.5500000
                                                                    0.6692771
##
       lhs
                                                        support
                                                                   confidence
   [1] {milk=FALSE,legs=TRUE}
                                   => {backbone=FALSE} 0.1386139 0.3500000
   [2] {eggs=TRUE,legs=TRUE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
##
   [3] {legs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1287129 0.3170732
   [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
##
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
       lift
```

```
## [1] 1.963889
  [2] 1.823611
  [3] 1.779133
  [4] 1.354406
##
   [5] 1.105219
##
       lhs
                                          rhs
                                                           support
  [1] {aquatic=FALSE,tail=FALSE}
                                         {backbone=FALSE} 0.1089109
  [2] {milk=FALSE,aquatic=FALSE}
                                         {backbone=FALSE} 0.1188119
  [3] {eggs=TRUE,aquatic=FALSE}
                                          {backbone=FALSE} 0.1089109
   [4] {aquatic=FALSE, catsize=FALSE}
                                      => {backbone=FALSE} 0.1188119
  [5] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
   [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
##
##
       confidence lift
  [1] 0.6875000 3.857639
##
  [2] 0.4000000
                  2.244444
  [3] 0.3793103
                  2.128352
  [4] 0.3529412
                  1.980392
   [5] 0.2352941
                  1.320261
##
   [6] 0.2075472 1.164570
##
       lhs
                                           rhs
                                                            support
## [1] {feathers=FALSE,toothed=FALSE}
                                        => {backbone=FALSE} 0.1782178
  [2] {feathers=FALSE,milk=FALSE}
                                        => {backbone=FALSE} 0.1782178
  [3] {feathers=FALSE,eggs=TRUE}
                                        => {backbone=FALSE} 0.1683168
  [4] {feathers=FALSE.catsize=FALSE}
                                           {backbone=FALSE} 0.1683168
  [5] {hair=FALSE, feathers=FALSE}
                                        => {backbone=FALSE} 0.1386139
  [6] {feathers=FALSE,fins=FALSE}
                                        => {backbone=FALSE} 0.1782178
  [7] {feathers=FALSE,legs=TRUE}
                                        => {backbone=FALSE} 0.1386139
   [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
   [9] {feathers=FALSE, aquatic=FALSE} => {backbone=FALSE} 0.1188119
##
##
       confidence lift
## [1] 0.9000000 5.050000
   [2] 0.4500000
                  2.525000
  [3] 0.4358974
                  2.445869
  [4] 0.3953488
                  2.218346
   [5] 0.3684211
                  2.067251
##
  [6] 0.2812500
                  1.578125
   [7] 0.2413793
                  1.354406
## [8] 0.2394366
                  1.343505
  [9] 0.2352941
##
                  1.320261
##
       lhs
                                                                 confidence
                                      rhs
                                                       support
  [1] {eggs=TRUE,tail=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.8500000
  [2] {feathers=FALSE,eggs=TRUE} => {backbone=FALSE} 0.1683168 0.4358974
  [3] {eggs=TRUE,aquatic=FALSE}
                                  => {backbone=FALSE} 0.1089109 0.3793103
  [4] {eggs=TRUE,fins=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.3695652
## [5] {eggs=TRUE,catsize=FALSE}
                                  => {backbone=FALSE} 0.1584158 0.3478261
                                  => {backbone=FALSE} 0.1287129 0.3250000
  [6] {eggs=TRUE,legs=TRUE}
   [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
   [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
##
       lift
## [1] 4.769444
## [2] 2.445869
## [3] 2.128352
## [4] 2.073671
## [5] 1.951691
```

```
[6] 1.823611
   [7] 1.668168
##
   [8] 1.662551
##
        lhs
                                            rhs
                                                              support
##
   [1]
        {tail=FALSE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1584158
                                         => {backbone=FALSE} 0.1683168
##
   [2]
        {toothed=FALSE, catsize=FALSE}
   [3]
        {feathers=FALSE.catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
   [4]
        {milk=FALSE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1683168
##
   [5]
        {fins=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
##
   [6]
        {aquatic=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1188119
   [7]
        {eggs=TRUE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1584158
##
   [8]
        {domestic=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1584158
##
   [9]
        {legs=TRUE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1287129
##
   [10]
       {airborne=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1089109
##
        confidence lift
##
   [1]
        0.8000000
                   4.488889
   [2]
##
        0.5483871
                   3.077061
   [3]
        0.3953488
                   2.218346
##
   [4]
##
        0.3541667
                   1.987269
##
   [5]
        0.3541667
                    1.987269
##
   [6]
        0.3529412
                   1.980392
##
   [7]
        0.3478261
                   1.951691
##
   [8]
        0.3200000
                   1.795556
##
   [9]
        0.3170732
                   1.779133
##
   [10] 0.3055556
                   1.714506
##
       lhs
                                                             support
##
   [1] {toothed=FALSE,tail=FALSE}
                                          {backbone=FALSE} 0.1683168
   [2] {feathers=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1782178
   [3] {airborne=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1188119
   [4] {toothed=FALSE,catsize=FALSE}
                                          {backbone=FALSE} 0.1683168
                                       =>
##
   [5] {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
##
   [6] {milk=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
##
       confidence lift
   [1] 1.0000000 5.611111
##
   [2] 0.9000000
                  5.050000
##
   [3] 0.6666667
                  3.740741
   [4] 0.5483871
                  3.077061
   [5] 0.4722222
##
                  2.649691
   [6]
       0.4615385
                  2.589744
##
   [1]
       "Número de reglas con consecuente negado"
##
                                             rhs
                                                          support
                                                                     confidence
                                             {hair=FALSE} 0.1287129 1.0000000
##
   [1]
        {type=fish}
##
   [2]
        {breathes=FALSE}
                                             {hair=FALSE} 0.2079208 1.0000000
##
   [3]
                                             {hair=FALSE} 0.1287129 1.0000000
        {eggs=TRUE,fins=TRUE}
##
   [4]
        {milk=FALSE,fins=TRUE}
                                             {hair=FALSE} 0.1287129 1.0000000
   [5]
        {airborne=FALSE,backbone=FALSE}
                                             {hair=FALSE} 0.1188119 1.0000000
##
                                         =>
##
   [6]
        {legs=FALSE,catsize=FALSE}
                                             {hair=FALSE} 0.1584158 1.0000000
##
   [7]
        {eggs=TRUE,legs=FALSE}
                                            {hair=FALSE} 0.1881188 1.0000000
   [8]
        {milk=FALSE,legs=FALSE}
                                            {hair=FALSE} 0.1980198 1.0000000
   [9]
        {aquatic=TRUE, catsize=FALSE}
                                             {hair=FALSE} 0.2277228 1.0000000
##
                                             {hair=FALSE} 0.2970297 1.0000000
##
   [10] {milk=FALSE,aquatic=TRUE}
## [11] {milk=FALSE,catsize=TRUE}
                                            {hair=FALSE} 0.1188119 1.0000000
## [12] {milk=FALSE,predator=TRUE}
                                            {hair=FALSE} 0.3366337 1.0000000
                                          =>
## [13] {eggs=TRUE,toothed=TRUE}
                                             {hair=FALSE} 0.1980198 1.0000000
```

```
## [14] {milk=FALSE,toothed=TRUE}
                                         => {hair=FALSE} 0.2079208 1.0000000
                                           {hair=FALSE} 0.3960396 1.0000000
  [15] {milk=FALSE,tail=TRUE}
  [16] {milk=FALSE,airborne=FALSE}
                                           {hair=FALSE} 0.3762376 1.0000000
  [17] {milk=FALSE,backbone=TRUE}
                                           {hair=FALSE} 0.4158416 1.0000000
  [18] {eggs=TRUE,backbone=TRUE}
                                            {hair=FALSE} 0.4059406 0.9761905
                                            {hair=FALSE} 0.3762376 0.9743590
  [19] {eggs=TRUE,tail=TRUE}
  [20] {eggs=TRUE,airborne=FALSE}
                                            {hair=FALSE} 0.3564356 0.9729730
  [21] {eggs=TRUE,predator=TRUE}
                                            {hair=FALSE} 0.3168317 0.9696970
   [22] {eggs=TRUE,aquatic=TRUE}
                                            {hair=FALSE} 0.2871287 0.9666667
   [23] {milk=FALSE, venomous=FALSE}
                                           {hair=FALSE} 0.4950495 0.9615385
  [24] {legs=FALSE}
                                         => {hair=FALSE} 0.2178218 0.9565217
  [25] {toothed=FALSE,tail=TRUE}
                                         => {hair=FALSE} 0.2178218 0.9565217
  [26] {toothed=FALSE,backbone=TRUE}
                                         => {hair=FALSE} 0.2079208 0.9545455
  [27] {predator=TRUE, toothed=FALSE}
                                         => {hair=FALSE} 0.1782178 0.9473684
                                         => {hair=FALSE} 0.5148515 0.9454545
## [28] {milk=FALSE,domestic=FALSE}
## [29] {airborne=FALSE, toothed=FALSE}
                                           {hair=FALSE} 0.1683168 0.9444444
                                         => {hair=FALSE} 0.2574257 0.9285714
  [30] {predator=TRUE, catsize=FALSE}
  [31] {eggs=TRUE,domestic=FALSE}
                                         => {hair=FALSE} 0.4950495 0.9259259
                                         => {hair=FALSE} 0.1188119 0.9230769
  [32] {aquatic=TRUE, toothed=FALSE}
  [33] {eggs=TRUE,catsize=TRUE}
                                            {hair=FALSE} 0.1188119 0.9230769
##
  [34] {aquatic=TRUE,fins=FALSE}
                                           {hair=FALSE} 0.1683168 0.8947368
                                            {hair=FALSE} 0.3168317 0.8888889
  [35] {aquatic=TRUE}
                                           {hair=FALSE} 0.1584158 0.8888889
  [36] {airborne=TRUE,backbone=TRUE}
   [37] {toothed=FALSE.domestic=FALSE}
                                            {hair=FALSE} 0.3168317 0.8888889
  [38] {toothed=FALSE}
                                            {hair=FALSE} 0.3465347 0.8750000
  [39] {backbone=FALSE, venomous=FALSE}
                                            {hair=FALSE} 0.1188119 0.8571429
  [40] {airborne=FALSE, catsize=FALSE}
                                            {hair=FALSE} 0.2871287 0.8055556
  [41] {domestic=FALSE,catsize=FALSE}
                                            {hair=FALSE} 0.3960396 0.8000000
## [42] {tail=TRUE,catsize=FALSE}
                                         => {hair=FALSE} 0.2871287 0.7837838
## [43] {venomous=FALSE, catsize=FALSE}
                                         => {hair=FALSE} 0.3861386 0.7800000
## [44] {backbone=FALSE}
                                         => {hair=FALSE} 0.1386139 0.7777778
  [45]
        {backbone=TRUE, catsize=FALSE}
                                         => {hair=FALSE} 0.3069307 0.7750000
  [46] {catsize=FALSE}
                                           {hair=FALSE} 0.4356436 0.7719298
                                           {hair=FALSE} 0.1782178 0.7500000
## [47] {airborne=TRUE}
       {tail=FALSE,domestic=FALSE}
                                            {hair=FALSE} 0.1584158 0.6956522
   [48]
                                           {hair=FALSE} 0.3564356 0.6428571
##
  [49] {predator=TRUE}
  [50] {venomous=FALSE,tail=FALSE}
                                           {hair=FALSE} 0.1386139 0.6363636
  [51] {tail=FALSE}
                                           {hair=FALSE} 0.1584158 0.6153846
                                            {hair=FALSE} 0.4356436 0.5301205
  [52]
       {backbone=TRUE}
                                         => {hair=FALSE} 0.3663366 0.4625000
##
  [53] {breathes=TRUE}
   [54] {legs=TRUE}
                                         => {hair=FALSE} 0.3564356 0.4615385
   [55] {aquatic=FALSE}
                                         => {hair=FALSE} 0.2574257 0.4000000
##
##
        lift
##
  [1]
        1.7413793
  [2]
##
        1.7413793
  [3]
##
        1.7413793
##
   [4]
        1.7413793
##
   [5]
        1.7413793
##
  [6]
        1.7413793
##
   [7]
        1.7413793
  [8]
##
        1.7413793
## [9]
        1.7413793
## [10] 1.7413793
## [11] 1.7413793
```

```
## [12] 1.7413793
## [13] 1.7413793
  [14] 1.7413793
  [15] 1.7413793
  [16] 1.7413793
## [17] 1.7413793
  [18] 1.6999179
## [19] 1.6967286
  [20] 1.6943150
  [21] 1.6886102
  [22] 1.6833333
## [23] 1.6744032
  [24] 1.6656672
## [25] 1.6656672
## [26] 1.6622257
  [27] 1.6497278
  [28] 1.6463950
  [29] 1.6446360
  [30] 1.6169951
  [31] 1.6123883
##
  [32] 1.6074271
  [33] 1.6074271
## [34] 1.5580762
   [35] 1.5478927
  [36] 1.5478927
  [37] 1.5478927
  [38] 1.5237069
  [39] 1.4926108
## [40] 1.4027778
## [41] 1.3931034
## [42] 1.3648649
  [43] 1.3582759
  [44] 1.3544061
## [45] 1.3495690
   [46] 1.3442226
## [47] 1.3060345
## [48] 1.2113943
## [49] 1.1194581
  [50] 1.1081505
  [51] 1.0716180
  [52] 0.9231408
  [53] 0.8053879
##
   [54] 0.8037135
##
   [55] 0.6965517
       lhs
                                                   confidence lift
                            rhs
                                        \operatorname{support}
## [1] {milk=TRUE}
                         => {hair=TRUE} 0.3861386 0.9512195 2.2342598
##
   [2] {type=mammal}
                         => {hair=TRUE} 0.3861386 0.9512195
                                                              2.2342598
  [3] {eggs=FALSE}
                         => {hair=TRUE} 0.3762376 0.9047619
                                                              2.1251384
  [4] {toothed=TRUE}
                         => {hair=TRUE} 0.3762376 0.6229508
                                                              1.4632101
  [5] {predator=FALSE} => {hair=TRUE} 0.2277228 0.5111111
                                                              1.2005168
   [6] {backbone=TRUE}
                        => {hair=TRUE} 0.3861386 0.4698795
                                                              1.1036705
   [7] {domestic=FALSE} => {hair=TRUE} 0.3366337 0.3863636 0.9075053
##
##
       lhs
                                                             confidence
                                     rhs
                                                   support
## [1] {eggs=TRUE,toothed=TRUE} => {hair=FALSE} 0.1980198 1
```

```
[2] {milk=FALSE,toothed=TRUE} => {hair=FALSE} 0.2079208 1
##
       lift.
  [1] 1.741379
##
##
  [2] 1.741379
       lhs
                                         rhs
                                                      support
                                                                 confidence
## [1] {milk=FALSE,backbone=TRUE}
                                      => {hair=FALSE} 0.4158416 1.0000000
  [2] {eggs=TRUE,backbone=TRUE}
                                      => {hair=FALSE} 0.4059406 0.9761905
  [3] {toothed=FALSE,backbone=TRUE} => {hair=FALSE} 0.2079208 0.9545455
   [4] {airborne=TRUE,backbone=TRUE} => {hair=FALSE} 0.1584158 0.8888889
   [5] {backbone=TRUE,catsize=FALSE} => {hair=FALSE} 0.3069307 0.7750000
##
##
       lift
##
  [1] 1.741379
##
  [2] 1.699918
  [3] 1.662226
## [4] 1.547893
##
  [5] 1.349569
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
  [1] {milk=FALSE,domestic=FALSE}
                                       => {hair=FALSE} 0.5148515 0.9454545
  [2] {eggs=TRUE,domestic=FALSE}
                                       => {hair=FALSE} 0.4950495 0.9259259
  [3] {toothed=FALSE,domestic=FALSE} => {hair=FALSE} 0.3168317 0.8888889
## [4] {domestic=FALSE,catsize=FALSE} => {hair=FALSE} 0.3960396 0.8000000
  [5] {tail=FALSE,domestic=FALSE}
                                       => {hair=FALSE} 0.1584158 0.6956522
##
       lift
## [1] 1.646395
## [2] 1.612388
## [3] 1.547893
## [4] 1.393103
  [5] 1.211394
##
  [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                         support
                                                                    confidence
## [1]
        {type=fish}
                                         => {legs=FALSE} 0.1287129 1.0000000
##
   [2]
        {hair=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1485149 1.0000000
##
  [3]
        {eggs=TRUE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
  [4]
##
        {milk=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
   [5]
        {toothed=TRUE, breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
##
  [6]
        {breathes=FALSE, tail=TRUE}
                                         => {legs=FALSE} 0.1386139 1.0000000
## [7]
        {backbone=TRUE, breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
## [8]
        {fins=TRUE}
                                         => {legs=FALSE} 0.1584158 0.9411765
## [9]
        {hair=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1782178 0.7826087
## [10] {breathes=FALSE}
                                         => {legs=FALSE} 0.1584158 0.7619048
## [11] {milk=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1584158 0.7619048
## [12] {eggs=TRUE,toothed=TRUE}
                                         => {legs=FALSE} 0.1485149 0.7500000
## [13] {aquatic=TRUE, toothed=TRUE}
                                         => {legs=FALSE} 0.1683168 0.7391304
## [14] {aquatic=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.6153846
## [15] {feathers=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.6000000
## [16] {airborne=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
## [17] {hair=FALSE,feathers=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5789474
## [18] {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
## [19] {hair=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1683168 0.5312500
## [20] {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
## [21] {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
## [22] {feathers=FALSE,milk=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5000000
## [23] {feathers=FALSE,eggs=TRUE}
                                         => {legs=FALSE} 0.1881188 0.4871795
## [24] {toothed=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.4615385
```

```
## [25] {hair=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4444444
   [26] {airborne=FALSE, catsize=FALSE}
                                            {legs=FALSE} 0.1584158 0.4444444
  [27] {hair=FALSE,tail=TRUE}
                                            {legs=FALSE} 0.1782178 0.4285714
  [28] {milk=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1386139 0.4117647
  [29] {hair=FALSE,backbone=TRUE}
##
                                         => {legs=FALSE} 0.1782178 0.4090909
  [30] {predator=TRUE, toothed=TRUE}
                                         => {legs=FALSE} 0.1485149 0.4054054
  [31] {milk=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4000000
  [32] {eggs=TRUE,predator=TRUE}
                                           {legs=FALSE} 0.1287129 0.3939394
   [33]
       {hair=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.2079208 0.3888889
   [34] {eggs=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1485149 0.3846154
   [35] {milk=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1584158 0.3809524
   [36] {feathers=FALSE, catsize=FALSE}
                                           {legs=FALSE} 0.1584158 0.3720930
       {feathers=FALSE, predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3617021
   [37]
   [38] {eggs=TRUE,backbone=TRUE}
                                           {legs=FALSE} 0.1485149 0.3571429
                                         => {legs=FALSE} 0.1683168 0.3469388
   [39] {airborne=FALSE,predator=TRUE}
   [40] {toothed=TRUE,domestic=FALSE}
                                            {legs=FALSE} 0.1782178 0.3461538
   [41] {milk=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.1881188 0.3454545
   [42] {predator=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1386139 0.3333333
   [43] {eggs=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3333333
   [44] {feathers=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3272727
##
  [45] {tail=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3243243
  [46] {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
  [47] {airborne=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
       {airborne=FALSE,tail=TRUE}
   Γ481
                                         => {legs=FALSE} 0.1782178 0.3157895
  [49] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
   [50] {feathers=FALSE,domestic=FALSE}
                                        => {legs=FALSE} 0.2178218 0.3098592
   [51] {predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3035714
##
   [52] {feathers=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3015873
   [53] {backbone=TRUE, catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
  [54] {domestic=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1485149 0.3000000
##
   [55]
        {tail=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1683168 0.2615385
##
   [56]
        {backbone=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.2535211
##
        lift
##
   [1]
        4.391304
##
   [2]
        4.391304
   [3]
##
        4.391304
##
   [4]
        4.391304
  [5]
        4.391304
##
   [6]
##
        4.391304
##
  [7]
        4.391304
  [8]
        4.132992
   [9]
##
        3.436673
##
   Γ10]
       3.345756
##
   [11] 3.345756
  [12] 3.293478
##
  [13] 3.245747
##
   [14] 2.702341
   [15] 2.634783
   [16] 2.549790
   [17]
        2.542334
##
  [18] 2.415217
## [19] 2.332880
## [20] 2.311213
## [21] 2.254994
```

```
## [22] 2.195652
   [23] 2.139353
   [24] 2.026756
   [25] 1.951691
   [26] 1.951691
   [27] 1.881988
   [28] 1.808184
   [29] 1.796443
   [30] 1.780259
   [31] 1.756522
   [32] 1.729908
   [33] 1.707729
   [34] 1.688963
   [35] 1.672878
   [36] 1.633974
   [37] 1.588344
   [38] 1.568323
   [39] 1.523514
   [40] 1.520067
   [41] 1.516996
##
   [42] 1.463768
   [43] 1.463768
  [44] 1.437154
   [45] 1.424207
   [46] 1.420716
   [47] 1.414149
   [48] 1.386728
   [49] 1.383562
   [50] 1.360686
   [51] 1.333075
   [52] 1.324362
##
   [53] 1.317391
   [54] 1.317391
   [55] 1.148495
##
   [56]
        1.113288
##
                                                    confidence lift
        lhs
                             rhs
                                          support
   [1]
        {type=bird}
                          => {legs=TRUE} 0.1980198 1.0000000
##
   [2]
        {feathers=TRUE}
                          => {legs=TRUE} 0.1980198 1.0000000
                                                               1.2948718
   [3]
        {airborne=TRUE}
                          => {legs=TRUE} 0.2376238 1.0000000
                                                               1.2948718
##
   [4]
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                                1.2647585
   [5]
        {milk=TRUE}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
   [6]
                          => {legs=TRUE} 0.3762376 0.9268293
##
        {type=mammal}
                                                                1.2001251
                                                                1.1952663
##
   [7]
        {domestic=TRUE}
                          => {legs=TRUE} 0.1188119 0.9230769
##
   [8]
        {aquatic=FALSE}
                          => {legs=TRUE} 0.5940594 0.9230769
                                                                1.1952663
   [9]
        {eggs=FALSE}
                          => {legs=TRUE} 0.3762376 0.9047619
                                                               1.1715507
                          => {legs=TRUE} 0.3564356 0.9000000
   [10]
       {toothed=FALSE}
                                                                1.1653846
   [11]
       {predator=FALSE}
                         => {legs=TRUE} 0.3861386 0.8666667
                                                                1.1222222
   [12] {catsize=TRUE}
                          => {legs=TRUE} 0.3663366 0.8409091
                                                                1.0888695
   [13] {tail=FALSE}
                          => {legs=TRUE} 0.2079208 0.8076923
                                                                1.0458580
   [14]
        {backbone=FALSE}
                          => {legs=TRUE} 0.1386139 0.7777778
                                                                1.0071225
   [15]
##
       {tail=TRUE}
                          => {legs=TRUE} 0.5643564 0.7600000
                                                               0.9841026
## [16] {catsize=FALSE}
                          => {legs=TRUE} 0.4059406 0.7192982
                                                               0.9313990
## [17] {airborne=FALSE} => {legs=TRUE} 0.5346535 0.7012987
                                                                0.9080919
## [18] {toothed=TRUE}
                          => {legs=TRUE} 0.4158416 0.6885246
```

```
## [19] {eggs=TRUE}
                          => {legs=TRUE} 0.3960396 0.6779661
                                                               0.8778792
   [20] {milk=FALSE}
                          => {legs=TRUE} 0.3960396 0.6666667
                                                               0.8632479
   [21] {aquatic=TRUE}
##
                          => {legs=TRUE} 0.1782178 0.5000000
                                                               0.6474359
##
        lhs
                                       rhs
                                                     support
                                                                confidence
##
   [1]
        {breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
##
   [2]
        {aquatic=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.6153846
##
   [3]
        {hair=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1782178 0.4285714
##
   [4]
        {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
##
   [5]
        {eggs=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1485149 0.3846154
##
   [6]
        {predator=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1386139 0.3333333
   [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
        {tail=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3243243
##
   [8]
##
   [9]
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
   [10] {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
##
        lift
##
   [1]
        4.391304
   [2]
##
        2.702341
   [3]
        1.881988
##
   [4]
##
        1.756522
##
   [5]
        1.688963
##
   [6]
        1.463768
##
   [7]
        1.437154
   [8]
##
        1.424207
##
   [9]
        1.386728
##
   [10] 1.148495
##
       lhs
                                                        support
                                                                   confidence
   [1] {toothed=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.4615385
##
   [2] {airborne=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.4444444
   [3] {feathers=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
   [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
   [5] {backbone=TRUE, catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3000000
##
   [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
##
       lift
  [1] 2.026756
##
   [2] 1.951691
##
##
   [3] 1.633974
   [4] 1.424207
  [5] 1.317391
##
   [6] 1.317391
##
##
                                                                     confidence
        lhs
                                             rhs
                                                          support
##
   [1]
        {airborne=FALSE, aquatic=TRUE}
                                          => {legs=FALSE} 0.1782178 0.5806452
   [2]
        {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
##
##
   [3]
        {milk=FALSE,airborne=FALSE}
                                          => {legs=FALSE} 0.1980198 0.5263158
   [4]
        {eggs=TRUE,airborne=FALSE}
##
                                         => {legs=FALSE} 0.1881188 0.5135135
##
   [5]
        {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
   [6]
        {airborne=FALSE, predator=TRUE}
##
                                         => {legs=FALSE} 0.1683168 0.3469388
##
   [7]
        {airborne=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.2178218 0.3235294
##
   [8]
        {airborne=FALSE, toothed=TRUE}
                                          => {legs=FALSE} 0.1881188 0.3220339
        {airborne=FALSE,tail=TRUE}
                                          => {legs=FALSE} 0.1782178 0.3157895
##
   [10]
       {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
        lift
## [1]
        2.549790
## [2]
        2.415217
## [3]
        2.311213
```

```
[4]
        2.254994
##
   [5]
        1.951691
##
   [6]
        1.523514
   [7]
##
        1.420716
##
   [8]
        1.414149
##
   [9]
        1.386728
##
  [10] 1.383562
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
##
  [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
   [2] {hair=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1782178 0.7826087
  [3] {milk=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1584158 0.7619048
   [4] {eggs=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.7500000
   [5] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
  [6] {toothed=TRUE,catsize=FALSE}
                                      => {legs=FALSE} 0.1188119 0.4615385
  [7] {predator=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.4054054
   [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
##
   [9] {airborne=FALSE, toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
       lift
  [1] 4.391304
##
   [2] 3.436673
##
   [3] 3.345756
  [4] 3.293478
##
  [5] 3.245747
##
   [6] 2.026756
##
  [7] 1.780259
  [8] 1.520067
   [9] 1.414149
##
##
       lhs
                                      rhs
                                                   support
                                                              confidence
##
  [1] {eggs=TRUE,fins=TRUE}
                                   => {legs=FALSE} 0.1287129 1.0000000
  [2] {eggs=TRUE,toothed=TRUE}
                                   => {legs=FALSE} 0.1485149 0.7500000
   [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
   [4] {feathers=FALSE,eggs=TRUE} => {legs=FALSE} 0.1881188 0.4871795
  [5] {eggs=TRUE,predator=TRUE}
                                   => {legs=FALSE} 0.1287129 0.3939394
   [6] {eggs=TRUE,tail=TRUE}
                                   => {legs=FALSE} 0.1485149 0.3846154
   [7] {eggs=TRUE,backbone=TRUE}
                                  => {legs=FALSE} 0.1485149 0.3571429
   [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
##
       lift
## [1] 4.391304
   [2] 3.293478
##
  [3] 2.254994
  [4] 2.139353
   [5] 1.729908
##
   [6] 1.688963
##
   [7] 1.568323
##
  [8] 1.463768
##
       lhs
                                       rhs
                                                    support
                                                               confidence
## [1] {milk=FALSE,fins=TRUE}
                                    => {legs=FALSE} 0.1287129 1.0000000
   [2] {milk=FALSE,toothed=TRUE}
                                    => {legs=FALSE} 0.1584158 0.7619048
  [3] {milk=FALSE,airborne=FALSE} => {legs=FALSE} 0.1980198 0.5263158
   [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
   [5] {milk=FALSE,predator=TRUE}
                                    => {legs=FALSE} 0.1386139 0.4117647
  [6] {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
## [7] {milk=FALSE,backbone=TRUE} => {legs=FALSE} 0.1584158 0.3809524
## [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
```

```
lift
##
##
  [1] 4.391304
   [2] 3.345756
   [3] 2.311213
##
##
   [4] 2.195652
##
   [5] 1.808184
   [6] 1.756522
##
   [7] 1.672878
##
   [8] 1.516996
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
  [1] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
##
   [2] {aquatic=TRUE,tail=TRUE}
                                      => {legs=FALSE} 0.1584158 0.6153846
   [3] {feathers=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1782178 0.6000000
   [4] {airborne=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1782178 0.5806452
   [5] {hair=FALSE,aquatic=TRUE}
##
                                      => {legs=FALSE} 0.1683168 0.5312500
##
       lift
##
   [1] 3.245747
   [2] 2.702341
##
   [3] 2.634783
   [4] 2.549790
##
   [5] 2.332880
##
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                          support
                                                                    confidence
##
   [1]
        {type=fish}
                                         => {legs=FALSE} 0.1287129 1.0000000
##
   [2]
        {hair=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1485149 1.0000000
   [3]
        {eggs=TRUE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
   [4]
##
        {milk=FALSE,fins=TRUE}
                                           {legs=FALSE} 0.1287129 1.0000000
##
   [5]
        {toothed=TRUE, breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
##
   [6]
        {breathes=FALSE,tail=TRUE}
                                            {legs=FALSE} 0.1386139 1.0000000
##
  [7]
        {backbone=TRUE, breathes=FALSE}
                                            {legs=FALSE} 0.1386139 1.0000000
##
   [8]
        {fins=TRUE}
                                            {legs=FALSE} 0.1584158 0.9411765
##
   [9]
        {hair=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1782178 0.7826087
   [10] {breathes=FALSE}
                                           {legs=FALSE} 0.1584158 0.7619048
  [11] {milk=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1584158 0.7619048
       {eggs=TRUE,toothed=TRUE}
   [12]
                                            {legs=FALSE} 0.1485149 0.7500000
##
  [13] {aquatic=TRUE, toothed=TRUE}
                                         => {legs=FALSE} 0.1683168 0.7391304
  [14] {aquatic=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1584158 0.6153846
  [15] {feathers=FALSE,aquatic=TRUE}
                                           {legs=FALSE} 0.1782178 0.6000000
   [16] {airborne=FALSE,aquatic=TRUE}
                                            {legs=FALSE} 0.1782178 0.5806452
##
  [17] {hair=FALSE,feathers=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5789474
  [18] {hair=FALSE,airborne=FALSE}
                                           {legs=FALSE} 0.2178218 0.5500000
  [19] {hair=FALSE,aquatic=TRUE}
                                           {legs=FALSE} 0.1683168 0.5312500
  [20] {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
  [21] {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
  [22] {feathers=FALSE,milk=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5000000
  [23] {feathers=FALSE,eggs=TRUE}
                                            {legs=FALSE} 0.1881188 0.4871795
  [24] {toothed=TRUE,catsize=FALSE}
                                            {legs=FALSE} 0.1188119 0.4615385
  [25] {hair=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1584158 0.4444444
  [26] {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
   [27] {hair=FALSE,tail=TRUE}
                                            {legs=FALSE} 0.1782178 0.4285714
       {milk=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1386139 0.4117647
##
  [28]
  [29] {hair=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4090909
## [30] {predator=TRUE,toothed=TRUE}
                                         => {legs=FALSE} 0.1485149 0.4054054
## [31] {milk=FALSE,tail=TRUE}
                                            {legs=FALSE} 0.1584158 0.4000000
```

```
## [32] {eggs=TRUE,predator=TRUE}
                                         => {legs=FALSE} 0.1287129 0.3939394
   [33] {hair=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.2079208 0.3888889
  [34] {eggs=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1485149 0.3846154
  [35] {milk=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1584158 0.3809524
   [36] {feathers=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.3720930
   [37] {feathers=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3617021
  [38] {eggs=TRUE,backbone=TRUE}
                                         => {legs=FALSE} 0.1485149 0.3571429
                                         => {legs=FALSE} 0.1683168 0.3469388
  [39] {airborne=FALSE,predator=TRUE}
   [40] {toothed=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3461538
   [41] {milk=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.1881188 0.3454545
  [42] {predator=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1386139 0.3333333
   [43] {eggs=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3333333
  [44] {feathers=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3272727
## [45] {tail=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3243243
## [46] {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
  [47]
        {airborne=FALSE, toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
  [48]
       {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
  [49] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
  [50] {feathers=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3098592
   [51] {predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3035714
##
  [52]
       {feathers=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3015873
  [53] {backbone=TRUE, catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
       {domestic=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1485149 0.3000000
  [54]
        {tail=TRUE,domestic=FALSE}
   [55]
                                         => {legs=FALSE} 0.1683168 0.2615385
##
   [56] {backbone=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.2535211
##
        lift
##
   [1]
        4.391304
##
   [2]
        4.391304
##
   [3]
        4.391304
##
  [4]
        4.391304
##
  [5]
        4.391304
##
   [6]
        4.391304
##
  [7]
        4.391304
  [8]
##
        4.132992
   [9]
        3.436673
##
  [10] 3.345756
  [11] 3.345756
  [12] 3.293478
  [13] 3.245747
##
  [14] 2.702341
  [15] 2.634783
  [16] 2.549790
  [17] 2.542334
##
  [18] 2.415217
## [19] 2.332880
## [20] 2.311213
##
  [21] 2.254994
  [22] 2.195652
  [23] 2.139353
  [24] 2.026756
## [25] 1.951691
## [26] 1.951691
## [27] 1.881988
## [28] 1.808184
```

```
[29] 1.796443
   [30] 1.780259
   [31] 1.756522
   [32] 1.729908
##
   [33] 1.707729
   [34] 1.688963
##
   [35] 1.672878
   [36] 1.633974
##
   [37] 1.588344
   [38] 1.568323
   [39] 1.523514
   [40] 1.520067
##
   [41] 1.516996
   [42] 1.463768
   [43] 1.463768
   [44] 1.437154
##
   [45] 1.424207
   [46] 1.420716
   [47] 1.414149
   [48] 1.386728
##
   [49] 1.383562
   [50] 1.360686
##
   [51] 1.333075
##
   [52] 1.324362
##
   [53] 1.317391
   [54] 1.317391
   [55] 1.148495
##
##
   [56]
        1.113288
##
        lhs
                             rhs
                                          support
                                                    confidence lift
##
   [1]
                          => {legs=TRUE} 0.1980198 1.0000000
        {type=bird}
                                                                1.2948718
##
   [2]
        {feathers=TRUE}
                             {legs=TRUE} 0.1980198 1.0000000
                                                                1.2948718
##
   [3]
        {airborne=TRUE}
                             {legs=TRUE} 0.2376238 1.0000000
                                                                1.2948718
##
   [4]
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                                1.2647585
   [5]
##
                          => {legs=TRUE} 0.3762376 0.9268293
        {milk=TRUE}
                                                                1.2001251
   [6]
                          => {legs=TRUE} 0.3762376 0.9268293
##
        {type=mammal}
                                                                1.2001251
##
   [7]
        {domestic=TRUE}
                          => {legs=TRUE} 0.1188119 0.9230769
                                                                1.1952663
   [8]
        {aquatic=FALSE}
                          => {legs=TRUE} 0.5940594 0.9230769
                                                                1.1952663
   [9]
                          => {legs=TRUE} 0.3762376 0.9047619
##
        {eggs=FALSE}
                                                                1.1715507
                             {legs=TRUE} 0.3564356 0.9000000
   [10] {toothed=FALSE}
                                                                1.1653846
   [11] {predator=FALSE}
                             {legs=TRUE} 0.3861386 0.8666667
                                                                1.122222
   [12] {catsize=TRUE}
                          => {legs=TRUE} 0.3663366 0.8409091
                                                                1.0888695
                          => {legs=TRUE} 0.2079208 0.8076923
   [13] {tail=FALSE}
                                                                1.0458580
   Γ14]
       {backbone=FALSE}
                          => {legs=TRUE} 0.1386139 0.7777778
                                                                1.0071225
                          => {legs=TRUE} 0.5643564 0.7600000
   [15] {tail=TRUE}
                                                                0.9841026
                                                                0.9313990
   [16] {catsize=FALSE}
                          => {legs=TRUE} 0.4059406 0.7192982
                          => {legs=TRUE} 0.5346535 0.7012987
   [17]
        {airborne=FALSE}
                                                                0.9080919
##
   [18]
       {toothed=TRUE}
                          => {legs=TRUE} 0.4158416 0.6885246
                                                                0.8915511
   [19]
       {eggs=TRUE}
                          => {legs=TRUE} 0.3960396 0.6779661
                                                                0.8778792
   [20] {milk=FALSE}
                          => {legs=TRUE} 0.3960396 0.6666667
                                                                0.8632479
##
   [21]
        {aquatic=TRUE}
                          => {legs=TRUE} 0.1782178 0.5000000
                                                                0.6474359
##
        lhs
                                        rhs
                                                     support
                                                                confidence
##
  [1]
        {breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
##
   [2]
        {aquatic=TRUE, tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.6153846
## [3]
        {hair=FALSE,tail=TRUE}
                                     => {legs=FALSE} 0.1782178 0.4285714
```

```
## [4]
        {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
## [5]
                                    => {legs=FALSE} 0.1485149 0.3846154
        {eggs=TRUE,tail=TRUE}
## [6]
        {predator=TRUE, tail=TRUE} => {legs=FALSE} 0.1386139 0.3333333
## [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
  [8]
        {tail=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3243243
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
## [9]
## [10] {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
        lift
## [1]
        4.391304
## [2]
        2.702341
## [3]
        1.881988
## [4]
        1.756522
##
  [5]
        1.688963
## [6]
        1.463768
## [7]
        1.437154
## [8]
        1.424207
## [9]
        1.386728
##
  [10] 1.148495
##
       lhs
                                          rhs
                                                        support
                                                                  confidence
## [1] {toothed=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.4615385
## [2] {airborne=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.4444444
## [3] {feathers=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
## [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
## [5] {backbone=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3000000
  [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
       lift
## [1] 2.026756
## [2] 1.951691
## [3] 1.633974
## [4] 1.424207
## [5] 1.317391
##
  [6] 1.317391
##
        lhs
                                                                    confidence
                                                          support
## [1]
        {airborne=FALSE, aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
## [2]
        {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
## [3]
        {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
## [4]
        {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
## [5]
        {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
## [6]
        {airborne=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
        {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
## [7]
        {airborne=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
## [8]
  [9]
        {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
  [10] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
##
        lift
## [1]
        2.549790
## [2]
        2.415217
## [3]
        2.311213
## [4]
        2.254994
##
  [5]
        1.951691
##
  [6]
        1.523514
## [7]
        1.420716
## [8]
        1.414149
## [9]
        1.386728
## [10] 1.383562
```

```
##
                                                      support
                                                                confidence
## [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
  [2] {hair=FALSE,toothed=TRUE}
                                     => {legs=FALSE} 0.1782178 0.7826087
## [3] {milk=FALSE,toothed=TRUE}
                                     => {legs=FALSE} 0.1584158 0.7619048
  [4] {eggs=TRUE,toothed=TRUE}
                                     => {legs=FALSE} 0.1485149 0.7500000
  [5] {aquatic=TRUE, toothed=TRUE}
                                     => {legs=FALSE} 0.1683168 0.7391304
## [6] {toothed=TRUE,catsize=FALSE}
                                     => {legs=FALSE} 0.1188119 0.4615385
  [7] {predator=TRUE, toothed=TRUE}
                                     => {legs=FALSE} 0.1485149 0.4054054
   [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
##
   [9] {airborne=FALSE,toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
       lift
## [1] 4.391304
##
  [2] 3.436673
## [3] 3.345756
## [4] 3.293478
## [5] 3.245747
##
  [6] 2.026756
  [7] 1.780259
## [8] 1.520067
##
  [9] 1.414149
##
       lhs
                                     rhs
                                                   support
                                                             confidence
## [1] {eggs=TRUE,fins=TRUE}
                                  => {legs=FALSE} 0.1287129 1.0000000
## [2] {eggs=TRUE,toothed=TRUE}
                                  => {legs=FALSE} 0.1485149 0.7500000
## [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
  [4] {feathers=FALSE,eggs=TRUE} => {legs=FALSE} 0.1881188 0.4871795
  [5] {eggs=TRUE,predator=TRUE}
                                  => {legs=FALSE} 0.1287129 0.3939394
  [6] {eggs=TRUE,tail=TRUE}
                                  => {legs=FALSE} 0.1485149 0.3846154
   [7] {eggs=TRUE,backbone=TRUE} => {legs=FALSE} 0.1485149 0.3571429
   [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
       lift
## [1] 4.391304
  [2] 3.293478
## [3] 2.254994
## [4] 2.139353
   [5] 1.729908
##
  [6] 1.688963
## [7] 1.568323
## [8] 1.463768
##
       lhs
                                                    support
                                                              confidence
## [1] {milk=FALSE,fins=TRUE}
                                   => {legs=FALSE} 0.1287129 1.0000000
## [2] {milk=FALSE,toothed=TRUE}
                                   => {legs=FALSE} 0.1584158 0.7619048
  [3] {milk=FALSE,airborne=FALSE} => {legs=FALSE} 0.1980198 0.5263158
## [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
## [5] {milk=FALSE,predator=TRUE}
                                   => {legs=FALSE} 0.1386139 0.4117647
## [6] {milk=FALSE,tail=TRUE}
                                   => {legs=FALSE} 0.1584158 0.4000000
## [7] {milk=FALSE,backbone=TRUE}
                                   => {legs=FALSE} 0.1584158 0.3809524
##
  [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
       lift
## [1] 4.391304
## [2] 3.345756
## [3] 2.311213
## [4] 2.195652
## [5] 1.808184
## [6] 1.756522
```

```
[7] 1.672878
##
   [8] 1.516996
##
       lhs
                                                      support
                                                                 confidence
##
  [1] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
##
   [2] {aquatic=TRUE,tail=TRUE}
                                      => {legs=FALSE} 0.1584158 0.6153846
   [3] {feathers=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.6000000
  [4] {airborne=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.5806452
                                      => {legs=FALSE} 0.1683168 0.5312500
   [5] {hair=FALSE,aquatic=TRUE}
##
       lift
##
  [1] 3.245747
   [2] 2.702341
   [3] 2.634783
##
   [4] 2.549790
##
   [5] 2.332880
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                         support
                                                                    confidence
##
                                         => {legs=FALSE} 0.1287129 1.0000000
  [1]
        {type=fish}
   [2]
        {hair=FALSE,fins=TRUE}
                                           {legs=FALSE} 0.1485149 1.0000000
   [3]
##
        {eggs=TRUE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
##
   [4]
        {milk=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
##
   [5]
        {toothed=TRUE, breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
        {breathes=FALSE,tail=TRUE}
##
  [6]
                                           {legs=FALSE} 0.1386139 1.0000000
  [7]
##
        {backbone=TRUE, breathes=FALSE}
                                           {legs=FALSE} 0.1386139 1.0000000
##
  [8]
        {fins=TRUE}
                                         => {legs=FALSE} 0.1584158 0.9411765
##
  [9]
        {hair=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1782178 0.7826087
  [10] {breathes=FALSE}
                                         => {legs=FALSE} 0.1584158 0.7619048
  [11] {milk=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1584158 0.7619048
  [12] {eggs=TRUE,toothed=TRUE}
                                         => {legs=FALSE} 0.1485149 0.7500000
  [13] {aquatic=TRUE, toothed=TRUE}
                                         => {legs=FALSE} 0.1683168 0.7391304
                                         => {legs=FALSE} 0.1584158 0.6153846
## [14] {aquatic=TRUE,tail=TRUE}
  [15] {feathers=FALSE,aquatic=TRUE}
                                           {legs=FALSE} 0.1782178 0.6000000
  [16] {airborne=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
  [17] {hair=FALSE, feathers=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5789474
  [18] {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
       {hair=FALSE,aquatic=TRUE}
   [19]
                                         => {legs=FALSE} 0.1683168 0.5312500
## [20] {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
  [21] {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
## [22] {feathers=FALSE,milk=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5000000
## [23] {feathers=FALSE,eggs=TRUE}
                                         => {legs=FALSE} 0.1881188 0.4871795
  [24] {toothed=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.4615385
  [25] {hair=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4444444
  [26] {airborne=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
## [27] {hair=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4285714
## [28] {milk=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1386139 0.4117647
## [29] {hair=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4090909
  [30] {predator=TRUE, toothed=TRUE}
                                           {legs=FALSE} 0.1485149 0.4054054
  [31] {milk=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1584158 0.4000000
  [32] {eggs=TRUE,predator=TRUE}
                                         => {legs=FALSE} 0.1287129 0.3939394
  [33] {hair=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.2079208 0.3888889
   [34] {eggs=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1485149 0.3846154
  [35] {milk=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1584158 0.3809524
##
## [36] {feathers=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.3720930
## [37] {feathers=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3617021
## [38] {eggs=TRUE,backbone=TRUE}
                                           {legs=FALSE} 0.1485149 0.3571429
```

```
## [39] {airborne=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
  [40] {toothed=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3461538
                                         => {legs=FALSE} 0.1881188 0.3454545
  [41] {milk=FALSE,domestic=FALSE}
  [42] {predator=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1386139 0.3333333
   [43] {eggs=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3333333
  [44] {feathers=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3272727
  [45] {tail=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3243243
  [46] {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
   [47] {airborne=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
   [48] {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
  [49] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
   [50] {feathers=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.2178218 0.3098592
       {predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3035714
   [51]
       {feathers=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3015873
       {backbone=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
  [53]
        {domestic=FALSE, catsize=FALSE}
                                            {legs=FALSE} 0.1485149 0.3000000
##
   [55]
        {tail=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1683168 0.2615385
        {backbone=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.2535211
##
        lift
##
   [1]
        4.391304
##
   [2]
        4.391304
  [3]
##
        4.391304
  [4]
##
        4.391304
##
   [5]
        4.391304
##
  [6]
        4.391304
  [7]
        4.391304
   [8]
##
        4.132992
##
   [9]
        3.436673
##
  [10] 3.345756
  [11] 3.345756
   [12] 3.293478
##
   [13] 3.245747
   [14] 2.702341
  [15] 2.634783
   [16] 2.549790
##
  [17] 2.542334
  [18] 2.415217
  [19] 2.332880
##
  [20] 2.311213
##
  [21] 2.254994
  [22] 2.195652
  [23] 2.139353
  [24] 2.026756
  [25] 1.951691
  [26] 1.951691
  [27] 1.881988
##
  [28] 1.808184
  [29] 1.796443
  [30] 1.780259
   [31] 1.756522
##
  [32] 1.729908
## [33] 1.707729
## [34] 1.688963
## [35] 1.672878
```

```
[36] 1.633974
##
   [37] 1.588344
   [38] 1.568323
   [39] 1.523514
##
   [40] 1.520067
   [41] 1.516996
##
   [42] 1.463768
   [43] 1.463768
##
   [44] 1.437154
   [45] 1.424207
   [46] 1.420716
   [47] 1.414149
   [48] 1.386728
##
   [49] 1.383562
   [50] 1.360686
   [51] 1.333075
##
   [52] 1.324362
   [53] 1.317391
   [54] 1.317391
   [55] 1.148495
##
##
   [56]
       1.113288
##
        lhs
                                          support
                                                    confidence lift
##
   [1]
                          => {legs=TRUE} 0.1980198 1.0000000
                                                                1.2948718
        {type=bird}
##
   [2]
        {feathers=TRUE}
                             {legs=TRUE} 0.1980198 1.0000000
                                                                1.2948718
##
   [3]
        {airborne=TRUE}
                          => {legs=TRUE} 0.2376238 1.0000000
                                                                1.2948718
   [4]
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                                1.2647585
   [5]
##
        {milk=TRUE}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
        {type=mammal}
##
   [6]
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
   [7]
##
        {domestic=TRUE}
                          => {legs=TRUE} 0.1188119 0.9230769
                                                                1.1952663
##
   [8]
                          => {legs=TRUE} 0.5940594 0.9230769
        {aquatic=FALSE}
                                                                1.1952663
##
   [9]
        {eggs=FALSE}
                          => {legs=TRUE} 0.3762376 0.9047619
                                                                1.1715507
##
   [10]
       {toothed=FALSE}
                          => {legs=TRUE} 0.3564356 0.9000000
                                                                1.1653846
   [11] {predator=FALSE}
                          => {legs=TRUE} 0.3861386 0.8666667
                                                                1.122222
   [12] {catsize=TRUE}
                          => {legs=TRUE} 0.3663366 0.8409091
                                                                1.0888695
        {tail=FALSE}
                          => {legs=TRUE} 0.2079208 0.8076923
   Γ13]
                                                                1.0458580
##
   [14] {backbone=FALSE}
                         => {legs=TRUE} 0.1386139 0.7777778
                                                                1.0071225
   [15] {tail=TRUE}
                          => {legs=TRUE} 0.5643564 0.7600000
                                                                0.9841026
   [16] {catsize=FALSE}
                          => {legs=TRUE} 0.4059406 0.7192982
                                                                0.9313990
   [17] {airborne=FALSE}
                         => {legs=TRUE} 0.5346535 0.7012987
                                                                0.9080919
##
   [18] {toothed=TRUE}
                          => {legs=TRUE} 0.4158416 0.6885246
                                                                0.8915511
   [19] {eggs=TRUE}
                          => {legs=TRUE} 0.3960396 0.6779661
                                                                0.8778792
                          => {legs=TRUE} 0.3960396 0.6666667
   [20] {milk=FALSE}
                                                                0.8632479
                                                                0.6474359
##
   [21]
       {aquatic=TRUE}
                          => {legs=TRUE} 0.1782178 0.5000000
##
        lhs
                                        rhs
                                                     support
                                                                confidence
##
  [1]
        {breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
   [2]
##
        {aquatic=TRUE,tail=TRUE}
                                    =>
                                       {legs=FALSE} 0.1584158 0.6153846
##
   [3]
        {hair=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1782178 0.4285714
##
   [4]
        {milk=FALSE,tail=TRUE}
                                       {legs=FALSE} 0.1584158 0.4000000
##
   [5]
        {eggs=TRUE,tail=TRUE}
                                       {legs=FALSE} 0.1485149 0.3846154
##
   [6]
        {predator=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1386139 0.3333333
##
   [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
   [8]
        {tail=TRUE,catsize=FALSE}
                                    => {legs=FALSE} 0.1188119 0.3243243
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
## [10] {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
```

```
##
        lift
##
   [1]
        4.391304
##
   [2]
        2.702341
   [3]
##
        1.881988
##
   [4]
        1.756522
##
   [5]
        1.688963
##
   [6]
        1.463768
##
   [7]
        1.437154
##
   [8]
        1.424207
##
   [9]
        1.386728
##
   [10] 1.148495
##
       lhs
                                                         support
                                                                   confidence
##
  [1] {toothed=TRUE,catsize=FALSE}
                                        => {legs=FALSE} 0.1188119 0.4615385
   [2] {airborne=FALSE,catsize=FALSE} =>
                                          {legs=FALSE} 0.1584158 0.4444444
   [3] {feathers=FALSE, catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
   [4] {tail=TRUE,catsize=FALSE}
                                        => {legs=FALSE} 0.1188119 0.3243243
   [5] {backbone=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3000000
   [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
##
       lift
##
   [1] 2.026756
##
   [2] 1.951691
   [3] 1.633974
   [4] 1.424207
##
##
   [5] 1.317391
##
   [6] 1.317391
##
        lhs
                                                           support
                                                                     confidence
        {airborne=FALSE,aquatic=TRUE}
                                            {legs=FALSE} 0.1782178 0.5806452
##
   [1]
##
   [2]
        {hair=FALSE,airborne=FALSE}
                                          => {legs=FALSE} 0.2178218 0.5500000
   [3]
        {milk=FALSE,airborne=FALSE}
##
                                          => {legs=FALSE} 0.1980198 0.5263158
                                          => {legs=FALSE} 0.1881188 0.5135135
##
   [4]
        {eggs=TRUE,airborne=FALSE}
##
   [5]
        {airborne=FALSE, catsize=FALSE}
                                            {legs=FALSE} 0.1584158 0.4444444
##
   [6]
        {airborne=FALSE,predator=TRUE}
                                          => {legs=FALSE} 0.1683168 0.3469388
##
   [7]
        {airborne=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.2178218 0.3235294
   [8]
##
        {airborne=FALSE, toothed=TRUE}
                                          => {legs=FALSE} 0.1881188 0.3220339
   [9]
        {airborne=FALSE,tail=TRUE}
                                          => {legs=FALSE} 0.1782178 0.3157895
       {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
   Γ10]
##
        lift
## [1]
        2.549790
   [2]
        2.415217
##
   [3]
##
        2.311213
   [4]
        2.254994
   [5]
##
        1.951691
##
   [6]
        1.523514
##
   [7]
        1.420716
##
   [8]
        1.414149
   [9]
##
        1.386728
##
   [10] 1.383562
##
       lhs
                                          rhs
                                                       support
                                                                  confidence
  [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
   [2] {hair=FALSE,toothed=TRUE}
                                       => {legs=FALSE} 0.1782178 0.7826087
##
   [3] {milk=FALSE,toothed=TRUE}
                                       => {legs=FALSE} 0.1584158 0.7619048
  [4] {eggs=TRUE,toothed=TRUE}
                                       => {legs=FALSE} 0.1485149 0.7500000
## [5] {aquatic=TRUE, toothed=TRUE}
                                       => {legs=FALSE} 0.1683168 0.7391304
## [6] {toothed=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.4615385
```

```
## [7] {predator=TRUE,toothed=TRUE} => {legs=FALSE} 0.1485149 0.4054054
  [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
   [9] {airborne=FALSE, toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
       lift.
##
  [1] 4.391304
  [2] 3.436673
##
## [3] 3.345756
## [4] 3.293478
##
  [5] 3.245747
##
  [6] 2.026756
## [7] 1.780259
##
  [8] 1.520067
##
   [9] 1.414149
##
       lhs
                                                   support
                                                             confidence
## [1] {eggs=TRUE,fins=TRUE}
                                  => {legs=FALSE} 0.1287129 1.0000000
  [2] {eggs=TRUE,toothed=TRUE}
                                  => {legs=FALSE} 0.1485149 0.7500000
  [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
  [4] {feathers=FALSE,eggs=TRUE} => {legs=FALSE} 0.1881188 0.4871795
  [5] {eggs=TRUE,predator=TRUE}
                                  => {legs=FALSE} 0.1287129 0.3939394
  [6] {eggs=TRUE,tail=TRUE}
                                  => {legs=FALSE} 0.1485149 0.3846154
  [7] {eggs=TRUE,backbone=TRUE} => {legs=FALSE} 0.1485149 0.3571429
  [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
       lift.
## [1] 4.391304
## [2] 3.293478
## [3] 2.254994
## [4] 2.139353
## [5] 1.729908
## [6] 1.688963
## [7] 1.568323
## [8] 1.463768
##
       lhs
                                      rhs
                                                    support
                                                              confidence
## [1] {milk=FALSE,fins=TRUE}
                                    => {legs=FALSE} 0.1287129 1.0000000
## [2] {milk=FALSE,toothed=TRUE}
                                    => {legs=FALSE} 0.1584158 0.7619048
  [3] {milk=FALSE,airborne=FALSE} => {legs=FALSE} 0.1980198 0.5263158
## [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
## [5] {milk=FALSE,predator=TRUE}
                                   => {legs=FALSE} 0.1386139 0.4117647
## [6] {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
  [7] {milk=FALSE,backbone=TRUE} => {legs=FALSE} 0.1584158 0.3809524
  [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
##
       lift
## [1] 4.391304
## [2] 3.345756
## [3] 2.311213
## [4] 2.195652
## [5] 1.808184
##
  [6] 1.756522
  [7] 1.672878
  [8] 1.516996
##
##
       lhs
                                                      support
                                                                confidence
## [1] {aquatic=TRUE,toothed=TRUE}
                                     => {legs=FALSE} 0.1683168 0.7391304
## [2] {aquatic=TRUE, tail=TRUE}
                                     => {legs=FALSE} 0.1584158 0.6153846
## [3] {feathers=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.6000000
## [4] {airborne=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.5806452
```

```
[5] {hair=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1683168 0.5312500
##
       lift.
##
  [1] 3.245747
  [2] 2.702341
   [3] 2.634783
##
  [4] 2.549790
  [5] 2.332880
##
  [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
  [1]
        {type=fish}
                                         => {legs=FALSE} 0.1287129 1.0000000
   [2]
        {hair=FALSE,fins=TRUE}
                                           {legs=FALSE} 0.1485149 1.0000000
   [3]
##
        {eggs=TRUE,fins=TRUE}
                                           {legs=FALSE} 0.1287129 1.0000000
                                         => {legs=FALSE} 0.1287129 1.0000000
##
   [4]
        {milk=FALSE,fins=TRUE}
        {toothed=TRUE,breathes=FALSE}
                                           {legs=FALSE} 0.1386139 1.0000000
##
   [5]
  [6]
                                           {legs=FALSE} 0.1386139 1.0000000
##
        {breathes=FALSE,tail=TRUE}
##
   [7]
        {backbone=TRUE, breathes=FALSE}
                                            {legs=FALSE} 0.1386139 1.0000000
##
   [8]
        {fins=TRUE}
                                           {legs=FALSE} 0.1584158 0.9411765
  [9]
        {hair=FALSE,toothed=TRUE}
                                           {legs=FALSE} 0.1782178 0.7826087
  [10] {breathes=FALSE}
                                         => {legs=FALSE} 0.1584158 0.7619048
   [11] {milk=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1584158 0.7619048
##
  [12] {eggs=TRUE,toothed=TRUE}
                                         => {legs=FALSE} 0.1485149 0.7500000
  [13] {aquatic=TRUE, toothed=TRUE}
                                         => {legs=FALSE} 0.1683168 0.7391304
  [14] {aquatic=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.6153846
  [15] {feathers=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.6000000
  [16] {airborne=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
  [17] {hair=FALSE, feathers=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5789474
  [18] {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
  [19] {hair=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1683168 0.5312500
## [20] {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
                                         => {legs=FALSE} 0.1881188 0.5135135
## [21] {eggs=TRUE,airborne=FALSE}
  [22] {feathers=FALSE,milk=FALSE}
                                           {legs=FALSE} 0.1980198 0.5000000
  [23] {feathers=FALSE,eggs=TRUE}
                                         => {legs=FALSE} 0.1881188 0.4871795
  [24] {toothed=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.4615385
  [25] {hair=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4444444
   [26] {airborne=FALSE, catsize=FALSE}
                                        => {legs=FALSE} 0.1584158 0.4444444
##
  [27] {hair=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4285714
  [28] {milk=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1386139 0.4117647
  [29] {hair=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4090909
  [30] {predator=TRUE, toothed=TRUE}
##
                                           {legs=FALSE} 0.1485149 0.4054054
##
  [31] {milk=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4000000
  [32] {eggs=TRUE,predator=TRUE}
                                           {legs=FALSE} 0.1287129 0.3939394
  [33] {hair=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.2079208 0.3888889
  [34] {eggs=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1485149 0.3846154
  [35] {milk=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1584158 0.3809524
## [36] {feathers=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.3720930
  [37]
       {feathers=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3617021
##
  [38]
       {eggs=TRUE,backbone=TRUE}
                                         => {legs=FALSE} 0.1485149 0.3571429
  [39]
       {airborne=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
  [40] {toothed=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3461538
  [41] {milk=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.1881188 0.3454545
  [42]
       {predator=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1386139 0.3333333
## [43] {eggs=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3333333
## [44] {feathers=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3272727
## [45] {tail=TRUE,catsize=FALSE}
                                           {legs=FALSE} 0.1188119 0.3243243
```

```
## [46] {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
## [47] {airborne=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
  [48] {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
## [49] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
## [50] {feathers=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3098592
  [51] {predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3035714
  [52] {feathers=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3015873
  [53] {backbone=TRUE, catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
       {domestic=FALSE,catsize=FALSE}
   ſ541
                                         => {legs=FALSE} 0.1485149 0.3000000
   [55]
       {tail=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1683168 0.2615385
   [56]
       {backbone=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.2535211
##
        lift
##
  [1]
        4.391304
  [2]
##
        4.391304
## [3]
        4.391304
## [4]
        4.391304
##
  [5]
        4.391304
  [6]
        4.391304
  [7]
##
        4.391304
##
   [8]
        4.132992
##
  [9]
        3.436673
  [10] 3.345756
## [11] 3.345756
  [12] 3.293478
## [13] 3.245747
## [14] 2.702341
## [15] 2.634783
## [16] 2.549790
## [17] 2.542334
## [18] 2.415217
## [19] 2.332880
  [20] 2.311213
  [21] 2.254994
## [22] 2.195652
  [23] 2.139353
## [24] 2.026756
## [25] 1.951691
## [26] 1.951691
## [27] 1.881988
## [28] 1.808184
## [29] 1.796443
## [30] 1.780259
## [31] 1.756522
## [32] 1.729908
## [33] 1.707729
## [34] 1.688963
##
  [35] 1.672878
  [36] 1.633974
  [37] 1.588344
  [38] 1.568323
## [39] 1.523514
## [40] 1.520067
## [41] 1.516996
## [42] 1.463768
```

```
## [43] 1.463768
   [44] 1.437154
   [45] 1.424207
   [46] 1.420716
##
   [47] 1.414149
   [48] 1.386728
##
   [49] 1.383562
   [50] 1.360686
##
   [51] 1.333075
   [52] 1.324362
   [53] 1.317391
   [54] 1.317391
##
   [55] 1.148495
##
   [56] 1.113288
##
        lhs
                             rhs
                                          support
                                                    confidence lift
##
   [1]
        {type=bird}
                             {legs=TRUE} 0.1980198 1.0000000
                                                               1.2948718
##
   [2]
                          => {legs=TRUE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                                1.2948718
   [3]
        {airborne=TRUE}
                          => {legs=TRUE} 0.2376238 1.0000000
                                                                1.2948718
   [4]
##
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                                1.2647585
##
   [5]
        {milk=TRUE}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
##
   [6]
        {type=mammal}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
##
   [7]
        {domestic=TRUE}
                          => {legs=TRUE} 0.1188119 0.9230769
                                                                1.1952663
##
   [8]
        {aquatic=FALSE}
                             {legs=TRUE} 0.5940594 0.9230769
                                                                1.1952663
##
   [9]
        {eggs=FALSE}
                             {legs=TRUE} 0.3762376 0.9047619
                                                                1.1715507
   [10] {toothed=FALSE}
                          => {legs=TRUE} 0.3564356 0.9000000
                                                                1.1653846
   [11] {predator=FALSE}
                          => {legs=TRUE} 0.3861386 0.8666667
                                                                1.122222
                          => {legs=TRUE} 0.3663366 0.8409091
   [12] {catsize=TRUE}
                                                                1.0888695
   [13] {tail=FALSE}
                          => {legs=TRUE} 0.2079208 0.8076923
                                                                1.0458580
   [14] {backbone=FALSE}
                          => {legs=TRUE} 0.1386139 0.7777778
                                                                1.0071225
   [15] {tail=TRUE}
                          => {legs=TRUE} 0.5643564 0.7600000
                                                                0.9841026
   [16]
        {catsize=FALSE}
                          => {legs=TRUE} 0.4059406 0.7192982
                                                                0.9313990
   [17]
        {airborne=FALSE}
                          =>
                             {legs=TRUE} 0.5346535 0.7012987
                                                                0.9080919
       {toothed=TRUE}
                          => {legs=TRUE} 0.4158416 0.6885246
   Г187
                                                                0.8915511
   [19] {eggs=TRUE}
                          => {legs=TRUE} 0.3960396 0.6779661
                                                                0.8778792
       {milk=FALSE}
                          => {legs=TRUE} 0.3960396 0.6666667
   [20]
                                                                0.8632479
                          => {legs=TRUE} 0.1782178 0.5000000
##
   [21]
       {aquatic=TRUE}
                                                               0.6474359
##
                                                     support
                                                                confidence
##
  [1]
        {breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
        {aquatic=TRUE,tail=TRUE}
##
   [2]
                                    => {legs=FALSE} 0.1584158 0.6153846
##
   [3]
        {hair=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1782178 0.4285714
   [4]
        {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
        {eggs=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1485149 0.3846154
##
   [5]
##
   [6]
        {predator=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1386139 0.3333333
##
   [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
##
   [8]
        {tail=TRUE,catsize=FALSE}
                                    => {legs=FALSE} 0.1188119 0.3243243
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
##
   [9]
##
   [10]
       {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
        lift
##
   [1]
        4.391304
##
   [2]
        2.702341
   [3]
##
        1.881988
##
   [4]
        1.756522
##
  [5]
        1.688963
## [6]
        1.463768
```

```
[7]
        1.437154
  [8]
##
        1.424207
  [9]
        1.386728
  [10] 1.148495
##
##
       lhs
                                          rhs
                                                        support
                                                                  confidence
## [1] {toothed=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.4615385
## [2] {airborne=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.4444444
## [3] {feathers=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
  [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
   [5] {backbone=TRUE, catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3000000
   [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
##
       lift
## [1] 2.026756
## [2] 1.951691
## [3] 1.633974
  [4] 1.424207
##
  [5] 1.317391
  [6] 1.317391
##
##
        lhs
                                            rhs
                                                          support
                                                                    confidence
##
  [1]
        {airborne=FALSE, aquatic=TRUE}
                                            {legs=FALSE} 0.1782178 0.5806452
##
  [2]
        {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
        {milk=FALSE,airborne=FALSE}
  [3]
                                         => {legs=FALSE} 0.1980198 0.5263158
## [4]
        {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
##
  [5]
        {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
##
  [6]
        {airborne=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
  [7]
        {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
        {airborne=FALSE, toothed=TRUE}
##
   [8]
                                         => {legs=FALSE} 0.1881188 0.3220339
   [9]
        {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
   [10] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
##
        lift
## [1]
        2.549790
##
   [2]
        2.415217
##
  [3]
        2.311213
  [4]
##
        2.254994
   [5]
##
        1.951691
##
   [6]
        1.523514
  [7]
        1.420716
  [8]
##
        1.414149
  [9]
##
        1.386728
##
  [10] 1.383562
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
## [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
  [2] {hair=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1782178 0.7826087
  [3] {milk=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1584158 0.7619048
## [4] {eggs=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.7500000
  [5] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
  [6] {toothed=TRUE,catsize=FALSE}
                                      => {legs=FALSE} 0.1188119 0.4615385
  [7] {predator=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.4054054
   [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
   [9] {airborne=FALSE,toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
       lift
## [1] 4.391304
## [2] 3.436673
## [3] 3.345756
```

```
## [4] 3.293478
  [5] 3.245747
  [6] 2.026756
##
  [7] 1.780259
##
   [8] 1.520067
   [9] 1.414149
##
##
       lhs
                                      rhs
                                                   support
                                                             confidence
## [1] {eggs=TRUE,fins=TRUE}
                                   => {legs=FALSE} 0.1287129 1.0000000
   [2] {eggs=TRUE,toothed=TRUE}
                                   => {legs=FALSE} 0.1485149 0.7500000
   [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
  [4] {feathers=FALSE,eggs=TRUE} => {legs=FALSE} 0.1881188 0.4871795
   [5] {eggs=TRUE,predator=TRUE}
                                  => {legs=FALSE} 0.1287129 0.3939394
   [6] {eggs=TRUE,tail=TRUE}
                                   => {legs=FALSE} 0.1485149 0.3846154
  [7] {eggs=TRUE,backbone=TRUE} => {legs=FALSE} 0.1485149 0.3571429
   [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
##
       lift
## [1] 4.391304
  [2] 3.293478
  [3] 2.254994
   [4] 2.139353
##
  [5] 1.729908
  [6] 1.688963
##
  [7] 1.568323
##
   [8] 1.463768
##
       lhs
                                       rhs
                                                    support
                                                               confidence
## [1] {milk=FALSE,fins=TRUE}
                                    => {legs=FALSE} 0.1287129 1.0000000
   [2] {milk=FALSE,toothed=TRUE}
                                    => {legs=FALSE} 0.1584158 0.7619048
  [3] {milk=FALSE,airborne=FALSE} => {legs=FALSE} 0.1980198 0.5263158
  [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
  [5] {milk=FALSE,predator=TRUE}
                                   => {legs=FALSE} 0.1386139 0.4117647
   [6] {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
   [7] {milk=FALSE,backbone=TRUE}
                                   => {legs=FALSE} 0.1584158 0.3809524
##
   [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
       lift
   [1] 4.391304
##
##
  [2] 3.345756
  [3] 2.311213
  [4] 2.195652
##
##
  [5] 1.808184
##
  [6] 1.756522
  [7] 1.672878
   [8] 1.516996
##
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
  [1] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
##
  [2] {aquatic=TRUE,tail=TRUE}
                                      => {legs=FALSE} 0.1584158 0.6153846
   [3] {feathers=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.6000000
   [4] {airborne=FALSE,aquatic=TRUE}
                                     => {legs=FALSE} 0.1782178 0.5806452
##
   [5] {hair=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1683168 0.5312500
##
       lift
##
  [1] 3.245747
##
  [2] 2.702341
## [3] 2.634783
## [4] 2.549790
## [5] 2.332880
```

```
[1] "Número de reglas con consecuente negado"
##
                                            rhs
        lhs
                                                              support
                                            {backbone=FALSE} 0.1683168
##
  [1]
        {toothed=FALSE,tail=FALSE}
##
   [2]
        {feathers=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
##
   [3]
        {eggs=TRUE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
   [4]
##
        {milk=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
   [5]
##
        {hair=FALSE.tail=FALSE}
                                            {backbone=FALSE} 0.1287129
##
   [6]
        {tail=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
##
   [7]
        {tail=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
##
   [8]
        {aquatic=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1089109
   [9]
        {fins=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
   [10]
       {airborne=FALSE,toothed=FALSE}
                                            {backbone=FALSE} 0.1188119
       {toothed=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
   [11]
                                            {backbone=FALSE} 0.1683168
       {toothed=FALSE,domestic=FALSE}
  [13] {milk=FALSE,toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
   [14]
        {toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
   [15]
       {feathers=FALSE,milk=FALSE}
                                            {backbone=FALSE} 0.1782178
       {feathers=FALSE,eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
                                            {backbone=FALSE} 0.1188119
   [17] {milk=FALSE,aquatic=FALSE}
   [18]
       {feathers=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
##
  [19]
       {milk=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
  [20] {eggs=TRUE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1089109
  [21] {eggs=TRUE,fins=FALSE}
                                            {backbone=FALSE} 0.1683168
       {hair=FALSE, feathers=FALSE}
   [22]
                                            {backbone=FALSE} 0.1386139
  [23] {milk=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
   [24] {fins=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
   [25] {aquatic=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1188119
##
   [26] {milk=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
       {eggs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
  [28] {hair=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1386139
   [29]
        {eggs=TRUE,legs=TRUE}
                                            {backbone=FALSE} 0.1287129
##
   [30]
        {domestic=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
       {legs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1287129
   [32] {milk=FALSE,airborne=FALSE}
                                            {backbone=FALSE} 0.1188119
        {milk=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
##
   Γ341
       {airborne=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1089109
       {eggs=TRUE,airborne=FALSE}
                                            {backbone=FALSE} 0.1089109
       {eggs=TRUE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
##
   [36]
                                            {backbone=FALSE} 0.1683168
##
   [37]
        {eggs=TRUE}
##
   [38]
       {feathers=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
   [39] {hair=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1386139
   [40] {feathers=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
   [41] {feathers=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
  [42] {fins=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
##
  [43] {feathers=FALSE, aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
        {aquatic=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1089109
##
   [45]
        {legs=TRUE,domestic=FALSE}
                                            {backbone=FALSE} 0.1287129
##
   [46]
       {aquatic=FALSE}
                                         => {backbone=FALSE} 0.1188119
##
        confidence lift
##
   [1]
        1.0000000
                   5.611111
   [2]
##
        0.9000000
                   5.050000
##
   [3]
        0.8500000
                   4.769444
##
  [4]
        0.8500000
                   4.769444
## [5]
        0.8125000
                  4.559028
```

```
[6]
        0.8000000
                   4.488889
##
   [7]
        0.6956522
                    3.903382
                    3.857639
   [8]
        0.6875000
   [9]
        0.6800000
##
                    3.815556
##
   [10] 0.6666667
                    3.740741
##
   [11] 0.5483871
                    3.077061
   [12] 0.4722222
                    2.649691
   [13] 0.4615385
                    2.589744
   [14] 0.4500000
                    2.525000
   [15] 0.4500000
                    2.525000
   [16] 0.4358974
                    2.445869
   [17] 0.4000000
                    2.244444
   [18] 0.3953488
                    2.218346
   [19] 0.3829787
                    2.148936
   [20] 0.3793103
                    2.128352
   [21] 0.3695652
                    2.073671
   [22] 0.3684211
                    2.067251
   [23] 0.3541667
                    1.987269
   [24] 0.3541667
                    1.987269
   [25] 0.3529412
                    1.980392
##
   [26] 0.3500000
                    1.963889
   [27] 0.3478261
                    1.951691
   [28] 0.3255814
                    1.826873
   [29] 0.3250000
##
                    1.823611
   [30] 0.3200000
                    1.795556
   [31] 0.3170732
                    1.779133
   [32] 0.3157895
                    1.771930
##
   [33] 0.3090909
                    1.734343
   [34] 0.3055556
                    1.714506
   [35] 0.2972973
                    1.668168
   [36] 0.2962963
                    1.662551
##
   [37] 0.2881356
                    1.616761
   [38] 0.2812500
                    1.578125
   [39] 0.2592593
                    1.454733
   [40] 0.2413793
                    1.354406
##
   [41] 0.2394366
                    1.343505
   [42] 0.2361111
                    1.324846
   [43] 0.2352941
                    1.320261
   [44] 0.2075472
                    1.164570
##
   [45] 0.1969697
                    1.105219
   [46] 0.1846154
                    1.035897
##
        lhs
                                              support
                                                         confidence lift
##
   [1]
        {type=fish}
                             {backbone=TRUE} 0.1287129 1.0000000
                                                                    1.2168675
##
   [2]
                             {backbone=TRUE} 0.1683168 1.0000000
        {fins=TRUE}
                                                                     1.2168675
   [3]
##
        {type=bird}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                     1.2168675
   [4]
                             {backbone=TRUE} 0.1980198 1.0000000
##
        {feathers=TRUE}
                                                                     1.2168675
##
   [5]
        {milk=TRUE}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                     1.2168675
##
   [6]
        {type=mammal}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                     1.2168675
        {toothed=TRUE}
##
   [7]
                             {backbone=TRUE} 0.6039604 1.0000000
                                                                     1.2168675
##
   [8]
        {tail=TRUE}
                             {backbone=TRUE} 0.7326733 0.9866667
                                                                     1.2006426
##
   [9]
                             {backbone=TRUE} 0.4257426 0.9772727
                                                                     1.1892114
        {catsize=TRUE}
  [10] {domestic=TRUE}
                             {backbone=TRUE} 0.1188119 0.9230769
                                                                     1.1232623
## [11] {breathes=TRUE}
                             {backbone=TRUE} 0.6831683 0.8625000
                                                                     1.0495482
                                                                     1.0052383
## [12] {legs=FALSE}
                          => {backbone=TRUE} 0.1881188 0.8260870
```

```
## [13] {legs=TRUE}
                         => {backbone=TRUE} 0.6336634 0.8205128
                                                                  0.9984554
                        => {backbone=TRUE} 0.5247525 0.8153846
  [14] {aquatic=FALSE}
                                                                  0.9922150
  [15] {predator=FALSE} => {backbone=TRUE} 0.3564356 0.8000000
                                                                  0.9734940
## [16] {feathers=FALSE} => {backbone=TRUE} 0.6237624 0.7777778
                                                                  0.9464525
  [17] {airborne=TRUE}
                         => {backbone=TRUE} 0.1782178 0.7500000
                                                                  0.9126506
                         => {backbone=TRUE} 0.4158416 0.7118644
## [18] {eggs=TRUE}
                                                                  0.8662446
  [19] {catsize=FALSE}
                         => {backbone=TRUE} 0.3960396 0.7017544
                                                                  0.8539421
  [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                  0.8112450
##
  [21] {toothed=FALSE} => {backbone=TRUE} 0.2178218 0.5500000
                                                                  0.6692771
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
  [1] {milk=FALSE,legs=TRUE}
                                  => {backbone=FALSE} 0.1386139 0.3500000
   [2] {eggs=TRUE,legs=TRUE}
                                  => {backbone=FALSE} 0.1287129 0.3250000
   [3] {legs=TRUE,catsize=FALSE}
                                  => {backbone=FALSE} 0.1287129 0.3170732
  [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
       lift
## [1] 1.963889
   [2] 1.823611
  [3] 1.779133
  [4] 1.354406
##
   [5] 1.105219
##
       lhs
                                                           support
                                      => {backbone=FALSE} 0.1089109
##
  [1] {aquatic=FALSE,tail=FALSE}
  [2] {milk=FALSE,aquatic=FALSE}
                                         {backbone=FALSE} 0.1188119
  [3] {eggs=TRUE,aquatic=FALSE}
                                      => {backbone=FALSE} 0.1089109
  [4] {aquatic=FALSE, catsize=FALSE}
                                      => {backbone=FALSE} 0.1188119
   [5] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
##
      {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
##
       confidence lift
## [1] 0.6875000 3.857639
##
  [2] 0.4000000
                  2.244444
  [3] 0.3793103
                  2.128352
  [4] 0.3529412
                  1.980392
  [5] 0.2352941
                  1.320261
##
   [6]
      0.2075472
                  1.164570
##
       lhs
                                          rhs
                                                            support
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
## [2] {feathers=FALSE,milk=FALSE}
                                       => {backbone=FALSE} 0.1782178
## [3] {feathers=FALSE,eggs=TRUE}
                                       => {backbone=FALSE} 0.1683168
  [4] {feathers=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
  [5] {hair=FALSE, feathers=FALSE}
                                       => {backbone=FALSE} 0.1386139
  [6] {feathers=FALSE,fins=FALSE}
                                       => {backbone=FALSE} 0.1782178
   [7] {feathers=FALSE,legs=TRUE}
                                       => {backbone=FALSE} 0.1386139
   [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
  [9] {feathers=FALSE, aquatic=FALSE}
                                       => {backbone=FALSE} 0.1188119
##
       confidence lift
## [1] 0.9000000
                  5.050000
  [2] 0.4500000
                  2.525000
  [3] 0.4358974
                  2.445869
## [4] 0.3953488
                  2.218346
## [5] 0.3684211
                  2.067251
## [6] 0.2812500
                  1.578125
## [7] 0.2413793
                  1.354406
## [8] 0.2394366 1.343505
```

```
## [9] 0.2352941 1.320261
##
       lhs
                                      rhs
                                                        support
                                                                  confidence
  [1] {eggs=TRUE,tail=FALSE}
                                   => {backbone=FALSE} 0.1683168 0.8500000
##
  [2] {feathers=FALSE,eggs=TRUE} => {backbone=FALSE} 0.1683168 0.4358974
  [3] {eggs=TRUE,aquatic=FALSE}
                                   => {backbone=FALSE} 0.1089109 0.3793103
  [4] {eggs=TRUE,fins=FALSE}
                                   => {backbone=FALSE} 0.1683168 0.3695652
  [5] {eggs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1584158 0.3478261
  [6] {eggs=TRUE,legs=TRUE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
   [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
##
   [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
       lift
  [1] 4.769444
##
##
   [2] 2.445869
  [3] 2.128352
##
## [4] 2.073671
##
  [5] 1.951691
##
   [6] 1.823611
   [7] 1.668168
   [8] 1.662551
##
##
        lhs
                                           rhs
                                                             support
##
  [1]
        {tail=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
        {toothed=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
  [2]
## [3]
        {feathers=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1683168
##
  [4]
        {milk=FALSE.catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
  [5]
        {fins=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
  [6]
        {aquatic=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1188119
   [7]
        {eggs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
##
##
   [8]
        {domestic=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1584158
##
  [9]
        {legs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1287129
##
   [10] {airborne=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1089109
##
        confidence lift
##
   [1]
        0.8000000
                   4.488889
##
   [2]
        0.5483871
                   3.077061
  [3]
                   2.218346
##
        0.3953488
   [4]
        0.3541667
                   1.987269
##
##
   [5]
        0.3541667
                   1.987269
##
  [6]
        0.3529412
                   1.980392
  [7]
        0.3478261
##
                   1.951691
   [8]
        0.3200000
##
                   1.795556
##
  [9]
        0.3170732
                   1.779133
  [10] 0.3055556
                   1.714506
##
       lhs
                                          rhs
                                                            support
## [1] {toothed=FALSE.tail=FALSE}
                                       => {backbone=FALSE} 0.1683168
  [2] {feathers=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1782178
  [3] {airborne=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1188119
  [4] {toothed=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
   [5] {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
##
   [6] {milk=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
##
       confidence lift
## [1] 1.0000000 5.611111
##
  [2] 0.9000000
                  5.050000
## [3] 0.6666667
                  3.740741
## [4] 0.5483871
                  3.077061
## [5] 0.4722222 2.649691
```

```
[6] 0.4615385 2.589744
   [1] "Número de reglas con consecuente negado"
##
                                                        support
                                                                   confidence
##
  [1]
                                           {eggs=TRUE} 0.1287129 1.0000000
        {type=fish}
        {type=bird}
##
   [2]
                                         => {eggs=TRUE} 0.1980198 1.0000000
##
  [3]
        {feathers=TRUE}
                                         => {eggs=TRUE} 0.1980198 1.0000000
  [4]
        {milk=FALSE.fins=TRUE}
                                         => {eggs=TRUE} 0.1287129 1.0000000
##
  [5]
        {backbone=FALSE, venomous=FALSE} =>
                                           {eggs=TRUE} 0.1386139 1.0000000
##
   [6]
        {breathes=FALSE, venomous=FALSE} =>
                                            {eggs=TRUE} 0.1782178 1.0000000
##
  [7]
        {hair=FALSE,airborne=TRUE}
                                         => {eggs=TRUE} 0.1782178 1.0000000
  [8]
        {milk=FALSE,airborne=TRUE}
                                         => {eggs=TRUE} 0.2178218 1.0000000
##
  [9]
        {hair=FALSE,tail=FALSE}
                                         => {eggs=TRUE} 0.1584158 1.0000000
  [10] {milk=FALSE,tail=FALSE}
                                         => {eggs=TRUE} 0.1980198 1.0000000
## [11] {aquatic=TRUE, toothed=FALSE}
                                         => {eggs=TRUE} 0.1287129 1.0000000
## [12] {toothed=FALSE,backbone=TRUE}
                                         => {eggs=TRUE} 0.2178218 1.0000000
## [13] {milk=FALSE,catsize=TRUE}
                                           {eggs=TRUE} 0.1188119 1.0000000
  [14] {hair=FALSE, predator=FALSE}
                                         => {eggs=TRUE} 0.2178218 1.0000000
  [15] {milk=FALSE,predator=FALSE}
                                         => {eggs=TRUE} 0.2574257 1.0000000
  [16] {milk=FALSE, venomous=FALSE}
                                         => {eggs=TRUE} 0.5148515 1.0000000
## [17] {milk=FALSE,backbone=TRUE}
                                         => {eggs=TRUE} 0.4059406 0.9761905
## [18] {toothed=FALSE}
                                         => {eggs=TRUE} 0.3861386 0.9750000
## [19] {milk=FALSE,legs=TRUE}
                                         => {eggs=TRUE} 0.3861386 0.9750000
## [20] {milk=FALSE,breathes=TRUE}
                                         => {eggs=TRUE} 0.3762376 0.9743590
## [21] {hair=FALSE,legs=TRUE}
                                         => {eggs=TRUE} 0.3465347 0.9722222
## [22] {hair=FALSE,aquatic=FALSE}
                                         => {eggs=TRUE} 0.2475248 0.9615385
## [23] {hair=FALSE, venomous=FALSE}
                                         => {eggs=TRUE} 0.4950495 0.9615385
  [24] {aquatic=TRUE,catsize=FALSE}
                                         => {eggs=TRUE} 0.2178218 0.9565217
## [25] {hair=FALSE,catsize=FALSE}
                                         => {eggs=TRUE} 0.4158416 0.9545455
## [26] {hair=FALSE,fins=FALSE}
                                         => {eggs=TRUE} 0.4059406 0.9534884
## [27] {breathes=FALSE}
                                         => {eggs=TRUE} 0.1980198 0.9523810
## [28] {legs=FALSE,catsize=FALSE}
                                           {eggs=TRUE} 0.1485149 0.9375000
## [29]
       {hair=FALSE}
                                         => {eggs=TRUE} 0.5346535 0.9310345
## [30] {airborne=TRUE}
                                         => {eggs=TRUE} 0.2178218 0.9166667
## [31] {aquatic=TRUE,fins=FALSE}
                                         => {eggs=TRUE} 0.1683168 0.8947368
   [32] {aquatic=TRUE,legs=TRUE}
                                           {eggs=TRUE} 0.1584158 0.8888889
## [33] {predator=TRUE,catsize=FALSE}
                                         => {eggs=TRUE} 0.2376238 0.8571429
## [34] {aquatic=TRUE, venomous=FALSE}
                                           {eggs=TRUE} 0.2673267 0.8437500
## [35] {venomous=FALSE,legs=FALSE}
                                         => {eggs=TRUE} 0.1584158 0.8421053
##
  [36] {aquatic=TRUE}
                                         => {eggs=TRUE} 0.2970297 0.8333333
##
  [37] {legs=FALSE}
                                         => {eggs=TRUE} 0.1881188 0.8260870
  [38] {tail=FALSE,domestic=FALSE}
                                         => {eggs=TRUE} 0.1881188 0.8260870
  [39] {domestic=FALSE,catsize=FALSE}
                                         => {eggs=TRUE} 0.4059406 0.8200000
  [40] {venomous=FALSE, catsize=FALSE}
                                         => {eggs=TRUE} 0.4059406 0.8200000
                                         => {eggs=TRUE} 0.1980198 0.7692308
## [41] {tail=FALSE}
## [42] {fins=TRUE}
                                         => {eggs=TRUE} 0.1287129 0.7647059
  [43] {predator=FALSE,domestic=FALSE} =>
                                           {eggs=TRUE} 0.2079208 0.6176471
   [44] {predator=TRUE}
                                         => {eggs=TRUE} 0.3267327 0.5892857
##
   [45] {catsize=TRUE}
                                         => {eggs=TRUE} 0.1287129 0.2954545
##
        lift
##
   [1]
        1.7118644
##
   [2]
        1.7118644
##
  [3]
        1.7118644
## [4]
        1.7118644
## [5]
       1.7118644
```

```
## [6]
        1.7118644
##
  [7]
        1.7118644
## [8]
        1.7118644
## [9]
        1.7118644
## [10] 1.7118644
## [11] 1.7118644
## [12] 1.7118644
## [13] 1.7118644
## [14] 1.7118644
## [15] 1.7118644
## [16] 1.7118644
## [17] 1.6711057
## [18] 1.6690678
## [19] 1.6690678
## [20] 1.6679704
## [21] 1.6643126
## [22] 1.6460235
## [23] 1.6460235
## [24] 1.6374355
## [25] 1.6340524
## [26] 1.6322428
## [27] 1.6303471
## [28] 1.6048729
## [29] 1.5938048
## [30] 1.5692090
## [31] 1.5316682
## [32] 1.5216573
## [33] 1.4673123
## [34] 1.4443856
## [35] 1.4415700
## [36] 1.4265537
## [37] 1.4141489
## [38] 1.4141489
## [39] 1.4037288
## [40] 1.4037288
## [41] 1.3168188
## [42] 1.3090728
## [43] 1.0573280
## [44] 1.0087772
  [45] 0.5057781
##
##
       lhs
                          rhs
                                        support
                                                  confidence lift
  [1] {milk=TRUE}
                       => {eggs=FALSE} 0.3960396 0.9756098 2.346109
                       => {eggs=FALSE} 0.3960396 0.9756098 2.346109
   [2] {type=mammal}
  [3] {backbone=TRUE} => {eggs=FALSE} 0.4059406 0.4939759 1.187894
##
                                         rhs
                                                                confidence
                                                     support
  [1] {toothed=FALSE,backbone=TRUE} => {eggs=TRUE} 0.2178218 1.0000000
                                     => {eggs=TRUE} 0.4059406 0.9761905
   [2] {milk=FALSE,backbone=TRUE}
##
##
       lift
## [1] 1.711864
  [2] 1.671106
##
       "Número de reglas con consecuente negado"
##
                                                        support
## [1]
        {type=fish}
                                         => {fins=TRUE} 0.1287129 1.0000000
## [2]
       {toothed=TRUE,breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
```

```
[3]
        {breathes=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.9285714
##
   [4]
                                           {fins=TRUE} 0.1287129 0.9285714
        {backbone=TRUE, breathes=FALSE}
##
   [5]
        {aquatic=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1584158 0.8888889
   [6]
        {toothed=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1584158 0.8421053
##
        {backbone=TRUE,legs=FALSE}
##
   [7]
                                           {fins=TRUE} 0.1584158 0.8421053
   [8]
##
        {legs=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.8333333
  [9]
        {breathes=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1287129 0.8125000
  [10]
       {venomous=FALSE,legs=FALSE}
                                           {fins=TRUE} 0.1485149 0.7894737
  Γ117
       {aquatic=TRUE, toothed=TRUE}
                                           {fins=TRUE} 0.1683168 0.7391304
   [12] {predator=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1188119 0.7058824
  [13] {breathes=FALSE, venomous=FALSE} =>
                                           {fins=TRUE} 0.1188119 0.6666667
   [14] {hair=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1485149 0.6521739
       {aquatic=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6500000
  [15]
  [16] {eggs=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6500000
                                         => {fins=TRUE} 0.1287129 0.6190476
  [17] {breathes=FALSE}
  [18]
        {milk=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.6190476
                                         => {fins=TRUE} 0.1584158 0.6153846
  [19]
       {aquatic=TRUE,tail=TRUE}
  [20] {feathers=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
  [21] {aquatic=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
  [22] {airborne=FALSE,aquatic=TRUE}
                                           {fins=TRUE} 0.1683168 0.5483871
## [23] {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
## [24] {hair=FALSE, feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
                                         => {fins=TRUE} 0.1485149 0.3750000
## [25] {hair=FALSE,airborne=FALSE}
  [26] {hair=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1485149 0.3571429
  [27] {predator=TRUE, toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.3513514
  [28] {eggs=TRUE,airborne=FALSE}
                                           {fins=TRUE} 0.1287129 0.3513514
  [29] {milk=FALSE,airborne=FALSE}
                                           {fins=TRUE} 0.1287129 0.3421053
  [30] {hair=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1485149 0.3409091
  [31] {eggs=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
  [32] {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
   [33]
       {milk=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.3250000
  [34]
       {feathers=FALSE,milk=FALSE}
                                           {fins=TRUE} 0.1287129 0.3250000
  [35] {eggs=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.3095238
                                         => {fins=TRUE} 0.1287129 0.3095238
  [36] {milk=FALSE,backbone=TRUE}
   [37] {toothed=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.3076923
##
  [38] {toothed=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.3076923
  [39] {hair=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1089109 0.3055556
## [40] {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
## [41] {airborne=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1683168 0.2881356
  [42] {predator=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1188119 0.2857143
  [43] {toothed=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1584158 0.2807018
  [44] {airborne=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.2807018
## [45] {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
## [46] {predator=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
## [47] {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
## [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
  [49]
       {airborne=FALSE,predator=TRUE}
                                           {fins=TRUE} 0.1287129 0.2653061
  [50] {airborne=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2615385
  [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
  [52]
       {hair=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2586207
                                         => {fins=TRUE} 0.1188119 0.2400000
##
  [53]
       {predator=TRUE, venomous=FALSE}
## [54] {airborne=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2352941
## [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
## [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
```

```
## [57] {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
                                         => {fins=TRUE} 0.1188119 0.2264151
  [58] {eggs=TRUE, venomous=FALSE}
  [59] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
## [60] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
## [61] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
## [62] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
## [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
  [64] {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
   [65] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
   [66] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
  [1]
        5.941176
##
##
  [2]
        5.516807
## [3]
        5.516807
## [4]
        5.516807
## [5]
        5.281046
##
  [6]
        5.003096
  [7]
        5.003096
  [8]
##
        4.950980
  [9]
        4.827206
## [10] 4.690402
## [11] 4.391304
## [12] 4.193772
## [13] 3.960784
## [14] 3.874680
## [15] 3.861765
## [16] 3.861765
## [17] 3.677871
## [18] 3.677871
## [19] 3.656109
## [20] 3.366667
## [21] 3.366667
## [22] 3.258065
## [23] 2.970588
## [24] 2.345201
## [25] 2.227941
## [26] 2.121849
## [27] 2.087440
## [28] 2.087440
## [29] 2.032508
## [30] 2.025401
## [31] 1.980392
## [32] 1.980392
## [33] 1.930882
## [34] 1.930882
## [35] 1.838936
## [36] 1.838936
## [37] 1.828054
## [38] 1.828054
## [39] 1.815359
## [40] 1.728342
## [41] 1.711864
## [42] 1.697479
## [43] 1.667699
```

```
## [44] 1.667699
  [45] 1.643304
  [46] 1.643304
  [47] 1.603175
  [48] 1.599548
##
  [49] 1.576230
  [50] 1.553846
  [51] 1.540305
   [52] 1.536511
   [53] 1.425882
  [54] 1.397924
   [55] 1.383562
##
   [56] 1.371041
   [57] 1.371041
  [58] 1.345172
   [59] 1.338857
##
   [60] 1.338857
   [61] 1.338857
##
   [62] 1.320261
   [63] 1.302176
##
   [64] 1.296257
   [65] 1.284579
##
   [66] 1.100218
##
        lhs
                                          support
                                                     confidence lift
                             rhs
                                                               1.2023810
##
  [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000
        {type=bird}
   [2]
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
   [3]
                          => {fins=FALSE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                                1.2023810
##
   [4]
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
                                                                1.2023810
##
   [5]
        {toothed=FALSE}
                          => {fins=FALSE} 0.3960396 1.0000000
                                                                1.2023810
##
  [6]
        {legs=TRUE}
                          => {fins=FALSE} 0.7623762 0.9871795
                                                                1.1869658
##
  [7]
        {hair=TRUE}
                          => {fins=FALSE} 0.4059406 0.9534884
                                                                1.1464563
##
   [8]
        {breathes=TRUE}
                          => {fins=FALSE} 0.7524752 0.9500000
                                                                1.1422619
  [9]
        {domestic=TRUE}
                          => {fins=FALSE} 0.1188119 0.9230769
                                                                1.1098901
       {predator=FALSE} => {fins=FALSE} 0.4059406 0.9111111
  [10]
                                                                1.0955026
       {eggs=FALSE}
                          => {fins=FALSE} 0.3762376 0.9047619
   [11]
                                                                1.0878685
  [12] {milk=TRUE}
                          => {fins=FALSE} 0.3663366 0.9024390
##
                                                                1.0850755
  [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
## [14] {catsize=FALSE}
                          => {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
  [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
                          => {fins=FALSE} 0.3564356 0.8181818
  [16] {catsize=TRUE}
                                                                0.9837662
  [17] {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                0.9837662
  [18] {backbone=TRUE}
                          => {fins=FALSE} 0.6534653 0.7951807
                                                                0.9561102
  [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
## [20] {tail=TRUE}
                          => {fins=FALSE} 0.5841584 0.7866667
                                                                0.9458730
## [21] {eggs=TRUE}
                          => {fins=FALSE} 0.4554455 0.7796610
                                                                0.9374496
        {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
  [22]
                                                                0.9369202
##
  [23]
       {predator=TRUE}
                          => {fins=FALSE} 0.4257426 0.7678571
                                                                0.9232568
  [24]
       {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
                                                                0.8914204
   [25] {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115
                                                                0.8672912
##
   [26]
       {aquatic=TRUE}
                          => {fins=FALSE} 0.1881188 0.5277778
                                                                0.6345899
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
## [1]
        {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
  [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
## [3]
        {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
```

```
## [4]
        {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
  [5]
                                         => {fins=TRUE} 0.1386139 0.2692308
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
  [6]
        {predator=TRUE, venomous=FALSE}
  [7]
        {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
##
        {eggs=TRUE, venomous=FALSE}
##
   [8]
                                         => {fins=TRUE} 0.1188119 0.2264151
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
  [9]
  [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
  [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
##
  [1]
        4.690402
  [2]
        3.960784
   [3]
##
        2.970588
##
   [4]
        1.667699
        1.599548
##
  [5]
  [6]
##
        1.425882
##
   [7]
        1.371041
  [8]
##
        1.345172
  [9]
        1.338857
##
  [10] 1.302176
   [11] 1.100218
##
       lhs
                                                                  confidence
                                           rhs
                                                        support
## [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
## [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
## [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
## [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
  [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
                                        => {fins=TRUE} 0.1188119 0.2181818
  [8] {milk=FALSE,domestic=FALSE}
  [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
       lift
## [1] 1.828054
  [2] 1.540305
## [3] 1.397924
   [4] 1.371041
##
  [5] 1.338857
  [6] 1.338857
## [7] 1.320261
  [8] 1.296257
  [9] 1.100218
##
##
        lhs
                                           rhs
                                                        support
                                                                  confidence
        {backbone=TRUE, breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
##
  [1]
##
  [2]
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
##
  [3]
        {aquatic=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
## [4]
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
## [5]
                                        => {fins=TRUE} 0.1287129 0.3095238
        {eggs=TRUE,backbone=TRUE}
##
  [6]
        {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
##
  [7]
        {predator=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
  [8]
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
   [9]
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
  [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
  [11] {backbone=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
        lift
## [1] 5.516807
```

```
## [2]
        5.003096
##
   [3]
        3.366667
##
   [4]
        2.025401
   [5]
        1.838936
##
##
   [6]
        1.838936
##
   [7]
        1.643304
   [8]
        1.603175
   [9]
##
        1.553846
   [10] 1.338857
##
   [11] 1.284579
##
        lhs
                                                                    confidence
                                             rhs
                                                          support
                                            {fins=TRUE} 0.1683168 0.5666667
##
   [1]
        {feathers=FALSE, aquatic=TRUE}
##
   [2]
        {hair=FALSE, feathers=FALSE}
                                          => {fins=TRUE} 0.1485149 0.3947368
   [3]
##
        {feathers=FALSE,eggs=TRUE}
                                          => {fins=TRUE} 0.1287129 0.3333333
##
  [4]
        {feathers=FALSE,milk=FALSE}
                                          => {fins=TRUE} 0.1287129 0.3250000
##
   [5]
        {feathers=FALSE,tail=TRUE}
                                            {fins=TRUE} 0.1584158 0.2909091
   [6]
                                          => {fins=TRUE} 0.1287129 0.2765957
##
        {feathers=FALSE,predator=TRUE}
   [7]
        {feathers=FALSE,backbone=TRUE}
                                          => {fins=TRUE} 0.1683168 0.2698413
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
##
   [8]
   [9]
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
   Γ107
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
  [1]
        3.366667
##
   [2]
        2.345201
##
   [3]
##
        1.980392
   [4]
        1.930882
   [5]
##
        1.728342
##
   [6]
        1.643304
##
   [7]
        1.603175
##
   [8]
        1.383562
##
   [9]
        1.338857
##
   [10] 1.302176
##
        lhs
                                                               confidence
                                                    support
##
   [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
##
   [2]
        {legs=FALSE,tail=TRUE}
                                     => {fins=TRUE} 0.1485149 0.8333333
##
   [3]
                                     => {fins=TRUE} 0.1584158 0.6153846
        {aquatic=TRUE,tail=TRUE}
##
   [4]
        {hair=FALSE,tail=TRUE}
                                     => {fins=TRUE} 0.1485149 0.3571429
##
   [5]
        {eggs=TRUE,tail=TRUE}
                                     => {fins=TRUE} 0.1287129 0.3333333
   [6]
        {milk=FALSE,tail=TRUE}
                                     => {fins=TRUE} 0.1287129 0.3250000
##
        {toothed=TRUE,tail=TRUE}
                                     => {fins=TRUE} 0.1584158 0.3076923
##
   [7]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
   [8]
   [9]
        {predator=TRUE, tail=TRUE} => {fins=TRUE} 0.1188119 0.2857143
##
   [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
   [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
   [12] {backbone=TRUE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
##
        lift
## [1]
        5.516807
   [2]
##
        4.950980
##
   [3]
        3.656109
##
   [4]
        2.121849
##
   [5]
        1.980392
##
  [6]
        1.930882
## [7]
        1.828054
## [8]
        1.728342
```

```
## [9]
        1.697479
  [10] 1.667699
  [11] 1.371041
##
  [12] 1.284579
       lhs
                                      rhs
                                                  support
                                                            confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {fins=TRUE} 0.1287129 0.6500000
## [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
## [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
  [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
  [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
   [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
##
       lift
## [1] 3.861765
## [2] 2.087440
## [3] 1.980392
##
  [4] 1.980392
  [5] 1.838936
  [6] 1.345172
##
  [7] 1.320261
##
        lhs
                                                                   confidence
                                            rhs
                                                        support
        {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
## [1]
## [2]
                                         => {fins=TRUE} 0.1485149 0.3750000
        {hair=FALSE,airborne=FALSE}
##
  [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
##
  ۲4٦
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
  [5]
        {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
  [6]
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
##
  [7]
        {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
  [8]
                                         => {fins=TRUE} 0.1683168 0.2615385
        {airborne=FALSE,backbone=TRUE}
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
##
   [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
        lift
  [1]
        3.258065
##
##
   [2]
        2.227941
##
   [3]
        2.087440
##
  ۲4٦
        2.032508
##
  [5]
        1.711864
   [6]
##
        1.667699
##
  [7]
        1.576230
  [8]
        1.553846
  [9]
##
        1.397924
##
  [10] 1.383562
##
  [11] 1.338857
##
       lhs
                                                      support
                                                                 confidence
                                       => {fins=TRUE} 0.1188119 0.7058824
## [1] {predator=TRUE,legs=FALSE}
  [2] {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
  [3] {hair=FALSE,predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
  [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
  [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
                                      => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE,backbone=TRUE}
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
## [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift
```

```
## [1] 4.193772
  [2] 2.087440
  [3] 1.815359
  [4] 1.697479
   [5] 1.643304
##
  [6] 1.643304
  [7] 1.576230
## [8] 1.425882
##
       lhs
                                       rhs
                                                    support
                                                              confidence
##
  [1] {hair=FALSE,toothed=TRUE}
                                    => {fins=TRUE} 0.1485149 0.6521739
  [2] {hair=FALSE, feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
  [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
  [4] {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
                                    => {fins=TRUE} 0.1485149 0.3409091
## [5] {hair=FALSE,backbone=TRUE}
## [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
   [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
   [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
##
       lift
## [1] 3.874680
   [2] 2.345201
##
  [3] 2.227941
  [4] 2.121849
  [5] 2.025401
##
##
   [6] 1.815359
##
  [7] 1.599548
##
   [8] 1.540305
##
        lhs
                                          rhs
                                                       support
                                                                 confidence
##
  [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
  [2]
##
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
##
  [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
## [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
##
   [5]
        {eggs=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
##
  [6]
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
##
  [7]
        {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
   [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
##
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
##
  [9]
  [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
  [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
##
        lift
##
  [1]
        5.516807
  [2]
        5.003096
  [3]
        4.391304
##
##
   [4]
        3.874680
##
   [5]
        3.861765
##
  [6]
        3.677871
  [7]
        2.087440
##
##
  [8]
        1.828054
##
  [9]
        1.828054
  [10] 1.711864
##
   [11] 1.667699
##
       lhs
                                         rhs
                                                      support
                                                                confidence
## [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
## [2] {aquatic=TRUE,toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
## [3] {aquatic=TRUE, breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
```

```
## [4] {aguatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
  [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [6] {aquatic=TRUE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
   [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
##
   [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
  [1] 5.281046
##
  [2] 4.391304
   [3] 3.861765
   [4] 3.656109
  [5] 3.366667
##
   [6] 3.366667
##
   [7] 3.258065
   [8] 2.970588
##
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
        lhs
                                                            support
##
                                         => {feathers=TRUE} 0.1980198
  [1]
        {type=bird}
   [2]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [3]
                                         => {feathers=TRUE} 0.1584158
##
        {hair=FALSE,airborne=TRUE}
##
   [4]
        {airborne=TRUE, tail=TRUE}
                                           {feathers=TRUE} 0.1584158
##
   [5]
        {airborne=TRUE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1584158
                                           {feathers=TRUE} 0.1980198
  [6]
        {toothed=FALSE,tail=TRUE}
  [7]
##
        {airborne=TRUE, toothed=FALSE}
                                           {feathers=TRUE} 0.1584158
                                            {feathers=TRUE} 0.1584158
##
  [8]
        {eggs=TRUE,airborne=TRUE}
  [9]
        {milk=FALSE,airborne=TRUE}
                                           {feathers=TRUE} 0.1584158
  [10] {airborne=TRUE, venomous=FALSE}
                                           {feathers=TRUE} 0.1584158
  [11] {toothed=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
  [12] {hair=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
## [13] {toothed=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
## [14] {toothed=FALSE, venomous=FALSE}
                                        => {feathers=TRUE} 0.1980198
  [15] {hair=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
  [16] {hair=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
  [17] {hair=FALSE,aquatic=FALSE}
                                           {feathers=TRUE} 0.1386139
  [18] {predator=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1089109
   [19] {aguatic=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1386139
  [20] {eggs=TRUE,toothed=FALSE}
                                           {feathers=TRUE} 0.1980198
  [21] {milk=FALSE,toothed=FALSE}
                                           {feathers=TRUE} 0.1980198
## [22] {eggs=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
  [23] {eggs=TRUE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
  [24] {milk=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
  [25] {hair=FALSE,predator=FALSE}
                                           {feathers=TRUE} 0.1089109
  [26] {eggs=TRUE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
  [27] {milk=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1980198
  [28] {milk=FALSE,legs=TRUE}
## [29] {eggs=TRUE,aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
## [30] {hair=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [31] {eggs=TRUE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
  [32] {milk=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [33] {milk=FALSE,aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
  [34] {hair=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [35]
       {hair=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [36] {eggs=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [37] {milk=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [38] {eggs=TRUE,predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
```

```
## [39] {milk=FALSE,predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
   [40] {hair=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
  [41] {milk=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
  [42] {tail=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
       {eggs=TRUE, venomous=FALSE}
##
  [43]
                                            {feathers=TRUE} 0.1980198
  [44]
       {hair=FALSE,eggs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
       {hair=FALSE,milk=FALSE}
  Г45Т
                                            {feathers=TRUE} 0.1980198
  [46] {legs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [47]
       {backbone=TRUE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [48]
       {hair=FALSE}
                                            {feathers=TRUE} 0.1980198
  [49] {eggs=TRUE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
   [50] {legs=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [51] {breathes=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
       {fins=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [52]
                                            {feathers=TRUE} 0.1089109
   [53]
       {predator=FALSE,tail=TRUE}
   [54]
        {breathes=TRUE, tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [55]
        {backbone=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [56] {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
   [57] {backbone=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [58] {fins=FALSE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [59]
##
       {backbone=TRUE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
       {aquatic=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1386139
  [60]
       {predator=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1089109
   [61]
                                            {feathers=TRUE} 0.1980198
##
   [62]
        {venomous=FALSE.tail=TRUE}
##
   [63]
        {venomous=FALSE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   Γ641
       {breathes=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
        {backbone=TRUE, tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [65]
##
   [66]
       {venomous=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [67]
        {predator=FALSE, breathes=TRUE}
                                            {feathers=TRUE} 0.1089109
       {predator=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1089109
   [68]
   [69]
        {breathes=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [70]
       {aquatic=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1386139
   [71] {breathes=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [72] {fins=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
        {venomous=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [73]
##
   [74] {legs=TRUE,domestic=FALSE}
                                            {feathers=TRUE} 0.1683168
  [75] {predator=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1089109
  [76] {backbone=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
       {aquatic=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   [77]
##
   [78]
       {aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
                                         => {feathers=TRUE} 0.1980198
   [79]
       {venomous=FALSE}
   [08]
                                         => {feathers=TRUE} 0.1683168
##
       {domestic=FALSE}
##
        confidence lift
##
   [1]
        1.0000000
                   5.0500000
##
   [2]
        0.9090909
                   4.5909091
   [3]
##
        0.888889
                   4.4888889
##
   [4]
        0.888889
                   4.4888889
##
   [5]
        0.8888889
                   4.4888889
##
   [6]
        0.8695652
                   4.3913043
##
   [7]
        0.7272727
                   3.6727273
##
   [8]
                   3.6727273
        0.7272727
##
  [9]
        0.7272727
                   3.6727273
## [10] 0.7272727
                   3.6727273
## [11] 0.6060606
                   3.0606061
```

```
## [12] 0.5714286
                   2.8857143
  [13] 0.5555556
                   2.8055556
  [14] 0.5555556
                   2.8055556
  [15] 0.5555556
                   2.8055556
  [16] 0.5405405
                   2.7297297
  [17] 0.5384615
                   2.7192308
                   2.6452381
  [18] 0.5238095
  [19] 0.5185185
                   2.6185185
   [20] 0.5128205
                   2.5897436
   [21] 0.5128205
                   2.5897436
   [22] 0.5128205
                   2.5897436
   [23] 0.5128205
                   2.5897436
   [24] 0.5128205
                   2.5897436
   [25] 0.5000000
                   2.5250000
  [26] 0.5000000
                   2.5250000
   [27] 0.5000000
                   2.5250000
   [28] 0.5000000
                   2.5250000
   [29] 0.4827586
                   2.4379310
                   2.4047619
   [30] 0.4761905
   [31] 0.4761905
                   2.4047619
##
  [32] 0.4761905
                   2.4047619
  [33] 0.4666667
                   2.3566667
##
  [34] 0.4651163
                   2.3488372
   [35] 0.4545455
##
                   2.2954545
   [36] 0.4347826
                   2.1956522
   [37] 0.4255319
                   2.1489362
   [38] 0.4230769
                   2.1365385
##
   [39] 0.4230769
                   2.1365385
  [40] 0.3846154
                   1.9423077
  [41] 0.3846154
                   1.9423077
   [42] 0.3783784
                   1.9108108
##
   [43] 0.3773585
                   1.9056604
   [44] 0.3703704
                   1.8703704
   [45] 0.3571429
                   1.8035714
   [46] 0.3508772
                   1.7719298
##
  [47] 0.3500000
                   1.7675000
  [48] 0.3448276
                   1.7413793
  [49] 0.3448276
                   1.7413793
   [50] 0.3414634
##
                   1.7243902
##
   [51] 0.3414634
                   1.7243902
   [52] 0.3389831
                   1.7118644
   [53] 0.3333333
                   1.6833333
   [54] 0.3278689
                   1.6557377
##
   [55] 0.3125000
                   1.5781250
  [56] 0.3055556
                   1.5430556
   [57] 0.3030303
                   1.5303030
##
   [58] 0.2916667
                   1.4729167
   [59] 0.2898551
                   1.4637681
   [60] 0.2857143
                   1.4428571
   [61] 0.2820513
                   1.4243590
##
   [62] 0.2816901
                   1.4225352
  [63] 0.2800000
                   1.4140000
## [64] 0.2739726
                   1.3835616
## [65] 0.2702703 1.3648649
```

```
[66] 0.2702703
                   1.3648649
   [67] 0.2682927
                   1.3548780
   [68] 0.2682927
                   1.3548780
  [69] 0.2666667
                   1.3466667
   [70] 0.2641509
                   1.3339623
  [71] 0.2631579
                   1.3289474
  [72] 0.2597403
                   1.3116883
  [73] 0.2597403
                   1.3116883
   [74] 0.2575758
                   1.3007576
   [75] 0.2558140
                   1.2918605
  [76] 0.2531646
                   1.2784810
   [77] 0.2295082
                   1.1590164
   [78] 0.2153846
                   1.0876923
  [79] 0.2150538
                   1.0860215
   [80] 0.1931818
##
                  0.9755682
##
        lhs
                                                         confidence lift
                                               support
##
  [1]
                         => {feathers=FALSE} 0.1287129 1.0000000 1.2469136
        {type=fish}
   [2]
        {fins=TRUE}
                          => {feathers=FALSE} 0.1683168 1.0000000
        {backbone=FALSE} \Rightarrow {feathers=FALSE} 0.1782178 1.0000000
   [3]
##
                                                                    1.2469136
##
   [4]
        {breathes=FALSE} => {feathers=FALSE} 0.2079208 1.0000000
                                                                    1.2469136
##
  [5]
        {legs=FALSE}
                          => {feathers=FALSE} 0.2277228 1.0000000
                                                                    1.2469136
  [6]
                          => {feathers=FALSE} 0.2574257 1.0000000
##
        {tail=FALSE}
                                                                    1.2469136
  [7]
                          => {feathers=FALSE} 0.4158416 1.0000000
##
        {eggs=FALSE}
                                                                    1.2469136
  [8]
                          => {feathers=FALSE} 0.4257426 1.0000000
##
        {hair=TRUE}
                                                                    1.2469136
## [9]
        {airborne=FALSE} => {feathers=FALSE} 0.7227723 0.9480519
                                                                    1.1821388
  [10] {catsize=TRUE}
                          => {feathers=FALSE} 0.3762376 0.8636364
                                                                    1.0768799
  [11] {predator=TRUE}
                         => {feathers=FALSE} 0.4653465 0.8392857
                                                                    1.0465168
##
  [12] {aquatic=TRUE}
                          => {feathers=FALSE} 0.2970297 0.8333333
                                                                    1.0390947
                          => {feathers=FALSE} 0.5049505 0.7846154
  [13] {aquatic=FALSE}
                                                                    0.9783476
  [14] {predator=FALSE} => {feathers=FALSE} 0.3366337 0.7555556
                                                                    0.9421125
  [15] {catsize=FALSE}
                         => {feathers=FALSE} 0.4257426 0.7543860
                                                                    0.9406541
##
  [16]
       {breathes=TRUE}
                         => {feathers=FALSE} 0.5940594 0.7500000
                                                                    0.9351852
   [17] {legs=TRUE}
                          => {feathers=FALSE} 0.5742574 0.7435897
                                                                    0.9271921
  [18] {milk=FALSE}
                          => {feathers=FALSE} 0.3960396 0.6666667
                                                                    0.8312757
                          => {feathers=FALSE} 0.3861386 0.6610169
   [19] {eggs=TRUE}
                                                                    0.8242310
                          => {feathers=FALSE} 0.3762376 0.6551724
##
  [20] {hair=FALSE}
                                                                    0.8169434
##
  [21] {toothed=FALSE}
                         => {feathers=FALSE} 0.1980198 0.5000000
                                                                    0.6234568
##
       lhs
                                                           support
                                                                     confidence
                                          rhs
  [1] {hair=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5384615
##
   [2] {aquatic=FALSE, toothed=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5185185
  [3] {eggs=TRUE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4827586
   [4] {milk=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
   [5] {aquatic=FALSE,tail=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2857143
   [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
##
  [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
       lift
## [1] 2.719231
   [2] 2.618519
  [3] 2.437931
   [4] 2.356667
##
   [5] 1.442857
## [6] 1.333962
## [7] 1.159016
##
        lhs
                                                             support
                                            rhs
```

```
{predator=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1089109
                                         => {feathers=TRUE} 0.1089109
##
   [2]
        {hair=FALSE, predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
   [3]
        {eggs=TRUE, predator=FALSE}
   [4]
        {milk=FALSE,predator=FALSE}
                                          => {feathers=TRUE} 0.1089109
##
##
   [5]
        {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [6]
        {predator=FALSE, backbone=TRUE}
                                         => {feathers=TRUE} 0.1089109
        {predator=FALSE,legs=TRUE}
   [7]
                                          => {feathers=TRUE} 0.1089109
##
   [8]
        {predator=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1089109
##
   [9]
        {predator=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1089109
##
   [10] {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
        confidence lift
                   2.645238
##
   [1]
        0.5238095
##
   [2]
        0.5000000
                   2.525000
##
   [3]
        0.4230769
                   2.136538
  ۲4٦
        0.4230769
##
                   2.136538
##
   [5]
        0.3333333
                    1.683333
                   1.543056
##
   [6]
        0.3055556
   [7]
        0.2820513
                   1.424359
   [8]
##
        0.2682927
                    1.354878
   [9]
        0.2682927
                    1.354878
##
   [10] 0.2558140
                   1.291860
##
                                                           support
                                                                      confidence
                                        => {feathers=TRUE} 0.1386139 0.3783784
##
  [1] {tail=TRUE,catsize=FALSE}
   [2] {backbone=TRUE, catsize=FALSE}
                                          {feathers=TRUE} 0.1386139 0.3500000
   [3] {legs=TRUE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.3414634
   [4] {breathes=TRUE, catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
   [5] {fins=FALSE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.2916667
##
   [6] {venomous=FALSE, catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
       lift
## [1] 1.910811
## [2] 1.767500
##
   [3] 1.724390
   [4] 1.724390
   [5] 1.472917
##
   [6] 1.414000
##
        lhs
                                            rhs
                                                            support
  [1]
        {toothed=FALSE, breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
## [2]
        {hair=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
        {eggs=TRUE,breathes=TRUE}
  [3]
                                         => {feathers=TRUE} 0.1980198
##
  [4]
        {milk=FALSE,breathes=TRUE}
##
                                        => {feathers=TRUE} 0.1980198
   [5]
        {breathes=TRUE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139
   [6]
        {breathes=TRUE,tail=TRUE}
                                        => {feathers=TRUE} 0.1980198
##
##
   [7]
        {backbone=TRUE, breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
##
   [8]
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
       {breathes=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198
##
   [11]
       {breathes=TRUE,fins=FALSE}
                                        => {feathers=TRUE} 0.1980198
##
        confidence lift
##
  [1]
        0.6060606 3.060606
##
   [2]
        0.5405405
                   2.729730
   [3]
##
        0.5128205
                   2.589744
## [4]
        0.5128205
                   2.589744
## [5]
        0.3414634
                   1.724390
## [6]
        0.3278689
                   1.655738
```

```
[7]
        0.2898551
                    1.463768
##
   [8]
        0.2739726
                    1.383562
   [9]
        0.2682927
                    1.354878
   [10] 0.2666667
                    1.346667
##
   [11]
        0.2631579
                    1.328947
##
        lhs
                                        rhs
                                                         support
                                                                   confidence
##
   [1]
        {toothed=FALSE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5555556
##
   [2]
        {hair=FALSE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5555556
##
   [3]
        {eggs=TRUE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5000000
   [4]
##
        {milk=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
   [5]
        {legs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3508772
   [6]
                                    => {feathers=TRUE} 0.1386139 0.3414634
##
        {legs=TRUE,catsize=FALSE}
##
   [7]
        {backbone=TRUE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.3125000
        {predator=FALSE,legs=TRUE}
##
   [8]
                                       {feathers=TRUE} 0.1089109 0.2820513
        {breathes=TRUE,legs=TRUE}
##
   [9]
                                     => {feathers=TRUE} 0.1980198 0.2739726
   [10] {venomous=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.2702703
##
        {fins=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2597403
   [11]
   [12] {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
##
        lift
##
   [1]
        2.805556
##
   [2]
        2.805556
   [3]
##
        2.525000
   [4]
        2.525000
##
##
   [5]
        1.771930
##
   [6]
        1.724390
   [7]
        1.578125
   [8]
##
        1.424359
##
   [9]
        1.383562
##
   [10] 1.364865
   [11] 1.311688
##
   [12] 1.300758
##
        lhs
                                         rhs
                                                          support
                                                                    confidence
##
   [1]
        {milk=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.7272727
   [2]
                                      => {feathers=TRUE} 0.1980198 0.5128205
##
        {milk=FALSE,toothed=FALSE}
   [3]
        {milk=FALSE,breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
##
   [4]
##
        {milk=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
   [5]
        {milk=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
   [6]
        {milk=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
##
   [7]
        {milk=FALSE,aquatic=FALSE}
                                         {feathers=TRUE} 0.1386139 0.4666667
##
                                      => {feathers=TRUE} 0.1980198 0.4255319
##
   [8]
        {milk=FALSE,fins=FALSE}
        {milk=FALSE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
       {milk=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
   [10]
##
   Γ117
       {hair=FALSE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3571429
                                      => {feathers=TRUE} 0.1980198 0.3448276
##
       {eggs=TRUE,milk=FALSE}
   [12]
##
        lift
   [1]
##
        3.672727
##
   [2]
        2.589744
##
   [3]
        2.589744
##
   [4]
        2.525000
##
   [5]
        2.525000
##
   [6]
        2.404762
##
   [7]
        2.356667
## [8]
        2.148936
## [9]
        2.136538
```

```
## [10] 1.942308
   [11] 1.803571
   [12] 1.741379
##
        lhs
                                        rhs
                                                         support
                                                                   confidence
##
   [1]
        {eggs=TRUE,airborne=TRUE}
                                       {feathers=TRUE} 0.1584158 0.7272727
                                       {feathers=TRUE} 0.1980198 0.5128205
##
   [2]
        {eggs=TRUE,toothed=FALSE}
##
   [3]
        {eggs=TRUE,tail=TRUE}
                                        {feathers=TRUE} 0.1980198 0.5128205
##
   [4]
        {eggs=TRUE,breathes=TRUE}
                                        {feathers=TRUE} 0.1980198 0.5128205
##
   [5]
        {eggs=TRUE,legs=TRUE}
                                        {feathers=TRUE} 0.1980198 0.5000000
##
   [6]
        {eggs=TRUE,aquatic=FALSE}
                                        {feathers=TRUE} 0.1386139 0.4827586
   [7]
        {eggs=TRUE,backbone=TRUE}
                                       {feathers=TRUE} 0.1980198 0.4761905
                                       {feathers=TRUE} 0.1980198 0.4347826
##
   [8]
        {eggs=TRUE,fins=FALSE}
##
   [9]
        {eggs=TRUE,predator=FALSE} =>
                                       {feathers=TRUE} 0.1089109 0.4230769
   [10] {eggs=TRUE, venomous=FALSE} =>
                                        {feathers=TRUE} 0.1980198 0.3773585
                                     => {feathers=TRUE} 0.1980198 0.3703704
   [11]
       {hair=FALSE,eggs=TRUE}
##
   [12] {eggs=TRUE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3448276
##
        lift
##
   [1]
        3.672727
   [2]
##
        2.589744
##
   [3]
        2.589744
##
   [4]
        2.589744
   [5]
        2.525000
##
   [6]
        2.437931
##
##
   [7]
        2.404762
##
   [8]
        2.195652
   [9]
        2.136538
##
   [10] 1.905660
##
   [11] 1.870370
##
   [12] 1.741379
##
        lhs
                                         rhs
                                                          support
                                                                    confidence
##
  [1]
        {hair=FALSE,airborne=TRUE}
                                     => {feathers=TRUE} 0.1584158 0.8888889
##
   [2]
        {hair=FALSE,toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5714286
##
   [3]
        {hair=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5555556
   [4]
                                      => {feathers=TRUE} 0.1980198 0.5405405
##
        {hair=FALSE,breathes=TRUE}
   [5]
        {hair=FALSE,aquatic=FALSE}
                                         {feathers=TRUE} 0.1386139 0.5384615
##
                                     => {feathers=TRUE} 0.1089109 0.5000000
##
   [6]
        {hair=FALSE, predator=FALSE}
   [7]
        {hair=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
   [8]
        {hair=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4651163
##
        {hair=FALSE,backbone=TRUE}
                                         {feathers=TRUE} 0.1980198 0.4545455
##
   [9]
                                     => {feathers=TRUE} 0.1980198 0.3846154
##
   [10] {hair=FALSE, venomous=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3703704
   [11] {hair=FALSE,eggs=TRUE}
   [12] {hair=FALSE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3571429
##
##
        lift
##
   [1]
        4.488889
   [2]
##
        2.885714
   [3]
        2.805556
##
##
   [4]
        2.729730
##
   [5]
        2.719231
##
   [6]
        2.525000
##
   [7]
        2.404762
##
   [8]
        2.348837
##
  [9]
        2.295455
## [10] 1.942308
## [11] 1.870370
```

```
[12] 1.803571
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [2]
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
##
   [3]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
   [4]
##
        {toothed=FALSE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [5]
        {hair=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
   [6]
        {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [7]
        {toothed=FALSE, venomous=FALSE} =>
                                            {feathers=TRUE} 0.1980198
##
   [8]
        {predator=FALSE, toothed=FALSE}
                                        => {feathers=TRUE} 0.1089109
   [9]
        {aquatic=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1386139
##
   [10]
        {eggs=TRUE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
        {milk=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
        confidence lift
##
##
  [1]
        0.9090909
                   4.590909
##
   [2]
        0.8695652
                    4.391304
   [3]
##
                   3.672727
        0.7272727
   [4]
        0.6060606
                   3.060606
##
##
   [5]
        0.5714286
                   2.885714
##
   [6]
        0.555556
                    2.805556
##
   [7]
        0.555556
                   2.805556
   [8]
        0.5238095
                   2.645238
##
   [9]
        0.5185185
                   2.618519
   [10] 0.5128205
                   2.589744
   [11] 0.5128205
                  2.589744
##
   [1]
       "Número de reglas con consecuente negado"
##
                                             rhs
                                                               support
        {type=fish}
##
   [1]
                                             {breathes=FALSE} 0.1287129
##
   [2]
        {eggs=TRUE,fins=TRUE}
                                             {breathes=FALSE} 0.1287129
##
   [3]
        {milk=FALSE,fins=TRUE}
                                             {breathes=FALSE} 0.1287129
##
   [4]
        {hair=FALSE,fins=TRUE}
                                             {breathes=FALSE} 0.1287129
##
   [5]
        {aquatic=TRUE,legs=FALSE}
                                             {breathes=FALSE} 0.1485149
##
   [6]
        {milk=FALSE,legs=FALSE}
                                             {breathes=FALSE} 0.1584158
##
   [7]
        {eggs=TRUE,legs=FALSE}
                                             {breathes=FALSE} 0.1485149
   [8]
        {legs=FALSE,catsize=FALSE}
                                             {breathes=FALSE} 0.1188119
##
##
   [9]
        {hair=FALSE,legs=FALSE}
                                             {breathes=FALSE} 0.1584158
   [10] {predator=TRUE,legs=FALSE}
                                             {breathes=FALSE} 0.1188119
   [11] {milk=FALSE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1980198
   [12] {feathers=FALSE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1980198
   [13] {milk=FALSE,toothed=TRUE}
                                             {breathes=FALSE} 0.1386139
   [14] {aquatic=TRUE, catsize=FALSE}
                                             {breathes=FALSE} 0.1485149
   [15] {eggs=TRUE,toothed=TRUE}
                                             {breathes=FALSE} 0.1287129
   [16] {airborne=FALSE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1980198
                                             {breathes=FALSE} 0.1881188
   [17] {eggs=TRUE,aquatic=TRUE}
  [18] {hair=FALSE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1980198
                                             {breathes=FALSE} 0.1386139
   [19]
       {aquatic=TRUE, toothed=TRUE}
   [20]
       {hair=FALSE,toothed=TRUE}
                                             {breathes=FALSE} 0.1386139
   [21] {hair=FALSE,feathers=FALSE}
                                             {breathes=FALSE} 0.2079208
   [22] {milk=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
   [23] {eggs=TRUE,airborne=FALSE}
                                             {breathes=FALSE} 0.1980198
##
   [24] {hair=FALSE,airborne=FALSE}
                                             {breathes=FALSE} 0.2079208
## [25] {feathers=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
## [26] {feathers=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
## [27] {milk=FALSE,predator=TRUE}
                                             {breathes=FALSE} 0.1683168
```

```
## [28] {eggs=TRUE,predator=TRUE}
                                          => {breathes=FALSE} 0.1584158
       {hair=FALSE,predator=TRUE}
   [29]
                                            {breathes=FALSE} 0.1683168
   [30] {airborne=FALSE,catsize=FALSE}
                                             {breathes=FALSE} 0.1584158
   [31] {predator=TRUE, catsize=FALSE}
                                             {breathes=FALSE} 0.1188119
   [32]
       {hair=FALSE,milk=FALSE}
                                             {breathes=FALSE} 0.2079208
   [33] {feathers=FALSE, catsize=FALSE}
##
                                             {breathes=FALSE} 0.1584158
   Г341
       {hair=FALSE,eggs=TRUE}
                                             {breathes=FALSE} 0.1980198
   [35]
       {hair=FALSE,domestic=FALSE}
                                             {breathes=FALSE} 0.1980198
   [36]
       {hair=FALSE,catsize=FALSE}
                                             {breathes=FALSE} 0.1584158
   [37]
       {milk=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
   [38]
       {feathers=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
       {eggs=TRUE,domestic=FALSE}
   [39]
                                            {breathes=FALSE} 0.1881188
   [40]
       {airborne=FALSE, predator=TRUE}
                                            {breathes=FALSE} 0.1683168
                                            {breathes=FALSE} 0.1485149
       {domestic=FALSE,catsize=FALSE}
       {airborne=FALSE,domestic=FALSE} =>
   [42]
                                             {breathes=FALSE} 0.1980198
   [43]
        {feathers=FALSE,airborne=FALSE}
                                         =>
                                             {breathes=FALSE} 0.2079208
   [44]
        {feathers=FALSE,domestic=FALSE} =>
                                            {breathes=FALSE} 0.1980198
       {toothed=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1287129
                                          => {breathes=FALSE} 0.1386139
##
   Γ461
       {tail=TRUE}
##
        confidence lift
##
   [1]
        1.0000000
                   4.8095238
   [2]
                   4.8095238
        1.0000000
   [3]
##
        1.0000000
                    4.8095238
##
   [4]
        0.8666667
                    4.1682540
##
   [5]
        0.8333333
                    4.0079365
   [6]
        0.8000000
                    3.8476190
   [7]
##
        0.7894737
                    3.7969925
##
   [8]
        0.7500000
                    3.6071429
##
   [9]
        0.7272727
                    3.4978355
   [10] 0.7058824
                    3.3949580
   [11] 0.6666667
                    3.2063492
##
   [12] 0.6666667
                    3.2063492
   [13] 0.6666667
                    3.2063492
   [14] 0.6521739
                    3.1366460
   [15] 0.6500000
                    3.1261905
   [16] 0.6451613
                   3.1029186
##
   [17] 0.6333333
                    3.0460317
  [18] 0.6250000
                   3.0059524
   [19] 0.6086957
                    2.9275362
   [20] 0.6086957
                    2.9275362
   [21] 0.5526316
                    2.6578947
   [22] 0.5526316
                    2.6578947
   [23] 0.5405405
                    2.5997426
   [24] 0.5250000
                    2.5250000
   [25] 0.5250000
                    2.5250000
   [26] 0.5128205
                    2.4664225
                    2.4047619
##
   [27] 0.5000000
   [28] 0.4848485
                    2.3318903
   [29] 0.4722222
                    2.2711640
                    2.1375661
   [30]
        0.444444
##
   [31]
       0.4285714
                    2.0612245
  [32] 0.3750000
                    1.8035714
## [33] 0.3720930
                    1.7895903
## [34] 0.3703704
                   1.7813051
```

```
[35] 0.3703704
                   1.7813051
   [36] 0.3636364
                   1.7489177
   [37] 0.3636364
                   1.7489177
  [38] 0.3617021
                   1.7396150
   [39] 0.3518519
                   1.6922399
  [40] 0.3469388
                   1.6686103
##
  [41] 0.3000000
                   1.4428571
                   1.4145658
  [42] 0.2941176
   [43] 0.2876712
                   1.3835616
   [44] 0.2816901
                   1.3547954
   [45] 0.2500000
                   1.2023810
##
   [46] 0.1866667
                   0.8977778
                                                        confidence lift
##
        lhs
                             rhs
                                             support
                                                                   1.2625000
##
  [1]
        {type=bird}
                             {breathes=TRUE} 0.1980198 1.0000000
  [2]
##
        {feathers=TRUE}
                             {breathes=TRUE} 0.1980198 1.0000000
                                                                   1.2625000
##
  [3]
        {airborne=TRUE}
                             {breathes=TRUE} 0.2376238 1.0000000
                                                                   1.2625000
   [4]
##
        {milk=TRUE}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                   1.2625000
   [5]
                          => {breathes=TRUE} 0.4059406 1.0000000
##
        {type=mammal}
                                                                   1.2625000
                             {breathes=TRUE} 0.4257426 1.0000000
##
   [6]
        {hair=TRUE}
                                                                   1.2625000
##
   [7]
        {aquatic=FALSE}
                             {breathes=TRUE} 0.6336634 0.9846154
                                                                   1.2430769
##
  [8]
        {eggs=FALSE}
                             {breathes=TRUE} 0.4059406 0.9761905
                                                                   1.2324405
                             {breathes=TRUE} 0.7227723 0.9358974
##
  [9]
        {legs=TRUE}
                                                                   1.1815705
##
  [10] {domestic=TRUE}
                             {breathes=TRUE} 0.1188119 0.9230769
                          =>
                                                                   1.1653846
##
  [11] {predator=FALSE}
                             {breathes=TRUE} 0.4059406 0.9111111
                                                                   1.1502778
  [12] {catsize=TRUE}
                             {breathes=TRUE} 0.3861386 0.8863636
                                                                   1.1190341
  [13] {toothed=FALSE}
                          => {breathes=TRUE} 0.3267327 0.8250000
                                                                   1.0415625
                          => {breathes=TRUE} 0.6039604 0.8133333
  [14] {tail=TRUE}
                                                                   1.0268333
  [15] {domestic=FALSE}
                         => {breathes=TRUE} 0.6732673 0.7727273
                                                                   0.9755682
                          => {breathes=TRUE} 0.1881188 0.7307692
  [16] {tail=FALSE}
                                                                   0.9225962
  [17] {airborne=FALSE} =>
                             {breathes=TRUE} 0.5544554 0.7272727
                                                                   0.9181818
## [18]
       {catsize=FALSE}
                             {breathes=TRUE} 0.4059406 0.7192982
                                                                   0.9081140
  [19]
       {predator=TRUE}
                             {breathes=TRUE} 0.3861386 0.6964286
                                                                   0.8792411
  [20] {eggs=TRUE}
                          => {breathes=TRUE} 0.3861386 0.6610169
                                                                   0.8345339
                          => {breathes=TRUE} 0.3861386 0.6500000
   [21] {milk=FALSE}
                                                                   0.8206250
##
   [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
                                                                   0.7715278
##
       lhs
                                           rhs
                                                             support
  [1] {hair=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
  [2] {milk=FALSE,domestic=FALSE}
##
                                        => {breathes=FALSE} 0.1980198
   [3] {eggs=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1881188
   [4] {domestic=FALSE,catsize=FALSE}
                                        => {breathes=FALSE} 0.1485149
   [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
##
   [7] {toothed=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1287129
##
       confidence lift
## [1] 0.3703704 1.781305
   [2] 0.3636364
                  1.748918
##
   [3] 0.3518519
                  1.692240
   [4] 0.3000000
                  1.442857
   [5] 0.2941176
                  1.414566
##
   [6]
       0.2816901
                  1.354795
##
   [7] 0.2500000
                  1.202381
##
       lhs
                                           rhs
                                                             support
## [1] {airborne=FALSE,aquatic=TRUE}
                                        => {breathes=FALSE} 0.1980198
## [2] {milk=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
```

```
## [3] {eggs=TRUE,airborne=FALSE}
                                       => {breathes=FALSE} 0.1980198
  [4] {hair=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
                                       => {breathes=FALSE} 0.1584158
  [5] {airborne=FALSE, catsize=FALSE}
  [6] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
##
       confidence lift
## [1] 0.6451613 3.102919
   [2] 0.5526316
                  2.657895
  [3] 0.5405405
                  2.599743
  [4] 0.5250000
                  2.525000
  [5] 0.444444
                  2.137566
   [6] 0.3469388
                  1.668610
  [7] 0.2941176
                  1.414566
  [8] 0.2876712 1.383562
##
##
       lhs
                                         rhs
                                                           support
## [1] {legs=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [2] {aquatic=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1485149
  [3] {airborne=FALSE, catsize=FALSE} => {breathes=FALSE} 0.1584158
  [4] {predator=TRUE, catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
## [5] {feathers=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
## [6] {hair=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1584158
  [7] {domestic=FALSE, catsize=FALSE} => {breathes=FALSE} 0.1485149
##
       confidence lift
## [1] 0.7500000 3.607143
  [2] 0.6521739
                  3.136646
  [3] 0.444444
                  2.137566
  [4] 0.4285714
                  2.061224
## [5] 0.3720930
                  1.789590
  [6] 0.3636364
                  1.748918
##
  [7] 0.3000000
                  1.442857
##
       lhs
                                         rhs
                                                           support
  [1] {predator=TRUE,legs=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [2] {milk=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
   [3] {eggs=TRUE,predator=TRUE}
                                      => {breathes=FALSE} 0.1584158
  [4] {hair=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
  [5] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
## [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
##
##
       confidence lift
  [1] 0.7058824 3.394958
  [2] 0.5000000
                  2.404762
  [3] 0.4848485
                  2.331890
## [4] 0.472222
                  2.271164
## [5] 0.4285714
                  2.061224
  [6] 0.3617021
                  1.739615
##
  [7] 0.3469388
                 1.668610
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
## [1] {eggs=TRUE,fins=TRUE}
                                  => {breathes=FALSE} 0.1287129 1.0000000
   [2] {eggs=TRUE,legs=FALSE}
                                  => {breathes=FALSE} 0.1485149 0.7894737
  [3] {eggs=TRUE,toothed=TRUE}
                                  => {breathes=FALSE} 0.1287129 0.6500000
## [4] {eggs=TRUE,aquatic=TRUE}
                                  => {breathes=FALSE} 0.1881188 0.6333333
## [5] {eggs=TRUE,airborne=FALSE} => {breathes=FALSE} 0.1980198 0.5405405
## [6] {feathers=FALSE,eggs=TRUE} => {breathes=FALSE} 0.1980198 0.5128205
```

```
## [7] {eggs=TRUE,predator=TRUE} => {breathes=FALSE} 0.1584158 0.4848485
                                  => {breathes=FALSE} 0.1980198 0.3703704
  [8] {hair=FALSE,eggs=TRUE}
   [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
       lift.
##
  [1] 4.809524
  [2] 3.796992
##
  [3] 3.126190
## [4] 3.046032
   [5] 2.599743
  [6] 2.466422
  [7] 2.331890
  [8] 1.781305
##
   [9] 1.692240
##
       lhs
                                                        support
                                                                   confidence
## [1] {milk=FALSE,fins=TRUE}
                                    => {breathes=FALSE} 0.1287129 1.0000000
   [2] {milk=FALSE,legs=FALSE}
                                    => {breathes=FALSE} 0.1584158 0.8000000
                                    => {breathes=FALSE} 0.1980198 0.6666667
  [3] {milk=FALSE,aquatic=TRUE}
  [4] {milk=FALSE,toothed=TRUE}
                                    => {breathes=FALSE} 0.1386139 0.6666667
## [5] {milk=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208 0.5526316
  [6] {feathers=FALSE,milk=FALSE} => {breathes=FALSE} 0.2079208 0.5250000
  [7] {milk=FALSE,predator=TRUE}
                                    => {breathes=FALSE} 0.1683168 0.5000000
## [8] {hair=FALSE,milk=FALSE}
                                    => {breathes=FALSE} 0.2079208 0.3750000
  [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
       lift.
## [1] 4.809524
  [2] 3.847619
  [3] 3.206349
  [4] 3.206349
  [5] 2.657895
## [6] 2.525000
## [7] 2.404762
##
  [8] 1.803571
   [9] 1.748918
       "Número de reglas con consecuente negado"
##
##
                                                            support
## [1]
        {aquatic=TRUE, catsize=TRUE}
                                         => {predator=TRUE} 0.1188119
  [2]
        {breathes=FALSE,domestic=FALSE} => {predator=TRUE} 0.1683168
  [3]
        {aquatic=TRUE,fins=FALSE}
##
                                         => {predator=TRUE} 0.1584158
  [4]
        {airborne=FALSE, aquatic=TRUE}
##
                                           {predator=TRUE} 0.2574257
##
  [5]
        {aquatic=TRUE,legs=TRUE}
                                           {predator=TRUE} 0.1485149
  [6]
        {feathers=FALSE, aquatic=TRUE}
                                           {predator=TRUE} 0.2475248
  [7]
        {fins=TRUE,domestic=FALSE}
                                           {predator=TRUE} 0.1287129
##
  [8]
        {aquatic=TRUE, breathes=TRUE}
                                         => {predator=TRUE} 0.1287129
  [9]
##
        {breathes=FALSE}
                                           {predator=TRUE} 0.1683168
## [10] {aquatic=TRUE}
                                         => {predator=TRUE} 0.2871287
## [11] {backbone=TRUE,legs=FALSE}
                                            {predator=TRUE} 0.1485149
## [12] {hair=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1782178
  [13] {legs=FALSE,domestic=FALSE}
                                           {predator=TRUE} 0.1683168
## [14] {fins=TRUE}
                                         => {predator=TRUE} 0.1287129
## [15] {milk=FALSE,toothed=TRUE}
                                           {predator=TRUE} 0.1584158
## [16] {eggs=TRUE,toothed=TRUE}
                                         => {predator=TRUE} 0.1485149
## [17] {hair=FALSE,airborne=FALSE}
                                         => {predator=TRUE} 0.2871287
## [18] {hair=FALSE,feathers=FALSE}
                                         => {predator=TRUE} 0.2673267
## [19] {milk=FALSE,airborne=FALSE}
                                         => {predator=TRUE} 0.2673267
```

```
## [20] {eggs=TRUE,airborne=FALSE}
                                         => {predator=TRUE} 0.2574257
   [21] {airborne=FALSE,domestic=FALSE} =>
                                            {predator=TRUE} 0.4653465
                                            {predator=TRUE} 0.2574257
  [22] {domestic=FALSE,catsize=TRUE}
  [23] {toothed=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.3465347
   [24] {airborne=FALSE, toothed=FALSE}
                                            {predator=TRUE} 0.1188119
  [25] {hair=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.3564356
  [26] {catsize=TRUE}
                                            {predator=TRUE} 0.2772277
  [27] {feathers=FALSE,domestic=FALSE} =>
                                            {predator=TRUE} 0.4455446
   [28]
       {backbone=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4455446
       {tail=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4059406
   [30] {feathers=FALSE,milk=FALSE}
                                            {predator=TRUE} 0.2475248
   [31] {eggs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.2079208
   [32] {feathers=FALSE,eggs=TRUE}
                                            {predator=TRUE} 0.2376238
   [33] {feathers=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.3762376
  [34] {milk=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.2376238
   [35]
        {feathers=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.3267327
   [36]
        {eggs=TRUE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
       {milk=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
   [38] {eggs=TRUE,tail=TRUE}
                                            {predator=TRUE} 0.2277228
   [39]
       {backbone=TRUE}
                                            {predator=TRUE} 0.4653465
##
  [40]
       {eggs=FALSE}
                                            {predator=TRUE} 0.2277228
  [41] {venomous=FALSE,tail=FALSE}
                                            {predator=TRUE} 0.1188119
  [42] {legs=TRUE}
                                            {predator=TRUE} 0.3861386
   Γ431
       {hair=TRUE}
                                            {predator=TRUE} 0.1980198
##
   [44] {aquatic=FALSE}
                                            {predator=TRUE} 0.2673267
        confidence lift
##
        0.9230769
   [1]
                   1.6648352
##
   [2]
        0.8500000
                   1.5330357
   [3]
##
        0.8421053
                   1.5187970
##
  [4]
        0.8387097
                   1.5126728
##
   [5]
        0.8333333
                   1.5029762
##
   [6]
        0.8333333
                   1.5029762
   [7]
        0.8125000
                   1.4654018
   [8]
##
        0.8125000
                   1.4654018
   [9]
        0.8095238
                   1.4600340
                   1.4528770
##
   [10] 0.8055556
  [11] 0.7894737
                   1.4238722
  [12] 0.7826087
                   1.4114907
   [13] 0.7727273
                   1.3936688
                   1.3792017
  [14] 0.7647059
   [15] 0.7619048
                   1.3741497
   [16] 0.7500000
                   1.3526786
   [17] 0.7250000
                   1.3075893
  [18] 0.7105263
                   1.2814850
                   1.2814850
  [19] 0.7105263
  [20] 0.7027027
                   1.2673745
                   1.2465861
   [21] 0.6911765
   [22] 0.6842105
                   1.2340226
   [23] 0.6730769
                   1.2139423
   [24]
        0.6666667
                   1.2023810
                   1.2023810
##
  [25] 0.6666667
## [26] 0.6363636
                   1.1477273
## [27] 0.6338028
                   1.1431087
## [28] 0.6338028
                   1.1431087
```

```
## [29] 0.6307692
                   1.1376374
  [30] 0.6250000
                   1.1272321
  [31] 0.6176471
                   1.1139706
  [32] 0.6153846
                   1.1098901
  [33] 0.6031746
                   1.0878685
  [34] 0.6000000
                   1.0821429
  [35] 0.6000000
                   1.0821429
  [36] 0.5952381
                   1.0735544
  [37] 0.5952381
                   1.0735544
  [38] 0.5897436
                   1.0636447
  [39] 0.5662651
                   1.0212995
  [40] 0.5476190
                   0.9876701
  [41] 0.5454545
                   0.9837662
## [42] 0.5000000
                   0.9017857
## [43] 0.4651163
                   0.8388704
##
  [44] 0.4153846
                   0.7491758
##
        lhs
                                                        confidence lift
                                              support
##
  [1]
        {domestic=TRUE}
                         => {predator=FALSE} 0.1089109 0.8461538
  [2]
                                                                   1.5898148
##
        {airborne=TRUE}
                         => {predator=FALSE} 0.1683168 0.7083333
  [3]
        {type=bird}
                         => {predator=FALSE} 0.1089109 0.5500000
##
  ۲4٦
        {feathers=TRUE}
                         => {predator=FALSE} 0.1089109 0.5500000
                                                                   1.2344444
## [5]
                         => {predator=FALSE} 0.2079208 0.5250000
        {toothed=FALSE}
## [6]
        {catsize=FALSE}
                         => {predator=FALSE} 0.2871287 0.5087719
                                                                    1.1419103
                         => {predator=FALSE} 0.1881188 0.4634146
## [7]
        {milk=TRUE}
                                                                    1.0401084
        {type=mammal}
## [8]
                         => {predator=FALSE} 0.1881188 0.4634146
                                                                    1.0401084
  [9]
        {tail=FALSE}
                         => {predator=FALSE} 0.1188119 0.4615385
                                                                    1.0358974
  [10] {eggs=FALSE}
                         => {predator=FALSE} 0.1881188 0.4523810
                                                                    1.0153439
                                                                    0.9890772
##
  [11] {eggs=TRUE}
                         => {predator=FALSE} 0.2574257 0.4406780
                         => {predator=FALSE} 0.2574257 0.4333333
## [12] {milk=FALSE}
                                                                    0.9725926
## [13] {domestic=FALSE} => {predator=FALSE} 0.3366337 0.3863636
                                                                    0.8671717
## [14] {hair=FALSE}
                         => {predator=FALSE} 0.2178218 0.3793103
                                                                    0.8513410
##
   [15] {catsize=TRUE}
                         => {predator=FALSE} 0.1584158 0.3636364
                                                                    0.8161616
##
                                          rhs
                                                          support
                                                                     confidence
   [1] {airborne=FALSE,toothed=FALSE} => {predator=TRUE} 0.1188119 0.6666667
##
##
       lift
##
  [1] 1.202381
##
                                                       support
##
  [1] {venomous=FALSE,tail=FALSE} => {predator=TRUE} 0.1188119 0.5454545
##
       lift.
  [1] 0.9837662
##
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
   [1] {eggs=FALSE,domestic=FALSE} => {predator=TRUE} 0.2079208 0.6176471
##
##
       lift
##
   [1] 1.113971
##
       lhs
                                      rhs
                                                      support
                                                                 confidence
  [1] {eggs=TRUE,toothed=TRUE}
                                   => {predator=TRUE} 0.1485149 0.7500000
   [2] {eggs=TRUE,airborne=FALSE} => {predator=TRUE} 0.2574257 0.7027027
   [3] {feathers=FALSE,eggs=TRUE} => {predator=TRUE} 0.2376238 0.6153846
   [4] {eggs=TRUE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
   [5] {eggs=TRUE,tail=TRUE}
                                   => {predator=TRUE} 0.2277228 0.5897436
##
       lift
## [1] 1.352679
## [2] 1.267375
## [3] 1.109890
```

```
## [4] 1.073554
  [5] 1.063645
##
##
       lhs
                                                       support
                                                                  confidence
## [1] {milk=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1584158 0.7619048
  [2] {milk=FALSE,airborne=FALSE} => {predator=TRUE} 0.2673267 0.7105263
  [3] {feathers=FALSE,milk=FALSE} => {predator=TRUE} 0.2475248 0.6250000
## [4] {milk=FALSE,tail=TRUE}
                                    => {predator=TRUE} 0.2376238 0.6000000
## [5] {milk=FALSE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
##
       lift
## [1] 1.374150
## [2] 1.281485
## [3] 1.127232
  [4] 1.082143
  [5] 1.073554
##
##
        lhs
                                            rhs
                                                             support
##
  [1]
        {breathes=FALSE,domestic=FALSE} =>
                                            {predator=TRUE} 0.1683168
##
   [2]
        {fins=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.1287129
  [3]
        {legs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.1683168
  [4]
        {airborne=FALSE,domestic=FALSE} => {predator=TRUE} 0.4653465
   [5]
        {domestic=FALSE, catsize=TRUE}
                                         => {predator=TRUE} 0.2574257
##
  [6]
        {toothed=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.3465347
## [7]
        {hair=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.3564356
## [8]
        {feathers=FALSE,domestic=FALSE} => {predator=TRUE} 0.4455446
        {backbone=TRUE,domestic=FALSE}
## [9]
                                         => {predator=TRUE} 0.4455446
## [10] {tail=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4059406
  [11] {eggs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.2079208
##
        confidence lift
## [1]
        0.8500000 1.533036
## [2]
        0.8125000
                   1.465402
## [3]
        0.7727273
                   1.393669
## [4]
        0.6911765
                   1.246586
##
  [5]
        0.6842105
                   1.234023
  [6]
        0.6730769
                   1.213942
  [7]
        0.6666667
                   1.202381
##
   [8]
        0.6338028
                   1.143109
##
  [9]
        0.6338028
                   1.143109
## [10] 0.6307692
## [11] 0.6176471 1.113971
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
                                    => {predator=TRUE} 0.1782178 0.7826087
## [1] {hair=FALSE,toothed=TRUE}
  [2] {hair=FALSE,airborne=FALSE} => {predator=TRUE} 0.2871287 0.7250000
  [3] {hair=FALSE,feathers=FALSE} => {predator=TRUE} 0.2673267 0.7105263
   [4] {hair=FALSE,domestic=FALSE} => {predator=TRUE} 0.3564356 0.6666667
##
       lift
## [1] 1.411491
## [2] 1.307589
##
  [3] 1.281485
##
  [4] 1.202381
##
       lhs
                                                          support
                                                                    confidence
                                         rhs
   [1] {aquatic=TRUE, catsize=TRUE}
                                      => {predator=TRUE} 0.1188119 0.9230769
##
##
   [2] {domestic=FALSE,catsize=TRUE} => {predator=TRUE} 0.2574257 0.6842105
       lift
## [1] 1.664835
## [2] 1.234023
```

```
[1] "Número de reglas con consecuente negado"
##
        lhs
                                           rhs
                                                         support
                                                                   confidence
##
  [1]
        {type=fish}
                                           {legs=FALSE} 0.1287129 1.0000000
   [2]
##
        {hair=FALSE,fins=TRUE}
                                           {legs=FALSE} 0.1485149 1.0000000
##
   [3]
        {eggs=TRUE,fins=TRUE}
                                           {legs=FALSE} 0.1287129 1.0000000
##
   [4]
        {milk=FALSE,fins=TRUE}
                                           {legs=FALSE} 0.1287129 1.0000000
##
   [5]
        {toothed=TRUE, breathes=FALSE}
                                           {legs=FALSE} 0.1386139 1.0000000
##
   [6]
        {breathes=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1386139 1.0000000
##
   [7]
        {backbone=TRUE, breathes=FALSE}
                                           {legs=FALSE} 0.1386139 1.0000000
##
   [8]
        {fins=TRUE}
                                           {legs=FALSE} 0.1584158 0.9411765
   [9]
        {hair=FALSE,toothed=TRUE}
                                           {legs=FALSE} 0.1782178 0.7826087
##
   [10]
       {breathes=FALSE}
                                           {legs=FALSE} 0.1584158 0.7619048
       {milk=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1584158 0.7619048
##
   [11]
   [12]
       {eggs=TRUE,toothed=TRUE}
                                           {legs=FALSE} 0.1485149 0.7500000
  [13] {aquatic=TRUE, toothed=TRUE}
                                           {legs=FALSE} 0.1683168 0.7391304
   [14] {aquatic=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1584158 0.6153846
       {feathers=FALSE, aquatic=TRUE}
                                           {legs=FALSE} 0.1782178 0.6000000
   [15]
   [16] {airborne=FALSE,aquatic=TRUE}
                                           {legs=FALSE} 0.1782178 0.5806452
   [17] {hair=FALSE,feathers=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5789474
   [18] {hair=FALSE,airborne=FALSE}
                                           {legs=FALSE} 0.2178218 0.5500000
##
  [19] {hair=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1683168 0.5312500
  [20] {milk=FALSE,airborne=FALSE}
                                           {legs=FALSE} 0.1980198 0.5263158
  [21] {eggs=TRUE,airborne=FALSE}
                                           {legs=FALSE} 0.1881188 0.5135135
##
  [22] {feathers=FALSE,milk=FALSE}
                                           {legs=FALSE} 0.1980198 0.5000000
  [23] {feathers=FALSE,eggs=TRUE}
                                           {legs=FALSE} 0.1881188 0.4871795
  [24] {toothed=TRUE,catsize=FALSE}
                                           {legs=FALSE} 0.1188119 0.4615385
   [25] {hair=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1584158 0.4444444
  [26] {airborne=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
       {hair=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1782178 0.4285714
                                         => {legs=FALSE} 0.1386139 0.4117647
## [28] {milk=FALSE,predator=TRUE}
   [29]
       {hair=FALSE,backbone=TRUE}
                                           {legs=FALSE} 0.1782178 0.4090909
##
   [30]
       {predator=TRUE,toothed=TRUE}
                                           {legs=FALSE} 0.1485149 0.4054054
  [31] {milk=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1584158 0.4000000
       {eggs=TRUE,predator=TRUE}
                                           {legs=FALSE} 0.1287129 0.3939394
   [32]
       {hair=FALSE,domestic=FALSE}
   [33]
                                           {legs=FALSE} 0.2079208 0.3888889
##
   [34] {eggs=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1485149 0.3846154
  [35] {milk=FALSE,backbone=TRUE}
                                           {legs=FALSE} 0.1584158 0.3809524
  [36] {feathers=FALSE,catsize=FALSE}
                                           {legs=FALSE} 0.1584158 0.3720930
##
       {feathers=FALSE,predator=TRUE}
##
   [37]
                                           {legs=FALSE} 0.1683168 0.3617021
       {eggs=TRUE,backbone=TRUE}
                                           {legs=FALSE} 0.1485149 0.3571429
##
   [38]
  [39] {airborne=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3469388
   [40] {toothed=TRUE,domestic=FALSE}
                                           {legs=FALSE} 0.1782178 0.3461538
  [41] {milk=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.1881188 0.3454545
  [42] {predator=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1386139 0.3333333
## [43] {eggs=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3333333
  [44] {feathers=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1782178 0.3272727
   [45] {tail=TRUE,catsize=FALSE}
                                           {legs=FALSE} 0.1188119 0.3243243
  [46] {airborne=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.2178218 0.3235294
  [47] {airborne=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
       {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
                                           {legs=FALSE} 0.2277228 0.3150685
  [49]
       {feathers=FALSE,airborne=FALSE} =>
  [50] {feathers=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.2178218 0.3098592
  [51] {predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3035714
## [52] {feathers=FALSE,backbone=TRUE}
                                        => {legs=FALSE} 0.1881188 0.3015873
```

```
## [53] {backbone=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
  [54] {domestic=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1485149 0.3000000
                                         => {legs=FALSE} 0.1683168 0.2615385
  [55] {tail=TRUE,domestic=FALSE}
   [56] {backbone=TRUE,domestic=FALSE}
                                        => {legs=FALSE} 0.1782178 0.2535211
##
        lift
## [1]
        4.391304
## [2]
        4.391304
## [3]
        4.391304
## [4]
        4.391304
## [5]
        4.391304
## [6]
        4.391304
  [7]
        4.391304
##
##
  [8]
        4.132992
## [9]
        3.436673
## [10] 3.345756
## [11] 3.345756
##
  [12] 3.293478
## [13] 3.245747
## [14] 2.702341
## [15] 2.634783
## [16] 2.549790
## [17] 2.542334
## [18] 2.415217
## [19] 2.332880
## [20] 2.311213
## [21] 2.254994
## [22] 2.195652
## [23] 2.139353
## [24] 2.026756
## [25] 1.951691
## [26] 1.951691
## [27] 1.881988
## [28] 1.808184
## [29] 1.796443
## [30] 1.780259
## [31] 1.756522
## [32] 1.729908
## [33] 1.707729
## [34] 1.688963
## [35] 1.672878
## [36] 1.633974
## [37] 1.588344
## [38] 1.568323
## [39] 1.523514
## [40] 1.520067
## [41] 1.516996
## [42] 1.463768
## [43] 1.463768
## [44] 1.437154
## [45] 1.424207
## [46] 1.420716
## [47] 1.414149
## [48] 1.386728
## [49] 1.383562
```

```
## [50] 1.360686
   [51] 1.333075
   [52] 1.324362
   [53] 1.317391
   [54] 1.317391
   [55] 1.148495
##
##
   [56] 1.113288
##
        lhs
                             rhs
                                          support
                                                    confidence lift
## [1]
                          => {legs=TRUE} 0.1980198 1.0000000
                                                               1.2948718
        {type=bird}
##
   [2]
        {feathers=TRUE}
                          => {legs=TRUE} 0.1980198 1.0000000
                                                                1.2948718
   [3]
        {airborne=TRUE}
                          => {legs=TRUE} 0.2376238 1.0000000
                                                               1.2948718
   [4]
##
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                                1.2647585
                          => {legs=TRUE} 0.3762376 0.9268293
##
   [5]
        {milk=TRUE}
                                                                1.2001251
##
   [6]
        {type=mammal}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
  [7]
##
        {domestic=TRUE}
                          => {legs=TRUE} 0.1188119 0.9230769
                                                                1.1952663
##
  [8]
        {aquatic=FALSE}
                          => {legs=TRUE} 0.5940594 0.9230769
                                                                1.1952663
##
   [9]
                          => {legs=TRUE} 0.3762376 0.9047619
        {eggs=FALSE}
                                                                1.1715507
                          => {legs=TRUE} 0.3564356 0.9000000
   [10] {toothed=FALSE}
                                                                1.1653846
   [11] {predator=FALSE}
                          => {legs=TRUE} 0.3861386 0.8666667
                                                                1.1222222
   [12] {catsize=TRUE}
                          => {legs=TRUE} 0.3663366 0.8409091
                                                                1.0888695
  [13] {tail=FALSE}
                          => {legs=TRUE} 0.2079208 0.8076923
                                                                1.0458580
  [14] {backbone=FALSE} => {legs=TRUE} 0.1386139 0.7777778
                                                                1.0071225
## [15] {tail=TRUE}
                          => {legs=TRUE} 0.5643564 0.7600000
                                                               0.9841026
   [16] {catsize=FALSE}
                          => {legs=TRUE} 0.4059406 0.7192982
                                                               0.9313990
   [17] {airborne=FALSE} => {legs=TRUE} 0.5346535 0.7012987
                                                               0.9080919
  [18] {toothed=TRUE}
                          => {legs=TRUE} 0.4158416 0.6885246
                                                               0.8915511
   [19] {eggs=TRUE}
                          => {legs=TRUE} 0.3960396 0.6779661
                                                               0.8778792
   [20] {milk=FALSE}
                          => {legs=TRUE} 0.3960396 0.6666667
                                                                0.8632479
                          => {legs=TRUE} 0.1782178 0.5000000
##
   [21] {aquatic=TRUE}
                                                               0.6474359
##
        lhs
                                       rhs
                                                     support
                                                                confidence
## [1]
        {breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
##
   [2]
        {aquatic=TRUE, tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.6153846
##
   [3]
        {hair=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1782178 0.4285714
   [4]
##
        {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
   [5]
        {eggs=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1485149 0.3846154
                                    => {legs=FALSE} 0.1386139 0.3333333
##
   [6]
        {predator=TRUE,tail=TRUE}
   [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
   [8]
        {tail=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3243243
##
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
   [9]
   [10] {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
##
        lift
##
   [1]
        4.391304
##
   [2]
        2.702341
##
   [3]
        1.881988
   [4]
##
        1.756522
   [5]
##
        1.688963
##
   [6]
        1.463768
##
   [7]
        1.437154
   [8]
        1.424207
##
   [9]
        1.386728
##
   [10] 1.148495
##
                                           rhs
                                                        support
  [1] {toothed=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.4615385
## [2] {airborne=FALSE, catsize=FALSE} => {legs=FALSE} 0.1584158 0.4444444
```

```
## [3] {feathers=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
## [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
  [5] {backbone=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3000000
  [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
       lift.
## [1] 2.026756
## [2] 1.951691
## [3] 1.633974
## [4] 1.424207
## [5] 1.317391
  [6] 1.317391
##
        lhs
                                                          support
                                                                    confidence
## [1]
        {airborne=FALSE, aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
                                         => {legs=FALSE} 0.2178218 0.5500000
## [2]
        {hair=FALSE,airborne=FALSE}
## [3]
        {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
## [4]
        {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
## [5]
        {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
  [6]
        {airborne=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
  [7]
        {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
  [8]
        {airborne=FALSE, toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
## [9]
        {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
## [10] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
        lift
        2.549790
## [1]
## [2]
        2.415217
  [3]
        2.311213
  [4]
##
        2.254994
##
   [5]
        1.951691
  [6]
##
        1.523514
## [7]
        1.420716
## [8]
        1.414149
##
  [9]
        1.386728
##
  [10] 1.383562
##
                                                                 confidence
       lhs
                                         rhs
                                                      support
## [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
## [2] {hair=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1782178 0.7826087
## [3] {milk=FALSE, toothed=TRUE}
                                      => {legs=FALSE} 0.1584158 0.7619048
## [4] {eggs=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.7500000
## [5] {aquatic=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
## [6] {toothed=TRUE,catsize=FALSE}
                                      => {legs=FALSE} 0.1188119 0.4615385
  [7] {predator=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.4054054
  [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
   [9] {airborne=FALSE,toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
       lift
## [1] 4.391304
## [2] 3.436673
## [3] 3.345756
## [4] 3.293478
## [5] 3.245747
## [6] 2.026756
## [7] 1.780259
## [8] 1.520067
## [9] 1.414149
##
       lhs
                                      rhs
                                                   support
                                                              confidence
```

```
## [1] {eggs=TRUE,fins=TRUE}
                                  => {legs=FALSE} 0.1287129 1.0000000
## [2] {eggs=TRUE,toothed=TRUE}
                                  => {legs=FALSE} 0.1485149 0.7500000
## [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
## [4] {feathers=FALSE,eggs=TRUE} => {legs=FALSE} 0.1881188 0.4871795
## [5] {eggs=TRUE,predator=TRUE}
                                 => {legs=FALSE} 0.1287129 0.3939394
## [6] {eggs=TRUE,tail=TRUE}
                                  => {legs=FALSE} 0.1485149 0.3846154
## [7] {eggs=TRUE,backbone=TRUE} => {legs=FALSE} 0.1485149 0.3571429
## [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
       lift
## [1] 4.391304
## [2] 3.293478
## [3] 2.254994
## [4] 2.139353
## [5] 1.729908
## [6] 1.688963
## [7] 1.568323
## [8] 1.463768
##
       lhs
                                                    support
                                                              confidence
## [1] {milk=FALSE,fins=TRUE}
                                   => {legs=FALSE} 0.1287129 1.0000000
## [2] {milk=FALSE,toothed=TRUE}
                                   => {legs=FALSE} 0.1584158 0.7619048
## [3] {milk=FALSE,airborne=FALSE} => {legs=FALSE} 0.1980198 0.5263158
## [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
## [5] {milk=FALSE,predator=TRUE} => {legs=FALSE} 0.1386139 0.4117647
## [6] {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
## [7] {milk=FALSE,backbone=TRUE} => {legs=FALSE} 0.1584158 0.3809524
  [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
       lift
## [1] 4.391304
## [2] 3.345756
## [3] 2.311213
## [4] 2.195652
## [5] 1.808184
## [6] 1.756522
## [7] 1.672878
  [8] 1.516996
##
##
       lhs
                                         rhs
                                                      support
                                                                confidence
## [1] {aquatic=TRUE, toothed=TRUE}
                                     => {legs=FALSE} 0.1683168 0.7391304
## [2] {aquatic=TRUE,tail=TRUE}
                                     => {legs=FALSE} 0.1584158 0.6153846
## [3] {feathers=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.6000000
## [4] {airborne=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.5806452
  [5] {hair=FALSE,aquatic=TRUE}
                                     => {legs=FALSE} 0.1683168 0.5312500
##
       lift.
## [1] 3.245747
## [2] 2.702341
## [3] 2.634783
## [4] 2.549790
  [5] 2.332880
  [1] "Número de reglas con consecuente negado"
##
        lhs
                                                             support
## [1]
        {type=fish}
                                           {breathes=FALSE} 0.1287129
## [2]
        {eggs=TRUE,fins=TRUE}
                                         => {breathes=FALSE} 0.1287129
## [3]
        {milk=FALSE,fins=TRUE}
                                         => {breathes=FALSE} 0.1287129
## [4]
        {hair=FALSE,fins=TRUE}
                                         => {breathes=FALSE} 0.1287129
## [5]
       {aquatic=TRUE,legs=FALSE}
                                         => {breathes=FALSE} 0.1485149
```

```
[6]
        {milk=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
                                            {breathes=FALSE} 0.1485149
##
   [7]
        {eggs=TRUE,legs=FALSE}
        {legs=FALSE,catsize=FALSE}
   [8]
                                            {breathes=FALSE} 0.1188119
   [9]
        {hair=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
##
##
   [10]
       {predator=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1188119
   [11] {milk=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
##
  [12] {feathers=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
  [13] {milk=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
   Γ14٦
       {aquatic=TRUE,catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
   [15]
       {eggs=TRUE,toothed=TRUE}
                                            {breathes=FALSE} 0.1287129
   [16] {airborne=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [17] {eggs=TRUE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1881188
       {hair=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [18]
       {aquatic=TRUE, toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
       {hair=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
  [20]
   [21]
        {hair=FALSE, feathers=FALSE}
                                            {breathes=FALSE} 0.2079208
   [22]
        {milk=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
       {eggs=TRUE,airborne=FALSE}
                                            {breathes=FALSE} 0.1980198
                                            {breathes=FALSE} 0.2079208
   [24] {hair=FALSE,airborne=FALSE}
   [25] {feathers=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
##
  [26] {feathers=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
       {milk=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [28] {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
       {hair=FALSE,predator=TRUE}
##
   [29]
                                            {breathes=FALSE} 0.1683168
   [30]
       {airborne=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [31] {predator=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
   [32] {hair=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
##
   [33] {feathers=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [34]
       {hair=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
   [35]
       {hair=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
   [36]
        {hair=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
##
   [37]
        {milk=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
       {feathers=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [39]
       {eggs=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1881188
        {airborne=FALSE, predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   Γ401
   [41] {domestic=FALSE, catsize=FALSE}
##
                                            {breathes=FALSE} 0.1485149
  [42] {airborne=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
  [43] {feathers=FALSE,airborne=FALSE} =>
                                            {breathes=FALSE} 0.2079208
   [44] {feathers=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
   [45] {toothed=TRUE,domestic=FALSE}
##
                                            {breathes=FALSE} 0.1287129
   [46] {tail=TRUE}
                                         => {breathes=FALSE} 0.1386139
##
        confidence lift
##
   [1]
        1.0000000
                   4.8095238
##
   [2]
        1.0000000
                   4.8095238
##
   [3]
        1.0000000
                   4.8095238
  [4]
        0.8666667
##
                   4.1682540
##
   [5]
        0.8333333
                   4.0079365
##
   [6]
        0.8000000
                   3.8476190
                   3.7969925
##
   [7]
        0.7894737
##
   [8]
        0.7500000
                   3.6071429
##
   [9]
        0.7272727
                   3.4978355
  [10] 0.7058824
                   3.3949580
## [11] 0.6666667
                   3.2063492
## [12] 0.6666667
                   3.2063492
```

```
3.2063492
## [13] 0.6666667
   [14] 0.6521739
                   3.1366460
   [15] 0.6500000
                    3.1261905
   [16] 0.6451613
                    3.1029186
   [17] 0.6333333
                    3.0460317
                    3.0059524
##
   [18] 0.6250000
   [19] 0.6086957
                    2.9275362
   [20] 0.6086957
                    2.9275362
   [21] 0.5526316
                    2.6578947
   [22] 0.5526316
                    2.6578947
   [23] 0.5405405
                    2.5997426
   [24] 0.5250000
                    2.5250000
   [25] 0.5250000
                    2.5250000
   [26] 0.5128205
                    2.4664225
   [27] 0.5000000
                    2.4047619
   [28]
       0.4848485
                    2.3318903
   [29] 0.4722222
                    2.2711640
   [30] 0.444444
                    2.1375661
   [31] 0.4285714
                    2.0612245
   [32] 0.3750000
                    1.8035714
##
   [33] 0.3720930
                    1.7895903
   [34] 0.3703704
                    1.7813051
##
   [35] 0.3703704
                    1.7813051
##
   [36] 0.3636364
                    1.7489177
   [37] 0.3636364
                    1.7489177
   [38] 0.3617021
                    1.7396150
   [39] 0.3518519
                    1.6922399
##
   [40] 0.3469388
                    1.6686103
   [41] 0.3000000
                    1.4428571
                    1.4145658
   [42] 0.2941176
   [43] 0.2876712
                    1.3835616
   [44] 0.2816901
                    1.3547954
   [45] 0.2500000
                    1.2023810
   [46]
##
       0.1866667
                   0.8977778
##
                                                        confidence lift
        lhs
                                              support
##
  Г17
        {type=bird}
                          => {breathes=TRUE} 0.1980198 1.0000000
                                                                   1.2625000
   [2]
        {feathers=TRUE}
                          => {breathes=TRUE} 0.1980198 1.0000000
##
   [3]
        {airborne=TRUE}
                          => {breathes=TRUE} 0.2376238 1.0000000
                                                                    1.2625000
##
   [4]
        {milk=TRUE}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                    1.2625000
   [5]
                             {breathes=TRUE} 0.4059406 1.0000000
##
        {type=mammal}
                                                                    1.2625000
   [6]
        {hair=TRUE}
                             {breathes=TRUE} 0.4257426 1.0000000
                                                                    1.2625000
   [7]
        {aquatic=FALSE}
                             {breathes=TRUE} 0.6336634 0.9846154
##
                                                                    1.2430769
##
   [8]
        {eggs=FALSE}
                             {breathes=TRUE} 0.4059406 0.9761905
                                                                    1.2324405
##
   [9]
                             {breathes=TRUE} 0.7227723 0.9358974
        {legs=TRUE}
                                                                    1.1815705
  [10]
       {domestic=TRUE}
                             {breathes=TRUE} 0.1188119 0.9230769
                                                                    1.1653846
        {predator=FALSE}
                             {breathes=TRUE} 0.4059406 0.9111111
   [11]
                          =>
                                                                    1.1502778
   [12]
       {catsize=TRUE}
                             {breathes=TRUE} 0.3861386 0.8863636
                                                                    1.1190341
   [13] {toothed=FALSE}
                             {breathes=TRUE} 0.3267327 0.8250000
                                                                    1.0415625
   [14]
       {tail=TRUE}
                          => {breathes=TRUE} 0.6039604 0.8133333
                                                                    1.0268333
   [15]
        {domestic=FALSE}
                             {breathes=TRUE} 0.6732673 0.7727273
                                                                    0.9755682
                             {breathes=TRUE} 0.1881188 0.7307692
##
   [16]
       {tail=FALSE}
                                                                    0.9225962
## [17] {airborne=FALSE} => {breathes=TRUE} 0.5544554 0.7272727
                                                                    0.9181818
## [18] {catsize=FALSE}
                          => {breathes=TRUE} 0.4059406 0.7192982
                                                                    0.9081140
## [19] {predator=TRUE}
                          => {breathes=TRUE} 0.3861386 0.6964286
                                                                    0.8792411
```

```
## [20] {eggs=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6610169 0.8345339
                         => {breathes=TRUE} 0.3861386 0.6500000 0.8206250
  [21] {milk=FALSE}
  [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111 0.7715278
##
       lhs
                                          rhs
                                                           support
##
  [1] {hair=FALSE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1980198
  [2] {milk=FALSE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1980198
  [3] {eggs=TRUE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1881188
  [4] {domestic=FALSE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1485149
  [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
  [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
  [7] {toothed=TRUE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1287129
##
       confidence lift
## [1] 0.3703704 1.781305
## [2] 0.3636364
                 1.748918
## [3] 0.3518519
                  1.692240
## [4] 0.3000000
                  1.442857
## [5] 0.2941176
                  1.414566
  [6] 0.2816901
                  1.354795
  [7] 0.2500000
##
                  1.202381
##
       lhs
                                                           support
## [1] {airborne=FALSE,aquatic=TRUE}
                                       => {breathes=FALSE} 0.1980198
## [2] {milk=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
## [3] {eggs=TRUE,airborne=FALSE}
                                       => {breathes=FALSE} 0.1980198
## [4] {hair=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
## [5] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
  [6] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
  [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
##
   [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
##
       confidence lift
## [1] 0.6451613 3.102919
## [2] 0.5526316
                  2.657895
  [3] 0.5405405
                  2.599743
## [4] 0.5250000
                  2.525000
## [5] 0.444444
                  2.137566
   [6] 0.3469388
                  1.668610
##
  [7] 0.2941176
                 1.414566
## [8] 0.2876712 1.383562
##
       lhs
                                         rhs
                                                           support
## [1] {legs=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [2] {aquatic=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1485149
  [3] {airborne=FALSE, catsize=FALSE} => {breathes=FALSE} 0.1584158
  [4] {predator=TRUE,catsize=FALSE} => {breathes=FALSE} 0.1188119
  [5] {feathers=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
  [6] {hair=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1584158
  [7] {domestic=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1485149
##
       confidence lift
## [1] 0.7500000
                  3.607143
## [2] 0.6521739
                  3.136646
## [3] 0.444444
                  2.137566
## [4] 0.4285714
                  2.061224
## [5] 0.3720930
                  1.789590
## [6] 0.3636364
                 1.748918
## [7] 0.3000000 1.442857
##
       lhs
                                                           support
                                         rhs
```

```
## [1] {predator=TRUE,legs=FALSE}
                                      => {breathes=FALSE} 0.1188119
                                      => {breathes=FALSE} 0.1683168
## [2] {milk=FALSE,predator=TRUE}
## [3] {eggs=TRUE,predator=TRUE}
                                      => {breathes=FALSE} 0.1584158
## [4] {hair=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
  [5] {predator=TRUE, catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
  [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
##
       confidence lift
## [1] 0.7058824
                  3.394958
  [2] 0.5000000
                  2.404762
## [3] 0.4848485
                  2.331890
## [4] 0.4722222
                  2.271164
## [5] 0.4285714
                  2.061224
## [6] 0.3617021
                  1.739615
  [7] 0.3469388 1.668610
##
##
       lhs
                                                                 confidence
                                                       support
## [1] {eggs=TRUE,fins=TRUE}
                                  => {breathes=FALSE} 0.1287129 1.0000000
  [2] {eggs=TRUE,legs=FALSE}
                                  => {breathes=FALSE} 0.1485149 0.7894737
                                  => {breathes=FALSE} 0.1287129 0.6500000
## [3] {eggs=TRUE,toothed=TRUE}
## [4] {eggs=TRUE,aquatic=TRUE}
                                  => {breathes=FALSE} 0.1881188 0.6333333
## [5] {eggs=TRUE,airborne=FALSE} => {breathes=FALSE} 0.1980198 0.5405405
## [6] {feathers=FALSE,eggs=TRUE} => {breathes=FALSE} 0.1980198 0.5128205
                                  => {breathes=FALSE} 0.1584158 0.4848485
## [7] {eggs=TRUE,predator=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.3703704
  [8] {hair=FALSE,eggs=TRUE}
##
   [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
       lift
## [1] 4.809524
## [2] 3.796992
## [3] 3.126190
## [4] 3.046032
## [5] 2.599743
## [6] 2.466422
## [7] 2.331890
## [8] 1.781305
##
   [9] 1.692240
##
       lhs
                                      rhs
                                                        support
                                                                  confidence
## [1] {milk=FALSE,fins=TRUE}
                                   => {breathes=FALSE} 0.1287129 1.0000000
## [2] {milk=FALSE,legs=FALSE}
                                   => {breathes=FALSE} 0.1584158 0.8000000
## [3] {milk=FALSE,aquatic=TRUE}
                                   => {breathes=FALSE} 0.1980198 0.6666667
                                   => {breathes=FALSE} 0.1386139 0.6666667
## [4] {milk=FALSE,toothed=TRUE}
## [5] {milk=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208 0.5526316
## [6] {feathers=FALSE,milk=FALSE} => {breathes=FALSE} 0.2079208 0.5250000
## [7] {milk=FALSE,predator=TRUE}
                                   => {breathes=FALSE} 0.1683168 0.5000000
## [8] {hair=FALSE,milk=FALSE}
                                   => {breathes=FALSE} 0.2079208 0.3750000
## [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
       lift
## [1] 4.809524
## [2] 3.847619
## [3] 3.206349
## [4] 3.206349
## [5] 2.657895
## [6] 2.525000
## [7] 2.404762
## [8] 1.803571
```

```
[9] 1.748918
##
       "Número de reglas con consecuente negado"
##
                                                         support
                                                                   confidence
   [1]
##
        {type=fish}
                                           {legs=FALSE} 0.1287129 1.0000000
##
   [2]
        {hair=FALSE,fins=TRUE}
                                           {legs=FALSE} 0.1485149 1.0000000
##
   [3]
        {eggs=TRUE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
##
  [4]
        {milk=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
##
  [5]
        {toothed=TRUE, breathes=FALSE}
                                           {legs=FALSE} 0.1386139 1.0000000
##
   [6]
        {breathes=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1386139 1.0000000
##
   [7]
        {backbone=TRUE, breathes=FALSE}
                                           {legs=FALSE} 0.1386139 1.0000000
   [8]
        {fins=TRUE}
                                         => {legs=FALSE} 0.1584158 0.9411765
##
   [9]
        {hair=FALSE,toothed=TRUE}
                                           {legs=FALSE} 0.1782178 0.7826087
   [10]
       {breathes=FALSE}
##
                                         => {legs=FALSE} 0.1584158 0.7619048
       {milk=FALSE,toothed=TRUE}
                                           {legs=FALSE} 0.1584158 0.7619048
  [12]
       {eggs=TRUE,toothed=TRUE}
                                         => {legs=FALSE} 0.1485149 0.7500000
   [13] {aquatic=TRUE, toothed=TRUE}
                                           {legs=FALSE} 0.1683168 0.7391304
       {aquatic=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.6153846
  [14]
  [15] {feathers=FALSE,aquatic=TRUE}
                                           {legs=FALSE} 0.1782178 0.6000000
  [16] {airborne=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
  [17] {hair=FALSE, feathers=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5789474
##
  [18] {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
  [19] {hair=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1683168 0.5312500
  [20] {milk=FALSE,airborne=FALSE}
                                           {legs=FALSE} 0.1980198 0.5263158
  [21] {eggs=TRUE,airborne=FALSE}
                                           {legs=FALSE} 0.1881188 0.5135135
  [22] {feathers=FALSE,milk=FALSE}
                                           {legs=FALSE} 0.1980198 0.5000000
  [23] {feathers=FALSE,eggs=TRUE}
                                         => {legs=FALSE} 0.1881188 0.4871795
  [24] {toothed=TRUE,catsize=FALSE}
                                           {legs=FALSE} 0.1188119 0.4615385
  [25] {hair=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4444444
## [26] {airborne=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
                                         => {legs=FALSE} 0.1782178 0.4285714
## [27] {hair=FALSE,tail=TRUE}
  [28]
       {milk=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1386139 0.4117647
  [29]
       {hair=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4090909
  [30] {predator=TRUE, toothed=TRUE}
                                           {legs=FALSE} 0.1485149 0.4054054
  [31] {milk=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1584158 0.4000000
   [32] {eggs=TRUE,predator=TRUE}
                                           {legs=FALSE} 0.1287129 0.3939394
##
  [33] {hair=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.2079208 0.3888889
  [34] {eggs=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1485149 0.3846154
  [35] {milk=FALSE,backbone=TRUE}
                                           {legs=FALSE} 0.1584158 0.3809524
       {feathers=FALSE,catsize=FALSE}
##
   [36]
                                           {legs=FALSE} 0.1584158 0.3720930
  [37] {feathers=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3617021
  [38] {eggs=TRUE,backbone=TRUE}
                                           {legs=FALSE} 0.1485149 0.3571429
   [39] {airborne=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3469388
  [40] {toothed=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3461538
  [41] {milk=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.1881188 0.3454545
## [42] {predator=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1386139 0.3333333
  [43]
       {eggs=TRUE,domestic=FALSE}
                                           {legs=FALSE} 0.1782178 0.3333333
  [44] {feathers=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3272727
  [45] {tail=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3243243
  [46] {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
  [47] {airborne=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
## [48] {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
## [49] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
## [50] {feathers=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3098592
## [51] {predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3035714
```

```
## [52] {feathers=FALSE,backbone=TRUE} => {legs=FALSE} 0.1881188 0.3015873
  [53] {backbone=TRUE, catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
  [54] {domestic=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1485149 0.3000000
  [55] {tail=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1683168 0.2615385
##
   [56]
       {backbone=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.2535211
##
        lift
## [1]
        4.391304
## [2]
        4.391304
##
  [3]
        4.391304
##
  [4]
        4.391304
  [5]
        4.391304
  [6]
        4.391304
##
##
   [7]
        4.391304
  [8]
##
        4.132992
## [9]
        3.436673
  [10] 3.345756
##
  [11] 3.345756
  [12] 3.293478
## [13] 3.245747
## [14] 2.702341
## [15] 2.634783
## [16] 2.549790
## [17] 2.542334
## [18] 2.415217
## [19] 2.332880
## [20] 2.311213
## [21] 2.254994
## [22] 2.195652
## [23] 2.139353
## [24] 2.026756
## [25] 1.951691
##
  [26] 1.951691
## [27] 1.881988
## [28] 1.808184
## [29] 1.796443
## [30] 1.780259
## [31] 1.756522
## [32] 1.729908
## [33] 1.707729
## [34] 1.688963
## [35] 1.672878
## [36] 1.633974
## [37] 1.588344
## [38] 1.568323
## [39] 1.523514
## [40] 1.520067
## [41] 1.516996
## [42] 1.463768
## [43] 1.463768
## [44] 1.437154
## [45] 1.424207
## [46] 1.420716
## [47] 1.414149
## [48] 1.386728
```

```
## [49] 1.383562
   [50] 1.360686
   [51] 1.333075
   [52] 1.324362
##
   [53]
       1.317391
   [54] 1.317391
##
   [55] 1.148495
##
   [56] 1.113288
##
        lhs
                                          support
                                                    confidence lift
                             rhs
##
   [1]
        {type=bird}
                          => {legs=TRUE} 0.1980198 1.0000000
                                                                1.2948718
   [2]
        {feathers=TRUE}
                          => {legs=TRUE} 0.1980198 1.0000000
                                                                1.2948718
   [3]
                          => {legs=TRUE} 0.2376238 1.0000000
##
        {airborne=TRUE}
                                                                1.2948718
##
   [4]
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                                1.2647585
##
   [5]
        {milk=TRUE}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
  [6]
##
        {type=mammal}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
##
   [7]
        {domestic=TRUE}
                             {legs=TRUE} 0.1188119 0.9230769
                                                                1.1952663
##
   [8]
                          => {legs=TRUE} 0.5940594 0.9230769
        {aquatic=FALSE}
                                                                1.1952663
        {eggs=FALSE}
   [9]
                          => {legs=TRUE} 0.3762376 0.9047619
                                                                1.1715507
       {toothed=FALSE}
                          => {legs=TRUE} 0.3564356 0.9000000
   [10]
                                                                1.1653846
   [11] {predator=FALSE}
                          => {legs=TRUE} 0.3861386 0.8666667
                                                                1.122222
##
  [12] {catsize=TRUE}
                          => {legs=TRUE} 0.3663366 0.8409091
                                                                1.0888695
  [13] {tail=FALSE}
                          => {legs=TRUE} 0.2079208 0.8076923
                                                                1.0458580
  [14] {backbone=FALSE} => {legs=TRUE} 0.1386139 0.7777778
                                                                1.0071225
   [15] {tail=TRUE}
                          => {legs=TRUE} 0.5643564 0.7600000
                                                                0.9841026
   [16] {catsize=FALSE}
                          => {legs=TRUE} 0.4059406 0.7192982
                                                                0.9313990
   [17] {airborne=FALSE}
                          => {legs=TRUE} 0.5346535 0.7012987
                                                                0.9080919
                          => {legs=TRUE} 0.4158416 0.6885246
   [18]
       {toothed=TRUE}
                                                                0.8915511
##
   [19] {eggs=TRUE}
                          => {legs=TRUE} 0.3960396 0.6779661
                                                                0.8778792
                          => {legs=TRUE} 0.3960396 0.6666667
##
   [20]
       {milk=FALSE}
                                                                0.8632479
                                                                0.6474359
##
   [21] {aquatic=TRUE}
                          => {legs=TRUE} 0.1782178 0.5000000
##
                                        rhs
                                                     support
                                                                confidence
##
   [1]
        {breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
##
   [2]
        {aquatic=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.6153846
##
   [3]
        {hair=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1782178 0.4285714
   [4]
        {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
##
##
   [5]
        {eggs=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1485149 0.3846154
   [6]
        {predator=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1386139 0.3333333
   [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
##
   [8]
        {tail=TRUE,catsize=FALSE}
                                    => {legs=FALSE} 0.1188119 0.3243243
##
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
##
   [9]
   [10] {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
        lift
##
   [1]
        4.391304
##
   [2]
        2.702341
##
   [3]
        1.881988
   [4]
##
        1.756522
##
   [5]
        1.688963
##
   [6]
        1.463768
##
   [7]
        1.437154
##
   [8]
        1.424207
##
   [9]
        1.386728
##
   [10] 1.148495
##
       lhs
                                                        support
                                                                   confidence
                                           rhs
## [1] {toothed=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.4615385
```

```
## [2] {airborne=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.4444444
## [3] {feathers=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
## [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
## [5] {backbone=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3000000
##
   [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
##
       lift
## [1] 2.026756
## [2] 1.951691
## [3] 1.633974
## [4] 1.424207
  [5] 1.317391
##
  [6] 1.317391
        lhs
##
                                            rhs
                                                         support
                                                                    confidence
        {airborne=FALSE, aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
## [1]
## [2]
        {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
## [3]
        {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
## [4]
        {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
  [5]
        {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
        {airborne=FALSE,predator=TRUE}
  [6]
                                         => {legs=FALSE} 0.1683168 0.3469388
  [7]
        {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
## [8]
        {airborne=FALSE, toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
        {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
## [10] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
        lift
## [1]
       2.549790
  [2]
       2.415217
  [3]
##
        2.311213
##
   [4]
        2.254994
  [5]
##
        1.951691
## [6]
        1.523514
## [7]
        1.420716
##
  [8]
        1.414149
## [9]
        1.386728
##
  [10] 1.383562
##
                                         rhs
                                                      support
                                                                 confidence
## [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
## [2] {hair=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1782178 0.7826087
## [3] {milk=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1584158 0.7619048
## [4] {eggs=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.7500000
## [5] {aquatic=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
## [6] {toothed=TRUE,catsize=FALSE}
                                      => {legs=FALSE} 0.1188119 0.4615385
  [7] {predator=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.4054054
   [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
   [9] {airborne=FALSE,toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
##
       lift
## [1] 4.391304
## [2] 3.436673
## [3] 3.345756
## [4] 3.293478
## [5] 3.245747
## [6] 2.026756
## [7] 1.780259
## [8] 1.520067
## [9] 1.414149
```

```
##
                                     rhs
                                                   support
                                                             confidence
                                  => {legs=FALSE} 0.1287129 1.0000000
## [1] {eggs=TRUE,fins=TRUE}
## [2] {eggs=TRUE,toothed=TRUE}
                                  => {legs=FALSE} 0.1485149 0.7500000
## [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
## [4] {feathers=FALSE,eggs=TRUE} => {legs=FALSE} 0.1881188 0.4871795
## [5] {eggs=TRUE,predator=TRUE}
                                 => {legs=FALSE} 0.1287129 0.3939394
## [6] {eggs=TRUE,tail=TRUE}
                                  => {legs=FALSE} 0.1485149 0.3846154
## [7] {eggs=TRUE,backbone=TRUE} => {legs=FALSE} 0.1485149 0.3571429
  [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
       lift
## [1] 4.391304
## [2] 3.293478
## [3] 2.254994
## [4] 2.139353
## [5] 1.729908
## [6] 1.688963
## [7] 1.568323
## [8] 1.463768
##
       lhs
                                      rhs
                                                    support
                                                              confidence
## [1] {milk=FALSE,fins=TRUE}
                                   => {legs=FALSE} 0.1287129 1.0000000
## [2] {milk=FALSE,toothed=TRUE}
                                   => {legs=FALSE} 0.1584158 0.7619048
## [3] {milk=FALSE,airborne=FALSE} => {legs=FALSE} 0.1980198 0.5263158
## [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
## [5] {milk=FALSE,predator=TRUE} => {legs=FALSE} 0.1386139 0.4117647
## [6] {milk=FALSE,tail=TRUE}
                                   => {legs=FALSE} 0.1584158 0.4000000
## [7] {milk=FALSE,backbone=TRUE} => {legs=FALSE} 0.1584158 0.3809524
## [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
       lift
## [1] 4.391304
## [2] 3.345756
## [3] 2.311213
## [4] 2.195652
## [5] 1.808184
## [6] 1.756522
## [7] 1.672878
## [8] 1.516996
##
                                        rhs
                                                      support
                                                                confidence
## [1] {aquatic=TRUE,toothed=TRUE}
                                     => {legs=FALSE} 0.1683168 0.7391304
## [2] {aquatic=TRUE,tail=TRUE}
                                     => {legs=FALSE} 0.1584158 0.6153846
## [3] {feathers=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.6000000
## [4] {airborne=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.5806452
  [5] {hair=FALSE,aquatic=TRUE}
                                     => {legs=FALSE} 0.1683168 0.5312500
##
##
       lift
## [1] 3.245747
## [2] 2.702341
## [3] 2.634783
## [4] 2.549790
## [5] 2.332880
       "Número de reglas con consecuente negado"
##
                                                         support
                                                                   confidence
## [1]
        {backbone=FALSE, venomous=FALSE} => {tail=FALSE} 0.1386139 1.0000000
## [2]
        {backbone=FALSE}
                                        => {tail=FALSE} 0.1683168 0.9444444
        {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
## [3]
## [4]
       {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
```

```
{feathers=FALSE,eggs=TRUE}
                                         => {tail=FALSE} 0.1980198 0.5128205
        {feathers=FALSE,milk=FALSE}
##
   [6]
                                            {tail=FALSE} 0.1980198 0.5000000
        {feathers=FALSE, catsize=FALSE}
  [7]
                                            {tail=FALSE} 0.1980198 0.4651163
  [8]
        {eggs=TRUE,fins=FALSE}
                                            {tail=FALSE} 0.1980198 0.4347826
##
##
   [9]
        {milk=FALSE,fins=FALSE}
                                            {tail=FALSE} 0.1980198 0.4255319
  [10] {hair=FALSE, feathers=FALSE}
##
                                            {tail=FALSE} 0.1584158 0.4210526
  [11] {fins=FALSE,catsize=FALSE}
                                            {tail=FALSE} 0.1980198 0.4166667
  [12] {eggs=TRUE,legs=TRUE}
                                            {tail=FALSE} 0.1584158 0.4000000
  [13] {milk=FALSE,legs=TRUE}
                                            {tail=FALSE} 0.1584158 0.4000000
  [14] {feathers=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.2475248 0.3906250
  [15] {legs=TRUE,catsize=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3902439
  [16] {airborne=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3888889
  [17] {eggs=TRUE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3793103
  [18] {eggs=TRUE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3783784
  [19] {hair=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3720930
  [20] {milk=FALSE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3684211
  [21] {milk=FALSE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3666667
   [22] {feathers=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.2079208 0.3620690
  [23] {domestic=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1782178 0.3600000
  [24] {feathers=FALSE,predator=FALSE} =>
                                            {tail=FALSE} 0.1188119 0.3529412
##
  [25] {aquatic=FALSE, catsize=FALSE}
                                           {tail=FALSE} 0.1188119 0.3529412
  [26] {hair=FALSE,airborne=FALSE}
                                            {tail=FALSE} 0.1386139 0.3500000
                                            {tail=FALSE} 0.1188119 0.3333333
  [27] {hair=FALSE,legs=TRUE}
  Г287
       {feathers=FALSE,domestic=FALSE} =>
                                            {tail=FALSE} 0.2277228 0.3239437
  [29] {airborne=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.1881188 0.3166667
  [30] {fins=FALSE,domestic=FALSE}
                                           {tail=FALSE} 0.2178218 0.3055556
  [31] {predator=TRUE,fins=FALSE}
                                           {tail=FALSE} 0.1287129 0.3023256
##
  [32] {fins=FALSE}
                                           {tail=FALSE} 0.2475248 0.2976190
  [33] {predator=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1089109 0.2820513
  [34] {airborne=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1485149 0.2777778
       {legs=TRUE,domestic=FALSE}
                                         => {tail=FALSE} 0.1782178 0.2727273
##
   [36]
       {domestic=FALSE}
                                         => {tail=FALSE} 0.2277228 0.2613636
   [37]
       {predator=TRUE}
                                         => {tail=FALSE} 0.1386139 0.2500000
##
   [38]
       {venomous=FALSE}
                                         => {tail=FALSE} 0.2178218 0.2365591
##
        lift
##
  [1]
       3.8846154
##
  [2]
       3.6688034
##
  [3]
        3.3019231
   [4]
##
        2.3739316
  [5]
##
        1.9921105
  [6]
        1.9423077
   [7]
##
        1.8067979
##
   [8]
        1.6889632
##
   [9]
        1.6530278
  [10] 1.6356275
## [11] 1.6185897
##
  [12] 1.5538462
  [13] 1.5538462
  [14] 1.5174279
  [15] 1.5159475
## [16] 1.5106838
## [17] 1.4734748
## [18] 1.4698545
## [19] 1.4454383
```

```
## [20] 1.4311741
  [21] 1.4243590
  [22] 1.4064987
  [23] 1.3984615
  [24] 1.3710407
## [25] 1.3710407
  [26] 1.3596154
## [27] 1.2948718
## [28] 1.2583965
## [29] 1.2301282
## [30] 1.1869658
## [31] 1.1744186
## [32] 1.1561355
## [33] 1.0956607
## [34] 1.0790598
## [35] 1.0594406
  [36] 1.0152972
  [37] 0.9711538
   [38] 0.9189413
##
##
        lhs
                            rhs
                                         support
                                                   confidence lift
## [1]
        {type=fish}
                         => {tail=TRUE} 0.1287129 1.0000000 1.3466667
                         => {tail=TRUE} 0.1980198 1.0000000
  [2]
        {type=bird}
                                                              1.3466667
## [3]
                         => {tail=TRUE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                              1.3466667
  [4]
        {fins=TRUE}
                         => {tail=TRUE} 0.1584158 0.9411765
##
                                                              1.2674510
##
  [5]
        {catsize=TRUE}
                         => {tail=TRUE} 0.3762376 0.8636364
                                                              1.1630303
  [6]
        {eggs=FALSE}
                         => {tail=TRUE} 0.3564356 0.8571429
                                                              1.1542857
  [7]
                         => {tail=TRUE} 0.3465347 0.8536585
##
        {milk=TRUE}
                                                              1.1495935
##
  [8]
        {type=mammal}
                         => {tail=TRUE} 0.3465347 0.8536585
                                                              1.1495935
## [9]
                         => {tail=TRUE} 0.1782178 0.7826087
        {legs=FALSE}
                                                               1.0539130
## [10] {hair=TRUE}
                         => {tail=TRUE} 0.3267327 0.7674419
                                                              1.0334884
## [11] {aquatic=FALSE}
                         => {tail=TRUE} 0.4851485 0.7538462
                                                               1.0151795
## [12] {airborne=TRUE}
                         => {tail=TRUE} 0.1782178 0.7500000
                                                              1.0100000
  [13] {predator=TRUE}
                         => {tail=TRUE} 0.4158416 0.7500000
                                                              1.0100000
## [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
                                                              0.9946970
   [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                                                              0.9875556
                         => {tail=TRUE} 0.4158416 0.7241379
## [16] {hair=FALSE}
                                                              0.9751724
## [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
                                                              0.9144033
## [18] {eggs=TRUE}
                         => {tail=TRUE} 0.3861386 0.6610169
                                                              0.8901695
  [19] {catsize=FALSE}
                         => {tail=TRUE} 0.3663366 0.6491228
                                                              0.8741520
##
  [20] {toothed=FALSE} => {tail=TRUE} 0.2277228 0.5750000
                                                              0.7743333
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
   [1] {eggs=TRUE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3793103
   [2] {milk=FALSE, aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3666667
##
   [3] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
  [1] 1.473475
##
##
   [2] 1.424359
##
   [3] 1.371041
##
                                      rhs
                                                   support
                                                              confidence
##
   [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
##
   [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
##
       lift
## [1] 1.174419
## [2] 1.095661
```

```
##
                                           rhs
                                                        support
                                                                  confidence
## [1] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
  [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
  [3] {fins=FALSE,domestic=FALSE}
                                       => {tail=FALSE} 0.2178218 0.3055556
##
   [4] {legs=TRUE,domestic=FALSE}
                                        => {tail=FALSE} 0.1782178 0.2727273
##
       lift
## [1] 1.398462
## [2] 1.258397
  [3] 1.186966
##
  [4] 1.059441
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
   [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
##
##
  [1] 1.371041
##
       lhs
                                       rhs
                                                              confidence
                                                    support
  [1] {hair=FALSE, feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
   [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
  [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
                                   => {tail=FALSE} 0.1188119 0.3333333
  [4] {hair=FALSE,legs=TRUE}
##
##
       lift.
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {tail=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE}
                                        => {tail=FALSE} 0.1980198 0.5128205
## [3] {feathers=FALSE,milk=FALSE}
                                        => {tail=FALSE} 0.1980198 0.5000000
## [4] {feathers=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4651163
## [5] {hair=FALSE,feathers=FALSE}
                                        => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                        => {tail=FALSE} 0.2475248 0.3906250
## [7] {feathers=FALSE,legs=TRUE}
                                       => {tail=FALSE} 0.2079208 0.3620690
  [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
  [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
##
       lift
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
## [7] 1.406499
## [8] 1.371041
##
  [9] 1.258397
##
       lhs
                                      rhs
                                                             confidence
                                                   support
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
##
  [2] {eggs=TRUE,fins=FALSE}
                                  => {tail=FALSE} 0.1980198 0.4347826
  [3] {eggs=TRUE,legs=TRUE}
                                  => {tail=FALSE} 0.1584158 0.4000000
  [4] {eggs=TRUE,aquatic=FALSE} => {tail=FALSE} 0.1089109 0.3793103
  [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
       lift
## [1] 1.992110
## [2] 1.688963
## [3] 1.553846
```

```
## [4] 1.473475
  [5] 1.469854
##
##
       lhs
                                                       support
                                                                 confidence
## [1] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
##
  [2] {fins=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4166667
  [3] {legs=TRUE,catsize=FALSE}
                                       => {tail=FALSE} 0.1584158 0.3902439
  [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
  [5] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
##
   [6] {aquatic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
  [1] 1.806798
  [2] 1.618590
##
  [3] 1.515947
## [4] 1.510684
## [5] 1.398462
##
  [6] 1.371041
##
       lhs
                                                       support
                                                                  confidence
                                          rhs
   [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
   [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
##
       lift.
## [1] 3.301923
  [2] 2.373932
##
  [1] "Número de reglas con consecuente negado"
##
                                                        support
                                                                   confidence
## [1]
        {type=fish}
                                         => {tail=TRUE} 0.1287129 1.0000000
  [2]
        {type=bird}
                                         => {tail=TRUE} 0.1980198 1.0000000
  [3]
                                         => {tail=TRUE} 0.1980198 1.0000000
##
        {feathers=TRUE}
##
   [4]
        {backbone=TRUE, breathes=FALSE}
                                         => {tail=TRUE} 0.1386139 1.0000000
##
  [5]
        {airborne=TRUE, backbone=TRUE}
                                         => {tail=TRUE} 0.1782178 1.0000000
  [6]
        {toothed=FALSE,backbone=TRUE}
                                         => {tail=TRUE} 0.2178218 1.0000000
## [7]
        {backbone=TRUE,legs=FALSE}
                                         => {tail=TRUE} 0.1782178 0.9473684
##
  [8]
        {fins=TRUE}
                                         => {tail=TRUE} 0.1584158 0.9411765
## [9]
        {predator=FALSE, catsize=TRUE}
                                         => {tail=TRUE} 0.1485149 0.9375000
## [10] {hair=FALSE,backbone=TRUE}
                                         => {tail=TRUE} 0.4059406 0.9318182
## [11] {hair=FALSE,catsize=TRUE}
                                           {tail=TRUE} 0.1287129 0.9285714
                                         => {tail=TRUE} 0.3861386 0.9285714
## [12] {eggs=TRUE,backbone=TRUE}
## [13] {milk=FALSE,backbone=TRUE}
                                         => {tail=TRUE} 0.3861386 0.9285714
## [14] {eggs=TRUE,catsize=TRUE}
                                         => {tail=TRUE} 0.1188119 0.9230769
## [15] {milk=FALSE,catsize=TRUE}
                                            {tail=TRUE} 0.1089109 0.9166667
## [16] {predator=FALSE,backbone=TRUE}
                                         => {tail=TRUE} 0.3267327 0.9166667
## [17] {aquatic=FALSE,backbone=TRUE}
                                         => {tail=TRUE} 0.4752475 0.9056604
## [18] {backbone=TRUE,domestic=FALSE}
                                         => {tail=TRUE} 0.6336634 0.9014085
## [19] {backbone=TRUE,catsize=FALSE}
                                         => {tail=TRUE} 0.3564356 0.9000000
                                         => {tail=TRUE} 0.2970297 0.8823529
## [20] {eggs=FALSE,domestic=FALSE}
## [21] {milk=TRUE,domestic=FALSE}
                                         => {tail=TRUE} 0.2871287 0.8787879
## [22] {domestic=FALSE,type=mammal}
                                         => {tail=TRUE} 0.2871287 0.8787879
## [23] {predator=FALSE,toothed=TRUE}
                                         => {tail=TRUE} 0.2079208 0.8750000
## [24] {hair=FALSE,toothed=TRUE}
                                         => {tail=TRUE} 0.1980198 0.8695652
## [25] {domestic=FALSE,catsize=TRUE}
                                         => {tail=TRUE} 0.3267327 0.8684211
## [26] {aquatic=FALSE,toothed=TRUE}
                                         => {tail=TRUE} 0.3267327 0.8684211
                                         => {tail=TRUE} 0.4455446 0.8653846
## [27] {toothed=TRUE,domestic=FALSE}
## [28] {catsize=TRUE}
                                         => {tail=TRUE} 0.3762376 0.8636364
## [29] {toothed=TRUE, venomous=FALSE}
                                         => {tail=TRUE} 0.4851485 0.8596491
## [30] {eggs=FALSE}
                                         => {tail=TRUE} 0.3564356 0.8571429
```

```
## [31] {milk=FALSE,toothed=TRUE}
                                         => {tail=TRUE} 0.1782178 0.8571429
                                         => {tail=TRUE} 0.3465347 0.8536585
  [32] {milk=TRUE}
  [33] {type=mammal}
                                         => {tail=TRUE} 0.3465347 0.8536585
  [34] {predator=TRUE,breathes=TRUE}
                                         => {tail=TRUE} 0.3168317 0.8205128
  [35] {airborne=TRUE, venomous=FALSE}
                                           {tail=TRUE} 0.1782178 0.8181818
  [36] {aquatic=FALSE,predator=TRUE}
                                         => {tail=TRUE} 0.2178218 0.8148148
  [37] {hair=TRUE,predator=TRUE}
                                         => {tail=TRUE} 0.1584158 0.8000000
  [38] {hair=TRUE,domestic=FALSE}
                                         => {tail=TRUE} 0.2673267 0.7941176
   [39]
       {venomous=FALSE,legs=FALSE}
                                           {tail=TRUE} 0.1485149 0.7894737
  [40] {breathes=TRUE, venomous=FALSE}
                                         => {tail=TRUE} 0.5841584 0.7866667
## [41] {legs=FALSE}
                                         => {tail=TRUE} 0.1782178 0.7826087
                                         => {tail=TRUE} 0.3564356 0.7826087
  [42] {airborne=FALSE,aquatic=FALSE}
## [43] {airborne=FALSE,breathes=TRUE}
                                         => {tail=TRUE} 0.4257426 0.7678571
## [44] {hair=TRUE}
                                         => {tail=TRUE} 0.3267327 0.7674419
## [45] {breathes=TRUE,domestic=FALSE}
                                         => {tail=TRUE} 0.5148515 0.7647059
       {aquatic=FALSE,domestic=FALSE}
                                            {tail=TRUE} 0.3960396 0.7547170
  [47] {aquatic=FALSE}
                                         => {tail=TRUE} 0.4851485 0.7538462
  [48] {airborne=TRUE}
                                         => {tail=TRUE} 0.1782178 0.7500000
                                         => {tail=TRUE} 0.4158416 0.7500000
  [49] {predator=TRUE}
  [50] {airborne=FALSE,predator=FALSE} =>
                                           {tail=TRUE} 0.2079208 0.7500000
  [51] {domestic=FALSE}
                                         => {tail=TRUE} 0.6435644 0.7386364
                                         => {tail=TRUE} 0.3267327 0.7333333
  [52] {predator=FALSE}
                                         => {tail=TRUE} 0.4158416 0.7241379
## [53] {hair=FALSE}
  [54] {feathers=FALSE}
                                         => {tail=TRUE} 0.5445545 0.6790123
  [55] {eggs=TRUE}
                                         => {tail=TRUE} 0.3861386 0.6610169
  [56] {catsize=FALSE}
                                        => {tail=TRUE} 0.3663366 0.6491228
##
   [57] {toothed=FALSE}
                                        => {tail=TRUE} 0.2277228 0.5750000
##
        lift
## [1]
        1.3466667
  [2]
        1.3466667
## [3]
        1.3466667
##
  [4]
        1.3466667
##
  [5]
        1.3466667
  [6]
##
        1.3466667
   [7]
        1.2757895
  [8]
##
        1.2674510
## [9]
        1.2625000
## [10] 1.2548485
## [11] 1.2504762
## [12] 1.2504762
  [13] 1.2504762
## [14] 1.2430769
## [15] 1.2344444
## [16] 1.2344444
## [17] 1.2196226
## [18] 1.2138967
## [19] 1.2120000
## [20] 1.1882353
## [21] 1.1834343
## [22] 1.1834343
## [23] 1.1783333
## [24] 1.1710145
## [25] 1.1694737
## [26] 1.1694737
```

```
## [27] 1.1653846
  [28] 1.1630303
  [29] 1.1576608
  [30] 1.1542857
  [31] 1.1542857
  [32] 1.1495935
  [33] 1.1495935
## [34] 1.1049573
  [35] 1.1018182
  [36] 1.0972840
  [37] 1.0773333
  [38] 1.0694118
  [39] 1.0631579
## [40] 1.0593778
## [41] 1.0539130
## [42] 1.0539130
  [43] 1.0340476
  [44] 1.0334884
## [45] 1.0298039
  [46] 1.0163522
## [47] 1.0151795
  [48] 1.0100000
## [49] 1.0100000
  [50] 1.0100000
## [51] 0.9946970
  [52] 0.9875556
  [53] 0.9751724
   [54] 0.9144033
  [55] 0.8901695
  [56] 0.8741520
##
   [57] 0.7743333
##
       lhs
                           rhs
                                         support
                                                   confidence lift
  [1] {backbone=FALSE} => {tail=FALSE} 0.1683168 0.9444444
                        => {tail=FALSE} 0.2475248 0.2976190
   [2] {fins=FALSE}
                                                              1.1561355
   [3] {domestic=FALSE} => {tail=FALSE} 0.2277228 0.2613636
                                                              1.0152972
   [4] {predator=TRUE} => {tail=FALSE} 0.1386139 0.2500000
##
                                                              0.9711538
##
  [5] {venomous=FALSE} => {tail=FALSE} 0.2178218 0.2365591
##
       lhs
                                          rhs
                                                      support
                                                                confidence
  [1] {backbone=TRUE,domestic=FALSE} => {tail=TRUE} 0.6336634 0.9014085
                                       => {tail=TRUE} 0.2970297 0.8823529
   [2] {eggs=FALSE,domestic=FALSE}
  [3] {milk=TRUE,domestic=FALSE}
                                       => {tail=TRUE} 0.2871287 0.8787879
   [4] {domestic=FALSE,type=mammal}
                                       => {tail=TRUE} 0.2871287 0.8787879
   [5] {domestic=FALSE,catsize=TRUE}
                                      => {tail=TRUE} 0.3267327 0.8684211
  [6] {toothed=TRUE,domestic=FALSE}
                                      => {tail=TRUE} 0.4455446 0.8653846
  [7] {hair=TRUE,domestic=FALSE}
                                       => {tail=TRUE} 0.2673267 0.7941176
  [8] {breathes=TRUE,domestic=FALSE} => {tail=TRUE} 0.5148515 0.7647059
##
   [9] {aquatic=FALSE,domestic=FALSE} => {tail=TRUE} 0.3960396 0.7547170
##
       lift
## [1] 1.213897
  [2] 1.188235
##
  [3] 1.183434
## [4] 1.183434
## [5] 1.169474
## [6] 1.165385
```

```
## [7] 1.069412
  [8] 1.029804
##
  [9] 1.016352
##
       lhs
                                         rhs
                                                     support
                                                               confidence
   [1] {predator=TRUE,breathes=TRUE} => {tail=TRUE} 0.3168317 0.8205128
##
   [2] {aquatic=FALSE,predator=TRUE} => {tail=TRUE} 0.2178218 0.8148148
   [3] {hair=TRUE,predator=TRUE}
                                      => {tail=TRUE} 0.1584158 0.8000000
##
       lift
##
  「1] 1.104957
##
   [2] 1.097284
   [3] 1.077333
##
       lhs
                                          rhs
                                                      support
                                                                 confidence
## [1] {toothed=TRUE, venomous=FALSE}
                                      => {tail=TRUE} 0.4851485 0.8596491
  [2] {airborne=TRUE, venomous=FALSE} => {tail=TRUE} 0.1782178 0.8181818
## [3] {venomous=FALSE,legs=FALSE}
                                       => {tail=TRUE} 0.1485149 0.7894737
   [4] {breathes=TRUE, venomous=FALSE} => {tail=TRUE} 0.5841584 0.7866667
##
       lift
##
  [1] 1.157661
  [2] 1.101818
##
  [3] 1.063158
##
  [4] 1.059378
##
  [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                         support
                                                                   confidence
##
  Г17
        {backbone=FALSE,venomous=FALSE} => {tail=FALSE} 0.1386139 1.0000000
##
  [2]
        {backbone=FALSE}
                                         => {tail=FALSE} 0.1683168 0.9444444
  [3]
        {feathers=FALSE, toothed=FALSE}
                                         => {tail=FALSE} 0.1683168 0.8500000
  [4]
        {airborne=FALSE, toothed=FALSE}
                                         => {tail=FALSE} 0.1089109 0.6111111
##
##
   [5]
        {feathers=FALSE,eggs=TRUE}
                                         => {tail=FALSE} 0.1980198 0.5128205
  [6]
##
        {feathers=FALSE,milk=FALSE}
                                         => {tail=FALSE} 0.1980198 0.5000000
## [7]
        {feathers=FALSE, catsize=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4651163
## [8]
        {eggs=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4347826
##
  [9]
        {milk=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4255319
  [10] {hair=FALSE, feathers=FALSE}
                                         => {tail=FALSE} 0.1584158 0.4210526
                                         => {tail=FALSE} 0.1980198 0.4166667
## [11] {fins=FALSE,catsize=FALSE}
  [12] {eggs=TRUE,legs=TRUE}
                                            {tail=FALSE} 0.1584158 0.4000000
                                           {tail=FALSE} 0.1584158 0.4000000
## [13] {milk=FALSE,legs=TRUE}
## [14] {feathers=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.2475248 0.3906250
## [15] {legs=TRUE,catsize=FALSE}
                                           {tail=FALSE} 0.1584158 0.3902439
## [16] {airborne=FALSE, catsize=FALSE}
                                            {tail=FALSE} 0.1386139 0.3888889
## [17] {eggs=TRUE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3793103
## [18] {eggs=TRUE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3783784
## [19] {hair=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.1584158 0.3720930
## [20] {milk=FALSE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3684211
                                         => {tail=FALSE} 0.1089109 0.3666667
## [21] {milk=FALSE,aquatic=FALSE}
## [22] {feathers=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.2079208 0.3620690
                                           {tail=FALSE} 0.1782178 0.3600000
## [23] {domestic=FALSE,catsize=FALSE}
## [24] {feathers=FALSE,predator=FALSE} =>
                                            {tail=FALSE} 0.1188119 0.3529412
## [25] {aquatic=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1188119 0.3529412
## [26] {hair=FALSE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3500000
## [27] {hair=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1188119 0.3333333
## [28] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
## [29] {airborne=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1881188 0.3166667
## [30] {fins=FALSE,domestic=FALSE}
                                         => {tail=FALSE} 0.2178218 0.3055556
## [31] {predator=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1287129 0.3023256
```

```
## [32] {fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.2976190
                                         => {tail=FALSE} 0.1089109 0.2820513
## [33] {predator=TRUE,legs=TRUE}
  [34] {airborne=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1485149 0.2777778
## [35] {legs=TRUE,domestic=FALSE}
                                         => {tail=FALSE} 0.1782178 0.2727273
  [36] {domestic=FALSE}
                                         => {tail=FALSE} 0.2277228 0.2613636
                                         => {tail=FALSE} 0.1386139 0.2500000
  [37] {predator=TRUE}
                                         => {tail=FALSE} 0.2178218 0.2365591
  [38] {venomous=FALSE}
##
        lift
## [1]
        3.8846154
  [2]
##
        3.6688034
  [3]
        3.3019231
  [4]
        2.3739316
##
##
   [5]
        1.9921105
##
  [6]
        1.9423077
## [7]
        1.8067979
## [8]
        1.6889632
  [9]
##
        1.6530278
## [10] 1.6356275
## [11] 1.6185897
## [12] 1.5538462
## [13] 1.5538462
## [14] 1.5174279
## [15] 1.5159475
## [16] 1.5106838
## [17] 1.4734748
## [18] 1.4698545
## [19] 1.4454383
## [20] 1.4311741
## [21] 1.4243590
## [22] 1.4064987
## [23] 1.3984615
## [24] 1.3710407
## [25] 1.3710407
## [26] 1.3596154
## [27] 1.2948718
## [28] 1.2583965
## [29] 1.2301282
## [30] 1.1869658
## [31] 1.1744186
## [32] 1.1561355
  [33] 1.0956607
## [34] 1.0790598
  [35] 1.0594406
  [36] 1.0152972
## [37] 0.9711538
## [38] 0.9189413
                                                   confidence lift
##
        lhs
                             rhs
                                         support
## [1]
        {type=fish}
                         => {tail=TRUE} 0.1287129 1.0000000
                                                               1.3466667
  [2]
        {type=bird}
                         => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
##
  [3]
        {feathers=TRUE}
                         => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
##
  [4]
        {fins=TRUE}
                         => {tail=TRUE} 0.1584158 0.9411765
                                                               1.2674510
## [5]
        {catsize=TRUE}
                         => {tail=TRUE} 0.3762376 0.8636364
## [6]
        {eggs=FALSE}
                         => {tail=TRUE} 0.3564356 0.8571429
                                                               1.1542857
## [7]
        {milk=TRUE}
                         => {tail=TRUE} 0.3465347 0.8536585 1.1495935
```

```
## [8]
        {type=mammal}
                         => {tail=TRUE} 0.3465347 0.8536585
                                                              1.1495935
                         => {tail=TRUE} 0.1782178 0.7826087
## [9]
        {legs=FALSE}
                                                              1.0539130
## [10] {hair=TRUE}
                         => {tail=TRUE} 0.3267327 0.7674419
                                                              1.0334884
## [11] {aquatic=FALSE} => {tail=TRUE} 0.4851485 0.7538462
                                                              1.0151795
## [12] {airborne=TRUE}
                        => {tail=TRUE} 0.1782178 0.7500000
                                                              1.0100000
## [13] {predator=TRUE} => {tail=TRUE} 0.4158416 0.7500000
                                                              1.0100000
## [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
                                                              0.9946970
## [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                                                              0.9875556
## [16] {hair=FALSE}
                         => {tail=TRUE} 0.4158416 0.7241379
                                                              0.9751724
## [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
                                                              0.9144033
## [18] {eggs=TRUE}
                         => {tail=TRUE} 0.3861386 0.6610169
                                                              0.8901695
## [19] {catsize=FALSE} => {tail=TRUE} 0.3663366 0.6491228
                                                              0.8741520
## [20] {toothed=FALSE} => {tail=TRUE} 0.2277228 0.5750000
                                                              0.7743333
##
       lhs
                                         rhs
                                                      support
                                                                confidence
## [1] {eggs=TRUE,aquatic=FALSE}
                                     => {tail=FALSE} 0.1089109 0.3793103
## [2] {milk=FALSE,aquatic=FALSE}
                                     => {tail=FALSE} 0.1089109 0.3666667
  [3] {aquatic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
##
       lift
## [1] 1.473475
## [2] 1.424359
  [3] 1.371041
##
##
                                     rhs
                                                   support
                                                             confidence
## [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
  [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
##
##
       lift
## [1] 1.174419
## [2] 1.095661
       lhs
                                          rhs
                                                        support
                                                                  confidence
## [1] {domestic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
## [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
## [3] {fins=FALSE,domestic=FALSE}
                                       => {tail=FALSE} 0.2178218 0.3055556
## [4] {legs=TRUE,domestic=FALSE}
                                       => {tail=FALSE} 0.1782178 0.2727273
##
       lift
## [1] 1.398462
## [2] 1.258397
## [3] 1.186966
## [4] 1.059441
##
       lhs
                                                        support
                                          rhs
                                                                  confidence
  [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
##
       lift.
## [1] 1.371041
##
       lhs
                                      rhs
                                                    support
                                                              confidence
## [1] {hair=FALSE, feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
## [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
## [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
## [4] {hair=FALSE,legs=TRUE}
                                   => {tail=FALSE} 0.1188119 0.3333333
##
       lift
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
##
       lhs
                                          rhs
                                                        support
                                                                  confidence
## [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE}
                                       => {tail=FALSE} 0.1980198 0.5128205
```

```
## [3] {feathers=FALSE,milk=FALSE}
                                       => {tail=FALSE} 0.1980198 0.5000000
## [4] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
## [5] {hair=FALSE,feathers=FALSE}
                                       => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                       => {tail=FALSE} 0.2475248 0.3906250
## [7] {feathers=FALSE,legs=TRUE}
                                        => {tail=FALSE} 0.2079208 0.3620690
## [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
## [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
##
       lift
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
## [7] 1.406499
## [8] 1.371041
## [9] 1.258397
##
       lhs
                                     rhs
                                                   support
                                                             confidence
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
## [2] {eggs=TRUE,fins=FALSE}
                                  => {tail=FALSE} 0.1980198 0.4347826
## [3] {eggs=TRUE,legs=TRUE}
                                  => {tail=FALSE} 0.1584158 0.4000000
## [4] {eggs=TRUE,aquatic=FALSE} => {tail=FALSE} 0.1089109 0.3793103
## [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
       lift.
## [1] 1.992110
## [2] 1.688963
## [3] 1.553846
## [4] 1.473475
## [5] 1.469854
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
## [2] {fins=FALSE,catsize=FALSE}
                                      => {tail=FALSE} 0.1980198 0.4166667
## [3] {legs=TRUE,catsize=FALSE}
                                      => {tail=FALSE} 0.1584158 0.3902439
## [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
## [5] {domestic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
## [6] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.806798
## [2] 1.618590
## [3] 1.515947
## [4] 1.510684
## [5] 1.398462
##
  [6] 1.371041
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
## [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
       lift
## [1] 3.301923
## [2] 2.373932
  [1] "Número de reglas con consecuente negado"
##
                                           rhs
        lhs
                                                             support
## [1]
        {type=fish}
                                         => {breathes=FALSE} 0.1287129
## [2]
        {eggs=TRUE,fins=TRUE}
                                        => {breathes=FALSE} 0.1287129
## [3]
       {milk=FALSE,fins=TRUE}
                                         => {breathes=FALSE} 0.1287129
```

```
[4]
        {hair=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
                                            {breathes=FALSE} 0.1485149
##
   [5]
        {aquatic=TRUE,legs=FALSE}
##
   [6]
        {milk=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
   [7]
        {eggs=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
##
##
   [8]
        {legs=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
        {hair=FALSE,legs=FALSE}
##
   [9]
                                            {breathes=FALSE} 0.1584158
       {predator=TRUE,legs=FALSE}
  Γ107
                                            {breathes=FALSE} 0.1188119
  [11]
       {milk=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
##
   [12] {feathers=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [13] {milk=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
  [14] {aquatic=TRUE,catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
   [15]
       {eggs=TRUE,toothed=TRUE}
                                            {breathes=FALSE} 0.1287129
       {airborne=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [16]
       {eggs=TRUE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1881188
  [18] {hair=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
        {aquatic=TRUE, toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
   [20]
        {hair=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
       {hair=FALSE, feathers=FALSE}
                                            {breathes=FALSE} 0.2079208
   [21]
                                            {breathes=FALSE} 0.2079208
   [22] {milk=FALSE,airborne=FALSE}
   [23] {eggs=TRUE,airborne=FALSE}
                                            {breathes=FALSE} 0.1980198
##
  [24] {hair=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
  [25] {feathers=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
                                            {breathes=FALSE} 0.1980198
  [26] {feathers=FALSE,eggs=TRUE}
##
   [27] {milk=FALSE,predator=TRUE}
##
                                            {breathes=FALSE} 0.1683168
   [28]
       {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
   [29] {hair=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [30] {airborne=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
##
   [31] {predator=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
  [32]
       {hair=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
  [33] {feathers=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [34]
        {hair=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
##
   [35]
        {hair=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
   [36]
       {hair=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
##
   [37]
        {milk=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
        {feathers=FALSE, predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [38]
   [39]
##
       {eggs=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1881188
       {airborne=FALSE, predator=TRUE}
                                            {breathes=FALSE} 0.1683168
  [41] {domestic=FALSE, catsize=FALSE}
                                         =>
                                            {breathes=FALSE} 0.1485149
       {airborne=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
   [43] {feathers=FALSE,airborne=FALSE} =>
                                            {breathes=FALSE} 0.2079208
   [44] {feathers=FALSE,domestic=FALSE} =>
                                            {breathes=FALSE} 0.1980198
   [45] {toothed=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1287129
##
##
   Γ461
       {tail=TRUE}
                                         => {breathes=FALSE} 0.1386139
##
        confidence lift
##
  [1]
        1.0000000
                   4.8095238
   [2]
##
        1.0000000
                   4.8095238
##
   [3]
        1.0000000
                   4.8095238
##
   [4]
        0.8666667
                   4.1682540
##
   [5]
        0.8333333
                   4.0079365
##
   [6]
        0.8000000
                   3.8476190
        0.7894737
##
   [7]
                   3.7969925
##
  [8]
        0.7500000
                   3.6071429
##
  [9]
        0.7272727
                   3.4978355
## [10] 0.7058824
                   3.3949580
```

```
3.2063492
## [11] 0.6666667
   [12] 0.6666667
                   3.2063492
                    3.2063492
   [13] 0.6666667
   [14] 0.6521739
                    3.1366460
   [15] 0.6500000
                    3.1261905
##
   [16] 0.6451613
                    3.1029186
   [17] 0.6333333
                    3.0460317
   [18] 0.6250000
                    3.0059524
   [19] 0.6086957
                    2.9275362
   [20] 0.6086957
                    2.9275362
   [21] 0.5526316
                    2.6578947
   [22] 0.5526316
                    2.6578947
##
   [23] 0.5405405
                    2.5997426
   [24] 0.5250000
                    2.5250000
   [25] 0.5250000
                    2.5250000
   [26] 0.5128205
                    2.4664225
   [27] 0.5000000
                    2.4047619
   [28] 0.4848485
                    2.3318903
   [29] 0.4722222
                    2.2711640
   [30] 0.444444
                    2.1375661
##
   [31] 0.4285714
                    2.0612245
   [32] 0.3750000
                    1.8035714
##
   [33] 0.3720930
                    1.7895903
##
   [34] 0.3703704
                    1.7813051
   [35] 0.3703704
                    1.7813051
   [36] 0.3636364
                    1.7489177
   [37] 0.3636364
                    1.7489177
##
   [38] 0.3617021
                    1.7396150
   [39] 0.3518519
                    1.6922399
   [40] 0.3469388
                    1.6686103
   [41] 0.3000000
                    1.4428571
##
   [42] 0.2941176
                    1.4145658
   [43] 0.2876712
                    1.3835616
   [44] 0.2816901
                    1.3547954
   [45]
        0.2500000
                    1.2023810
   Γ46]
##
       0.1866667
                   0.8977778
##
        lhs
                                              support
                                                        confidence lift
## [1]
                          => {breathes=TRUE} 0.1980198 1.0000000
        {type=bird}
                                                                    1.2625000
##
   [2]
                             {breathes=TRUE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                                    1.2625000
##
   [3]
        {airborne=TRUE}
                             {breathes=TRUE} 0.2376238 1.0000000
                                                                    1.2625000
   [4]
        {milk=TRUE}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                    1.2625000
   [5]
        {type=mammal}
                             {breathes=TRUE} 0.4059406 1.0000000
##
                                                                    1.2625000
##
   [6]
        {hair=TRUE}
                             {breathes=TRUE} 0.4257426 1.0000000
                                                                    1.2625000
##
   [7]
        {aquatic=FALSE}
                             {breathes=TRUE} 0.6336634 0.9846154
                                                                    1.2430769
                                                                    1.2324405
##
   [8]
        {eggs=FALSE}
                             {breathes=TRUE} 0.4059406 0.9761905
   [9]
                             {breathes=TRUE} 0.7227723 0.9358974
##
        {legs=TRUE}
                                                                    1.1815705
##
   [10]
       {domestic=TRUE}
                             {breathes=TRUE} 0.1188119 0.9230769
                                                                    1.1653846
   [11] {predator=FALSE}
                             {breathes=TRUE} 0.4059406 0.9111111
                                                                    1.1502778
   [12] {catsize=TRUE}
                             {breathes=TRUE} 0.3861386 0.8863636
                                                                    1.1190341
   [13]
       {toothed=FALSE}
                             {breathes=TRUE} 0.3267327 0.8250000
                                                                    1.0415625
                          => {breathes=TRUE} 0.6039604 0.8133333
##
   [14]
       {tail=TRUE}
                                                                    1.0268333
## [15] {domestic=FALSE} => {breathes=TRUE} 0.6732673 0.7727273
                                                                    0.9755682
## [16] {tail=FALSE}
                          => {breathes=TRUE} 0.1881188 0.7307692
                                                                    0.9225962
## [17] {airborne=FALSE} => {breathes=TRUE} 0.5544554 0.7272727
```

```
## [18] {catsize=FALSE} => {breathes=TRUE} 0.4059406 0.7192982
                                                                 0.9081140
                         => {breathes=TRUE} 0.3861386 0.6964286
  [19] {predator=TRUE}
                                                                 0.8792411
  [20] {eggs=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6610169
  [21] {milk=FALSE}
                         => {breathes=TRUE} 0.3861386 0.6500000
                                                                  0.8206250
   [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
                                                                  0.7715278
##
       lhs
                                          rhs
                                                            support
## [1] {hair=FALSE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1980198
## [2] {milk=FALSE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1980198
  [3] {eggs=TRUE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1881188
  [4] {domestic=FALSE, catsize=FALSE}
                                       => {breathes=FALSE} 0.1485149
  [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [7] {toothed=TRUE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1287129
##
       confidence lift
## [1] 0.3703704 1.781305
  [2] 0.3636364
                  1.748918
  [3] 0.3518519
                  1.692240
  [4] 0.3000000
                  1.442857
  [5] 0.2941176
                  1.414566
  [6] 0.2816901
                  1.354795
##
  [7] 0.2500000
                  1.202381
##
       lhs
                                          rhs
                                                            support
## [1] {airborne=FALSE,aquatic=TRUE}
                                       => {breathes=FALSE} 0.1980198
  [2] {milk=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
  [3] {eggs=TRUE,airborne=FALSE}
                                       => {breathes=FALSE} 0.1980198
  [4] {hair=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
  [5] {airborne=FALSE, catsize=FALSE}
                                       => {breathes=FALSE} 0.1584158
   [6] {airborne=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
  [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
  [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
##
       confidence lift
## [1] 0.6451613 3.102919
  [2] 0.5526316
                 2.657895
## [3] 0.5405405
                  2.599743
   [4] 0.5250000
                  2.525000
##
  [5] 0.444444
                  2.137566
  [6] 0.3469388
                  1.668610
## [7] 0.2941176
                  1.414566
  [8] 0.2876712 1.383562
##
##
       lhs
                                         rhs
                                                           support
## [1] {legs=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [2] {aquatic=TRUE, catsize=FALSE}
                                      => {breathes=FALSE} 0.1485149
  [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
  [4] {predator=TRUE, catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
## [5] {feathers=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
  [6] {hair=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1584158
##
   [7] {domestic=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1485149
##
       confidence lift
## [1] 0.7500000
                  3.607143
## [2] 0.6521739
                  3.136646
## [3] 0.444444
                  2.137566
## [4] 0.4285714
                  2.061224
## [5] 0.3720930
                  1.789590
## [6] 0.3636364 1.748918
```

```
## [7] 0.3000000 1.442857
##
       lhs
                                          rhs
                                                           support
  [1] {predator=TRUE,legs=FALSE}
                                       => {breathes=FALSE} 0.1188119
  [2] {milk=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
  [3] {eggs=TRUE,predator=TRUE}
                                       => {breathes=FALSE} 0.1584158
  [4] {hair=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
  [5] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
##
   [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
##
       confidence lift
## [1] 0.7058824
                  3.394958
  [2] 0.5000000
                  2.404762
##
  [3] 0.4848485
                  2.331890
## [4] 0.472222
                  2.271164
## [5] 0.4285714
                  2.061224
   [6] 0.3617021
                  1.739615
##
  [7] 0.3469388
                 1.668610
##
       lhs
                                                       support
                                                                 confidence
                                  => {breathes=FALSE} 0.1287129 1.0000000
## [1] {eggs=TRUE,fins=TRUE}
  [2] {eggs=TRUE,legs=FALSE}
                                  => {breathes=FALSE} 0.1485149 0.7894737
## [3] {eggs=TRUE,toothed=TRUE}
                                  => {breathes=FALSE} 0.1287129 0.6500000
                                  => {breathes=FALSE} 0.1881188 0.6333333
## [4] {eggs=TRUE,aquatic=TRUE}
## [5] {eggs=TRUE,airborne=FALSE} => {breathes=FALSE} 0.1980198 0.5405405
  [6] {feathers=FALSE,eggs=TRUE} => {breathes=FALSE} 0.1980198 0.5128205
  [7] {eggs=TRUE,predator=TRUE}
                                  => {breathes=FALSE} 0.1584158 0.4848485
  [8] {hair=FALSE,eggs=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.3703704
   [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
       lift
## [1] 4.809524
## [2] 3.796992
## [3] 3.126190
##
  [4] 3.046032
## [5] 2.599743
## [6] 2.466422
   [7] 2.331890
  [8] 1.781305
##
##
  [9] 1.692240
##
       lhs
                                                        support
                                                                  confidence
## [1] {milk=FALSE,fins=TRUE}
                                   => {breathes=FALSE} 0.1287129 1.0000000
                                   => {breathes=FALSE} 0.1584158 0.8000000
  [2] {milk=FALSE,legs=FALSE}
  [3] {milk=FALSE,aquatic=TRUE}
                                   => {breathes=FALSE} 0.1980198 0.6666667
  [4] {milk=FALSE,toothed=TRUE}
                                   => {breathes=FALSE} 0.1386139 0.6666667
## [5] {milk=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208 0.5526316
## [6] {feathers=FALSE,milk=FALSE} => {breathes=FALSE} 0.2079208 0.5250000
## [7] {milk=FALSE,predator=TRUE}
                                   => {breathes=FALSE} 0.1683168 0.5000000
## [8] {hair=FALSE,milk=FALSE}
                                   => {breathes=FALSE} 0.2079208 0.3750000
##
   [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
       lift
## [1] 4.809524
## [2] 3.847619
## [3] 3.206349
## [4] 3.206349
## [5] 2.657895
## [6] 2.525000
```

```
[7] 2.404762
   [8] 1.803571
   [9] 1.748918
       "Número de reglas con consecuente negado"
                                                         support
                                                                   confidence
##
        {backbone=FALSE, venomous=FALSE} => {tail=FALSE} 0.1386139 1.0000000
  [1]
  [2]
        {backbone=FALSE}
                                         => {tail=FALSE} 0.1683168 0.9444444
  [3]
##
        {feathers=FALSE, toothed=FALSE}
                                         => {tail=FALSE} 0.1683168 0.8500000
##
   [4]
        {airborne=FALSE, toothed=FALSE}
                                           {tail=FALSE} 0.1089109 0.6111111
##
   [5]
        {feathers=FALSE,eggs=TRUE}
                                         => {tail=FALSE} 0.1980198 0.5128205
  [6]
        {feathers=FALSE,milk=FALSE}
                                         => {tail=FALSE} 0.1980198 0.5000000
  [7]
##
        {feathers=FALSE, catsize=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4651163
##
   [8]
        {eggs=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4347826
                                         => {tail=FALSE} 0.1980198 0.4255319
##
  [9]
        {milk=FALSE,fins=FALSE}
## [10] {hair=FALSE,feathers=FALSE}
                                         => {tail=FALSE} 0.1584158 0.4210526
  [11]
       {fins=FALSE,catsize=FALSE}
                                           {tail=FALSE} 0.1980198 0.4166667
  [12] {eggs=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
  [13] {milk=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
                                           {tail=FALSE} 0.2475248 0.3906250
  [14] {feathers=FALSE,fins=FALSE}
  [15] {legs=TRUE,catsize=FALSE}
                                            {tail=FALSE} 0.1584158 0.3902439
  [16] {airborne=FALSE, catsize=FALSE}
                                           {tail=FALSE} 0.1386139 0.3888889
  [17] {eggs=TRUE,aquatic=FALSE}
                                           {tail=FALSE} 0.1089109 0.3793103
                                           {tail=FALSE} 0.1386139 0.3783784
  [18] {eggs=TRUE,airborne=FALSE}
  [19] {hair=FALSE,fins=FALSE}
                                            {tail=FALSE} 0.1584158 0.3720930
  [20] {milk=FALSE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3684211
  [21] {milk=FALSE,aquatic=FALSE}
                                           {tail=FALSE} 0.1089109 0.3666667
  [22] {feathers=FALSE,legs=TRUE}
                                           {tail=FALSE} 0.2079208 0.3620690
  [23] {domestic=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1782178 0.3600000
## [24] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
## [25] {aquatic=FALSE, catsize=FALSE}
                                         => {tail=FALSE} 0.1188119 0.3529412
  [26] {hair=FALSE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3500000
  [27]
       {hair=FALSE,legs=TRUE}
                                           {tail=FALSE} 0.1188119 0.3333333
  [28] {feathers=FALSE,domestic=FALSE}
                                        => {tail=FALSE} 0.2277228 0.3239437
                                         => {tail=FALSE} 0.1881188 0.3166667
  [29] {airborne=FALSE,fins=FALSE}
   [30] {fins=FALSE,domestic=FALSE}
                                           {tail=FALSE} 0.2178218 0.3055556
                                         => {tail=FALSE} 0.1287129 0.3023256
##
  [31] {predator=TRUE,fins=FALSE}
  [32] {fins=FALSE}
                                           {tail=FALSE} 0.2475248 0.2976190
                                           {tail=FALSE} 0.1089109 0.2820513
  [33] {predator=TRUE,legs=TRUE}
       {airborne=FALSE,legs=TRUE}
                                            {tail=FALSE} 0.1485149 0.2777778
  [34]
##
  [35] {legs=TRUE,domestic=FALSE}
                                         => {tail=FALSE} 0.1782178 0.2727273
   [36] {domestic=FALSE}
                                         => {tail=FALSE} 0.2277228 0.2613636
   [37] {predator=TRUE}
                                         => {tail=FALSE} 0.1386139 0.2500000
##
   [38]
       {venomous=FALSE}
                                         => {tail=FALSE} 0.2178218 0.2365591
##
        lift
## [1]
        3.8846154
  [2]
        3.6688034
##
##
   [3]
        3.3019231
##
  [4]
        2.3739316
##
   [5]
        1.9921105
##
   [6]
        1.9423077
   [7]
##
        1.8067979
## [8]
        1.6889632
## [9]
        1.6530278
## [10] 1.6356275
```

```
## [11] 1.6185897
  [12] 1.5538462
  [13] 1.5538462
  [14] 1.5174279
   [15] 1.5159475
  [16] 1.5106838
  [17] 1.4734748
## [18] 1.4698545
   [19] 1.4454383
  [20] 1.4311741
  [21] 1.4243590
  [22] 1.4064987
  [23] 1.3984615
  [24] 1.3710407
  [25] 1.3710407
   [26] 1.3596154
   [27] 1.2948718
   [28] 1.2583965
  [29] 1.2301282
   [30] 1.1869658
##
  [31] 1.1744186
  [32] 1.1561355
  [33] 1.0956607
   [34] 1.0790598
  [35] 1.0594406
   [36] 1.0152972
   [37] 0.9711538
##
##
   [38]
       0.9189413
##
        lhs
                             rhs
                                         support
                                                    confidence lift
##
  [1]
                          => {tail=TRUE} 0.1287129 1.0000000
        {type=fish}
                                                               1.3466667
##
   [2]
        {type=bird}
                             {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
##
   [3]
        {feathers=TRUE}
                             {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
##
  [4]
        {fins=TRUE}
                          => {tail=TRUE} 0.1584158 0.9411765
                                                               1.2674510
  [5]
##
        {catsize=TRUE}
                          => {tail=TRUE} 0.3762376 0.8636364
                                                               1.1630303
##
   [6]
        {eggs=FALSE}
                          => {tail=TRUE} 0.3564356 0.8571429
                                                               1.1542857
        {milk=TRUE}
                          => {tail=TRUE} 0.3465347 0.8536585
##
   [7]
                                                               1.1495935
  [8]
        {type=mammal}
                          => {tail=TRUE} 0.3465347 0.8536585
                                                               1.1495935
##
  [9]
        {legs=FALSE}
                          => {tail=TRUE} 0.1782178 0.7826087
                                                               1.0539130
  [10] {hair=TRUE}
                             {tail=TRUE} 0.3267327 0.7674419
                                                               1.0334884
                          => {tail=TRUE} 0.4851485 0.7538462
  [11] {aquatic=FALSE}
                                                               1.0151795
                          => {tail=TRUE} 0.1782178 0.7500000
  [12] {airborne=TRUE}
                                                               1.0100000
  [13] {predator=TRUE}
                          => {tail=TRUE} 0.4158416 0.7500000
                                                               1.0100000
   [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
                                                               0.9946970
   [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                                                               0.9875556
  [16] {hair=FALSE}
                          => {tail=TRUE} 0.4158416 0.7241379
                                                               0.9751724
  [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
                                                               0.9144033
                                                               0.8901695
   [18] {eggs=TRUE}
                          => {tail=TRUE} 0.3861386 0.6610169
   [19] {catsize=FALSE}
                          => {tail=TRUE} 0.3663366 0.6491228
                                                               0.8741520
                                                               0.7743333
##
   [20] {toothed=FALSE}
                         => {tail=TRUE} 0.2277228 0.5750000
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
##
   [1] {eggs=TRUE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3793103
   [2] {milk=FALSE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3666667
  [3] {aquatic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
```

```
## [1] 1.473475
## [2] 1.424359
## [3] 1.371041
##
       lhs
                                     rhs
                                                   support
                                                             confidence
## [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
  [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
       lift.
## [1] 1.174419
## [2] 1.095661
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {domestic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
## [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
## [3] {fins=FALSE,domestic=FALSE}
                                       => {tail=FALSE} 0.2178218 0.3055556
## [4] {legs=TRUE,domestic=FALSE}
                                       => {tail=FALSE} 0.1782178 0.2727273
##
       lift.
## [1] 1.398462
## [2] 1.258397
## [3] 1.186966
## [4] 1.059441
##
                                          rhs
                                                        support
                                                                  confidence
## [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
## [1] 1.371041
##
                                      rhs
                                                    support
                                                              confidence
## [1] {hair=FALSE, feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
## [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
## [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
                                   => {tail=FALSE} 0.1188119 0.3333333
## [4] {hair=FALSE,legs=TRUE}
##
       lift
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE}
                                       => {tail=FALSE} 0.1980198 0.5128205
## [3] {feathers=FALSE,milk=FALSE}
                                       => {tail=FALSE} 0.1980198 0.5000000
## [4] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
## [5] {hair=FALSE,feathers=FALSE}
                                       => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                       => {tail=FALSE} 0.2475248 0.3906250
## [7] {feathers=FALSE,legs=TRUE}
                                       => {tail=FALSE} 0.2079208 0.3620690
## [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
## [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
##
       lift
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
## [7] 1.406499
## [8] 1.371041
## [9] 1.258397
##
       lhs
                                     rhs
                                                   support
                                                             confidence
```

```
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
                                  => {tail=FALSE} 0.1980198 0.4347826
## [2] {eggs=TRUE,fins=FALSE}
  [3] {eggs=TRUE,legs=TRUE}
                                  => {tail=FALSE} 0.1584158 0.4000000
  [4] {eggs=TRUE,aquatic=FALSE} => {tail=FALSE} 0.1089109 0.3793103
##
   [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
       lift
## [1] 1.992110
## [2] 1.688963
  [3] 1.553846
  [4] 1.473475
  [5] 1.469854
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
## [2] {fins=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4166667
## [3] {legs=TRUE,catsize=FALSE}
                                       => {tail=FALSE} 0.1584158 0.3902439
## [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
  [5] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
   [6] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.806798
## [2] 1.618590
  [3] 1.515947
## [4] 1.510684
##
  [5] 1.398462
  [6] 1.371041
##
                                          rhs
                                                       support
                                                                 confidence
  [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
##
##
   [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
       lift
## [1] 3.301923
##
   [2] 2.373932
##
   [1] "Número de reglas con consecuente negado"
##
                                                         support
##
  [1]
        {backbone=FALSE, venomous=FALSE} =>
                                           {tail=FALSE} 0.1386139 1.0000000
##
   [2]
        {backbone=FALSE}
                                           {tail=FALSE} 0.1683168 0.9444444
  [3]
##
        {feathers=FALSE, toothed=FALSE}
                                        => {tail=FALSE} 0.1683168 0.8500000
  ۲4٦
        {airborne=FALSE, toothed=FALSE}
                                         => {tail=FALSE} 0.1089109 0.6111111
  [5]
        {feathers=FALSE,eggs=TRUE}
                                         => {tail=FALSE} 0.1980198 0.5128205
##
  [6]
        {feathers=FALSE,milk=FALSE}
                                            {tail=FALSE} 0.1980198 0.5000000
##
##
  [7]
        {feathers=FALSE, catsize=FALSE}
                                        => {tail=FALSE} 0.1980198 0.4651163
  [8]
        {eggs=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4347826
        {milk=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4255319
  [9]
## [10] {hair=FALSE, feathers=FALSE}
                                         => {tail=FALSE} 0.1584158 0.4210526
## [11] {fins=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4166667
## [12] {eggs=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
                                         => {tail=FALSE} 0.1584158 0.4000000
## [13] {milk=FALSE,legs=TRUE}
## [14] {feathers=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.3906250
## [15] {legs=TRUE,catsize=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3902439
## [16] {airborne=FALSE,catsize=FALSE}
                                        => {tail=FALSE} 0.1386139 0.3888889
## [17] {eggs=TRUE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3793103
## [18] {eggs=TRUE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3783784
## [19] {hair=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3720930
## [20] {milk=FALSE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3684211
## [21] {milk=FALSE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3666667
```

```
## [22] {feathers=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.2079208 0.3620690
  [23] {domestic=FALSE,catsize=FALSE}
                                        => {tail=FALSE} 0.1782178 0.3600000
  [24] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
## [25] {aquatic=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1188119 0.3529412
## [26] {hair=FALSE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3500000
## [27] {hair=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1188119 0.3333333
## [28] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
## [29] {airborne=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1881188 0.3166667
  [30] {fins=FALSE,domestic=FALSE}
                                         => {tail=FALSE} 0.2178218 0.3055556
  [31] {predator=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1287129 0.3023256
  [32] {fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.2976190
  [33] {predator=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1089109 0.2820513
  [34] {airborne=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1485149 0.2777778
## [35] {legs=TRUE,domestic=FALSE}
                                         => {tail=FALSE} 0.1782178 0.2727273
## [36] {domestic=FALSE}
                                         => {tail=FALSE} 0.2277228 0.2613636
  [37] {predator=TRUE}
                                         => {tail=FALSE} 0.1386139 0.2500000
##
   [38] {venomous=FALSE}
                                        => {tail=FALSE} 0.2178218 0.2365591
##
        lift
  [1]
       3.8846154
##
##
   [2]
       3.6688034
  [3]
##
       3.3019231
## [4]
        2.3739316
## [5]
        1.9921105
  [6]
##
        1.9423077
## [7]
        1.8067979
  [8]
        1.6889632
## [9]
        1.6530278
## [10] 1.6356275
## [11] 1.6185897
## [12] 1.5538462
## [13] 1.5538462
## [14] 1.5174279
## [15] 1.5159475
## [16] 1.5106838
## [17] 1.4734748
## [18] 1.4698545
## [19] 1.4454383
## [20] 1.4311741
## [21] 1.4243590
## [22] 1.4064987
## [23] 1.3984615
## [24] 1.3710407
## [25] 1.3710407
## [26] 1.3596154
## [27] 1.2948718
## [28] 1.2583965
## [29] 1.2301282
## [30] 1.1869658
## [31] 1.1744186
## [32] 1.1561355
## [33] 1.0956607
## [34] 1.0790598
## [35] 1.0594406
## [36] 1.0152972
```

```
## [37] 0.9711538
##
  [38] 0.9189413
##
        lhs
                                        support
                                                   confidence lift
                         => {tail=TRUE} 0.1287129 1.0000000
## [1]
                                                              1.3466667
        {type=fish}
##
  [2]
        {type=bird}
                         => {tail=TRUE} 0.1980198 1.0000000
                                                              1.3466667
  [3]
                         => {tail=TRUE} 0.1980198 1.0000000
                                                              1.3466667
##
        {feathers=TRUE}
## [4]
                         => {tail=TRUE} 0.1584158 0.9411765
        {fins=TRUE}
                                                              1.2674510
## [5]
        {catsize=TRUE}
                         => {tail=TRUE} 0.3762376 0.8636364
                                                              1.1630303
## [6]
        {eggs=FALSE}
                         => {tail=TRUE} 0.3564356 0.8571429
                                                              1.1542857
## [7]
        {milk=TRUE}
                         => {tail=TRUE} 0.3465347 0.8536585
                                                              1.1495935
## [8]
        {type=mammal}
                         => {tail=TRUE} 0.3465347 0.8536585
                                                              1.1495935
## [9]
                         => {tail=TRUE} 0.1782178 0.7826087
        {legs=FALSE}
                                                              1.0539130
## [10] {hair=TRUE}
                         => {tail=TRUE} 0.3267327 0.7674419
                                                              1.0334884
## [11] {aquatic=FALSE}
                         => {tail=TRUE} 0.4851485 0.7538462
                                                              1.0151795
                         => {tail=TRUE} 0.1782178 0.7500000
## [12] {airborne=TRUE}
                                                              1.0100000
## [13] {predator=TRUE}
                         => {tail=TRUE} 0.4158416 0.7500000
                                                              1.0100000
## [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
                                                              0.9946970
## [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                         => {tail=TRUE} 0.4158416 0.7241379
## [16] {hair=FALSE}
                                                              0.9751724
## [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
## [18] {eggs=TRUE}
                         => {tail=TRUE} 0.3861386 0.6610169
                                                              0.8901695
## [19] {catsize=FALSE} => {tail=TRUE} 0.3663366 0.6491228
                                                              0.8741520
## [20] {toothed=FALSE} => {tail=TRUE} 0.2277228 0.5750000
                                                              0.7743333
                                         rhs
                                                      support
                                                                confidence
## [1] {eggs=TRUE,aquatic=FALSE}
                                     => {tail=FALSE} 0.1089109 0.3793103
  [2] {milk=FALSE,aquatic=FALSE}
                                     => {tail=FALSE} 0.1089109 0.3666667
  [3] {aquatic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.473475
## [2] 1.424359
## [3] 1.371041
##
       lhs
                                     rhs
                                                   support
                                                             confidence
  [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
  [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
##
       lift
## [1] 1.174419
## [2] 1.095661
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {domestic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
  [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
  [3] {fins=FALSE,domestic=FALSE}
                                       => {tail=FALSE} 0.2178218 0.3055556
  [4] {legs=TRUE,domestic=FALSE}
                                       => {tail=FALSE} 0.1782178 0.2727273
##
##
       lift
## [1] 1.398462
## [2] 1.258397
## [3] 1.186966
##
  [4] 1.059441
##
       lhs
                                           rhs
                                                        support
  [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.371041
##
       lhs
                                      rhs
                                                    support
## [1] {hair=FALSE,feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
## [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
```

```
## [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
  [4] {hair=FALSE,legs=TRUE}
                                   => {tail=FALSE} 0.1188119 0.3333333
##
##
       lift
## [1] 1.635628
  [2] 1.445438
## [3] 1.359615
## [4] 1.294872
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {tail=FALSE} 0.1683168 0.8500000
  [2] {feathers=FALSE,eggs=TRUE}
                                       => {tail=FALSE} 0.1980198 0.5128205
## [3] {feathers=FALSE,milk=FALSE}
                                       => {tail=FALSE} 0.1980198 0.5000000
## [4] {feathers=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4651163
## [5] {hair=FALSE,feathers=FALSE}
                                       => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                       => {tail=FALSE} 0.2475248 0.3906250
## [7] {feathers=FALSE,legs=TRUE}
                                       => {tail=FALSE} 0.2079208 0.3620690
## [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
  [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
##
##
       lift
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
## [7] 1.406499
## [8] 1.371041
## [9] 1.258397
##
       lhs
                                     rhs
                                                   support
                                                             confidence
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
## [2] {eggs=TRUE,fins=FALSE}
                                  => {tail=FALSE} 0.1980198 0.4347826
## [3] {eggs=TRUE,legs=TRUE}
                                  => {tail=FALSE} 0.1584158 0.4000000
## [4] {eggs=TRUE,aquatic=FALSE} => {tail=FALSE} 0.1089109 0.3793103
##
  [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
       lift
## [1] 1.992110
## [2] 1.688963
## [3] 1.553846
## [4] 1.473475
## [5] 1.469854
##
       lhs
                                                                 confidence
                                          rhs
                                                       support
## [1] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
## [2] {fins=FALSE,catsize=FALSE}
                                      => {tail=FALSE} 0.1980198 0.4166667
## [3] {legs=TRUE,catsize=FALSE}
                                      => {tail=FALSE} 0.1584158 0.3902439
## [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
## [5] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
## [6] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.806798
## [2] 1.618590
## [3] 1.515947
## [4] 1.510684
## [5] 1.398462
## [6] 1.371041
##
       lhs
                                                       support
                                                                 confidence
                                          rhs
```

```
## [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
   [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
       lift
  [1] 3.301923
##
##
   [2] 2.373932
##
   [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                            support
## [1]
        {type=bird}
                                         => {toothed=FALSE} 0.1980198
##
   [2]
        {feathers=TRUE}
                                            {toothed=FALSE} 0.1980198
   [3]
##
        {hair=FALSE,airborne=TRUE}
                                           {toothed=FALSE} 0.1782178
   [4]
        {eggs=TRUE,airborne=TRUE}
                                           {toothed=FALSE} 0.2178218
   [5]
##
        {milk=FALSE,airborne=TRUE}
                                           {toothed=FALSE} 0.2178218
##
   [6]
        {milk=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2673267
        {eggs=TRUE,aquatic=FALSE}
                                           {toothed=FALSE} 0.2574257
##
   [7]
  [8]
                                           {toothed=FALSE} 0.2277228
##
        {hair=FALSE,aquatic=FALSE}
##
   [9]
        {eggs=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
##
  [10] {milk=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
  [11] {hair=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3069307
  [12] {eggs=TRUE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
  [13] {milk=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
##
  [14] {eggs=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
  [15] {milk=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
  [16] {eggs=TRUE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
  [17] {milk=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
  [18] {hair=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3465347
  [19] {hair=FALSE,tail=FALSE}
                                           {toothed=FALSE} 0.1287129
  [20] {eggs=TRUE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
  [21] {milk=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
## [22] {tail=FALSE,catsize=FALSE}
                                           {toothed=FALSE} 0.1584158
## [23] {hair=FALSE,predator=FALSE}
                                           {toothed=FALSE} 0.1683168
## [24] {hair=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.2772277
   [25]
       {tail=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.1584158
  [26] {aquatic=FALSE,tail=FALSE}
                                           {toothed=FALSE} 0.1089109
  [27] {aquatic=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.1287129
   [28] {fins=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
##
  [29] {eggs=TRUE, venomous=FALSE}
                                            {toothed=FALSE} 0.3564356
  [30] {milk=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3465347
  [31] {aquatic=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.1188119
   [32] {legs=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
##
  [33] {tail=FALSE}
                                            {toothed=FALSE} 0.1683168
  [34] {milk=FALSE}
                                            {toothed=FALSE} 0.3861386
  [35] {aquatic=FALSE, catsize=FALSE}
                                           {toothed=FALSE} 0.2178218
   [36] {fins=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
  [37] {hair=FALSE, venomous=FALSE}
                                         => {toothed=FALSE} 0.3267327
##
## [38] {hair=FALSE,catsize=FALSE}
                                         => {toothed=FALSE} 0.2673267
## [39]
       {breathes=TRUE,catsize=FALSE}
                                           {toothed=FALSE} 0.2475248
##
  [40] {predator=FALSE, catsize=FALSE}
                                            {toothed=FALSE} 0.1683168
  [41] {catsize=FALSE}
                                           {toothed=FALSE} 0.3069307
  [42] {predator=FALSE,fins=FALSE}
                                         => {toothed=FALSE} 0.2079208
  [43] {predator=FALSE,domestic=FALSE} =>
                                            {toothed=FALSE} 0.1683168
## [44] {fins=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.3564356
## [45] {predator=FALSE,legs=TRUE}
                                           {toothed=FALSE} 0.1881188
## [46] {legs=TRUE,domestic=FALSE}
                                         => {toothed=FALSE} 0.3168317
## [47] {aquatic=FALSE,domestic=FALSE}
                                         => {toothed=FALSE} 0.2277228
```

```
## [48] {breathes=TRUE,domestic=FALSE} => {toothed=FALSE} 0.2871287
                                         => {toothed=FALSE} 0.1881188
##
  [49] {predator=TRUE}
##
        confidence lift
        1.0000000 2.5250000
## [1]
##
  [2]
        1.0000000
                   2.5250000
##
  [3]
        1.0000000
                   2.5250000
## [4]
        1.0000000
                   2.5250000
## [5]
        1.0000000
                   2.5250000
## [6]
        0.9000000
                   2.2725000
## [7]
        0.8965517
                   2.2637931
## [8]
        0.8846154
                   2.2336538
        0.8750000
## [9]
                   2.2093750
## [10] 0.8750000
                   2.2093750
## [11] 0.8611111
                   2.1743056
## [12] 0.8500000
                   2.1462500
## [13] 0.8500000
                   2.1462500
## [14] 0.8478261
                   2.1407609
## [15] 0.8297872
                   2.0952128
## [16] 0.8205128
                   2.0717949
## [17] 0.8205128
                   2.0717949
## [18] 0.8139535
                   2.0552326
## [19] 0.8125000
                   2.0515625
## [20] 0.8076923
                   2.0394231
## [21] 0.8076923
                   2.0394231
## [22] 0.8000000
                   2.0200000
## [23] 0.7727273
                   1.9511364
## [24] 0.7567568
                   1.9108108
## [25] 0.6956522
                   1.7565217
## [26] 0.6875000
                   1.7359375
## [27] 0.6842105
                   1.7276316
## [28] 0.6800000
                   1.7170000
## [29] 0.6792453
                   1.7150943
## [30] 0.6730769
                   1.6995192
## [31] 0.6666667
                   1.6833333
## [32] 0.6585366
                   1.6628049
## [33] 0.6538462
                   1.6509615
## [34] 0.6500000
                   1.6412500
## [35] 0.6470588
                   1.6338235
  [36] 0.6458333
                   1.6307292
## [37] 0.6346154
                   1.6024038
## [38] 0.6136364
                   1.5494318
## [39] 0.6097561
                   1.5396341
## [40] 0.5862069
                   1.4801724
## [41] 0.5438596
                   1.3732456
## [42] 0.5121951
                   1.2932927
## [43] 0.5000000
                   1.2625000
## [44] 0.5000000
                   1.2625000
## [45] 0.4871795
                   1.2301282
## [46] 0.4848485
                   1.2242424
## [47]
       0.4339623
                   1.0957547
## [48] 0.4264706
                   1.0768382
## [49] 0.3392857
                   0.8566964
##
        lhs
                                            support
                                                       confidence lift
                             rhs
## [1] {type=fish}
                         => {toothed=TRUE} 0.1287129 1.0000000 1.6557377
```

```
[2]
        {fins=TRUE}
                          => {toothed=TRUE} 0.1683168 1.0000000
                                                                  1.6557377
##
  [3]
                          => {toothed=TRUE} 0.4059406 0.9761905
        {eggs=FALSE}
                                                                  1.6163154
  [4]
        {legs=FALSE}
                          => {toothed=TRUE} 0.1881188 0.8260870
                                                                  1.3677833
  [5]
                          => {toothed=TRUE} 0.3465347 0.7954545
##
        {catsize=TRUE}
                                                                  1.3170641
##
   [6]
        {feathers=FALSE}
                         => {toothed=TRUE} 0.6039604 0.7530864
                                                                  1.2469136
##
   [7]
        {tail=TRUE}
                          => {toothed=TRUE} 0.5148515 0.6933333
                                                                  1.1479781
  [8]
        {breathes=FALSE} => {toothed=TRUE} 0.1386139 0.6666667
                                                                  1.1038251
##
  [9]
        {predator=TRUE}
                         => {toothed=TRUE} 0.3663366 0.6607143
                                                                  1.0939696
##
   [10] {aquatic=TRUE}
                          => {toothed=TRUE} 0.2277228 0.6388889
                                                                  1.0578324
  [11] {domestic=FALSE}
                         => {toothed=TRUE} 0.5148515 0.5909091
                                                                  0.9783905
  [12] {breathes=TRUE}
                          => {toothed=TRUE} 0.4653465 0.5875000
                                                                  0.9727459
   [13] {predator=FALSE}
                         => {toothed=TRUE} 0.2376238 0.5333333
                                                                  0.8830601
   [14] {catsize=FALSE}
                         => {toothed=TRUE} 0.2574257 0.4561404
                                                                  0.7552488
   [15] {hair=FALSE}
                          => {toothed=TRUE} 0.2277228 0.3965517
##
   [16] {eggs=TRUE}
                          => {toothed=TRUE} 0.1980198 0.3389831
                                                                  0.5612670
##
       lhs
                                     rhs
                                                      support
                                                                confidence
##
   [1] {aquatic=TRUE,fins=FALSE} => {toothed=FALSE} 0.1287129 0.6842105
   [2] {aquatic=TRUE,legs=TRUE} => {toothed=FALSE} 0.1188119 0.6666667
##
       lift
##
   [1] 1.727632
##
   [2] 1.683333
##
       lhs
                                           rhs
                                                            support
  [1] {tail=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.1584158
##
   [2] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
   [3] {fins=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3564356
   [4] {legs=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3168317
   [5] {aquatic=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2277228
##
      {breathes=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2871287
##
       confidence lift
  [1] 0.6956522 1.756522
##
   [2] 0.5000000
                  1.262500
##
   [3] 0.5000000
                  1.262500
   [4] 0.4848485
                  1.224242
   [5] 0.4339623
                  1.095755
   [6]
       0.4264706
##
                  1.076838
##
       lhs
                                          rhs
                                                           support
                                                                     confidence
  [1] {eggs=TRUE,breathes=TRUE}
                                          {toothed=FALSE} 0.3168317 0.8205128
  [2] {milk=FALSE,breathes=TRUE}
                                         {toothed=FALSE} 0.3168317 0.8205128
   [3] {hair=FALSE,breathes=TRUE}
                                          {toothed=FALSE} 0.2772277 0.7567568
   [4] {breathes=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2475248 0.6097561
   [5] {breathes=TRUE,domestic=FALSE} => {toothed=FALSE} 0.2871287 0.4264706
##
       lift.
## [1] 2.071795
##
  [2] 2.071795
  [3] 1.910811
  [4] 1.539634
##
   [5] 1.076838
##
       lhs
                                           rhs
                                                            support
                                        => {toothed=FALSE} 0.2079208
  [1] {eggs=TRUE,predator=FALSE}
   [2] {milk=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [3] {hair=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.1683168
## [4] {predator=FALSE,catsize=FALSE}
                                        => {toothed=FALSE} 0.1683168
## [5] {predator=FALSE,fins=FALSE}
                                        => {toothed=FALSE} 0.2079208
## [6] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
```

```
[7] {predator=FALSE,legs=TRUE}
                                       => {toothed=FALSE} 0.1881188
##
       confidence lift
##
  [1] 0.8076923 2.039423
  [2] 0.8076923
                  2.039423
   [3] 0.7727273
                  1.951136
  [4] 0.5862069
##
                  1.480172
  [5] 0.5121951
                  1.293293
##
  [6] 0.5000000
                  1.262500
##
  [7] 0.4871795 1.230128
##
       lhs
                                          rhs
                                                          support
                                                                    confidence
  [1] {tail=FALSE,catsize=FALSE}
                                      => {toothed=FALSE} 0.1584158 0.8000000
##
  [2] {legs=TRUE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2673267 0.6585366
  [3] {aquatic=FALSE, catsize=FALSE}
                                      => {toothed=FALSE} 0.2178218 0.6470588
                                      => {toothed=FALSE} 0.3069307 0.6458333
## [4] {fins=FALSE,catsize=FALSE}
## [5] {hair=FALSE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2673267 0.6136364
  [6] {breathes=TRUE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2475248 0.6097561
##
   [7] {predator=FALSE, catsize=FALSE} => {toothed=FALSE} 0.1683168 0.5862069
##
       lift
  [1] 2.020000
##
   [2] 1.662805
##
  [3] 1.633824
  [4] 1.630729
##
  [5] 1.549432
##
  [6] 1.539634
  [7] 1.480172
##
       lhs
                                                       support
                                                                 confidence
  [1] {hair=FALSE,airborne=TRUE}
                                   => {toothed=FALSE} 0.1782178 1.0000000
##
  [2] {hair=FALSE,aquatic=FALSE}
                                   => {toothed=FALSE} 0.2277228 0.8846154
  [3] {hair=FALSE,legs=TRUE}
                                   => {toothed=FALSE} 0.3069307 0.8611111
## [4] {hair=FALSE,fins=FALSE}
                                   => {toothed=FALSE} 0.3465347 0.8139535
## [5] {hair=FALSE,tail=FALSE}
                                   => {toothed=FALSE} 0.1287129 0.8125000
  [6] {hair=FALSE,predator=FALSE} => {toothed=FALSE} 0.1683168 0.7727273
  [7] {hair=FALSE,breathes=TRUE}
                                   => {toothed=FALSE} 0.2772277 0.7567568
  [8] {hair=FALSE, venomous=FALSE} => {toothed=FALSE} 0.3267327 0.6346154
   [9]
      {hair=FALSE,catsize=FALSE} => {toothed=FALSE} 0.2673267 0.6136364
##
##
       lift
## [1] 2.525000
## [2] 2.233654
   [3] 2.174306
##
  [4] 2.055233
  [5] 2.051563
##
  [6] 1.951136
  [7] 1.910811
##
  [8] 1.602404
##
  [9] 1.549432
##
       lhs
                                     rhs
                                                      support
                                                                confidence
## [1] {eggs=TRUE,airborne=TRUE}
                                  => {toothed=FALSE} 0.2178218 1.0000000
  [2] {eggs=TRUE,aquatic=FALSE}
                                  => {toothed=FALSE} 0.2574257 0.8965517
  [3] {eggs=TRUE,legs=TRUE}
                                  => {toothed=FALSE} 0.3465347 0.8750000
  [4] {eggs=TRUE,tail=FALSE}
                                  => {toothed=FALSE} 0.1683168 0.8500000
                                  => {toothed=FALSE} 0.3861386 0.8478261
##
  [5] {eggs=TRUE,fins=FALSE}
## [6] {eggs=TRUE,breathes=TRUE}
                                  => {toothed=FALSE} 0.3168317 0.8205128
## [7] {eggs=TRUE,predator=FALSE} => {toothed=FALSE} 0.2079208 0.8076923
## [8] {eggs=TRUE, venomous=FALSE} => {toothed=FALSE} 0.3564356 0.6792453
```

```
##
       lift
   [1] 2.525000
##
   [2] 2.263793
   [3] 2.209375
##
   [4] 2.146250
   [5] 2.140761
##
   [6] 2.071795
##
   [7] 2.039423
   [8] 1.715094
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                             support
##
   [1]
        {domestic=TRUE}
                                           {predator=FALSE} 0.1089109
##
   [2]
        {hair=TRUE,catsize=FALSE}
                                        => {predator=FALSE} 0.1089109
##
   [3]
        {airborne=TRUE, aquatic=FALSE}
                                           {predator=FALSE} 0.1485149
   [4]
##
        {airborne=TRUE}
                                         => {predator=FALSE} 0.1683168
##
   [5]
        {aquatic=FALSE, toothed=FALSE}
                                            {predator=FALSE} 0.1881188
##
   [6]
        {aquatic=FALSE,tail=FALSE}
                                           {predator=FALSE} 0.1089109
   [7]
        {aquatic=FALSE, catsize=FALSE}
                                           {predator=FALSE} 0.2277228
##
   [8]
        {eggs=TRUE,aquatic=FALSE}
                                         => {predator=FALSE} 0.1881188
##
   [9]
        {toothed=FALSE, breathes=TRUE}
                                        => {predator=FALSE} 0.2079208
##
   [10] {milk=FALSE,aquatic=FALSE}
                                        => {predator=FALSE} 0.1881188
   [11] {breathes=TRUE,tail=FALSE}
                                         => {predator=FALSE} 0.1188119
   [12] {breathes=TRUE,catsize=FALSE}
                                           {predator=FALSE} 0.2475248
                                        =>
   [13] {aquatic=FALSE, venomous=FALSE}
                                           {predator=FALSE} 0.3564356
   [14] {eggs=TRUE,breathes=TRUE}
                                         => {predator=FALSE} 0.2178218
   [15] {milk=FALSE,breathes=TRUE}
                                         => {predator=FALSE} 0.2178218
   [16] {legs=TRUE,catsize=FALSE}
                                        => {predator=FALSE} 0.2277228
##
   [17] {type=bird}
                                         => {predator=FALSE} 0.1089109
   [18] {feathers=TRUE}
                                         => {predator=FALSE} 0.1089109
   [19] {toothed=FALSE,backbone=TRUE}
                                        => {predator=FALSE} 0.1188119
   [20] {venomous=FALSE, catsize=FALSE} =>
                                            {predator=FALSE} 0.2673267
   [21]
       {toothed=FALSE, venomous=FALSE} =>
                                           {predator=FALSE} 0.1881188
   [22] {toothed=FALSE}
                                           {predator=FALSE} 0.2079208
   [23] {fins=FALSE,catsize=FALSE}
                                         => {predator=FALSE} 0.2475248
   [24] {breathes=TRUE, venomous=FALSE}
                                           {predator=FALSE} 0.3861386
##
   [25] {catsize=FALSE}
                                         => {predator=FALSE} 0.2871287
   [26] {legs=TRUE,tail=TRUE}
                                         => {predator=FALSE} 0.2871287
   [27] {venomous=FALSE,fins=FALSE}
                                         => {predator=FALSE} 0.3861386
                                           {predator=FALSE} 0.2871287
       {fins=FALSE,tail=TRUE}
   [28]
##
   [29] {milk=TRUE}
                                         => {predator=FALSE} 0.1881188
   [30] {type=mammal}
                                         => {predator=FALSE} 0.1881188
                                        => {predator=FALSE} 0.1188119
   [31] {tail=FALSE}
   [32] {eggs=FALSE}
                                         => {predator=FALSE} 0.1881188
##
   [33] {eggs=TRUE}
                                         => {predator=FALSE} 0.2574257
   [34] {milk=FALSE}
                                         => {predator=FALSE} 0.2574257
   [35] {domestic=FALSE}
                                        => {predator=FALSE} 0.3366337
##
##
   [36]
       {hair=FALSE}
                                        => {predator=FALSE} 0.2178218
##
   [37] {catsize=TRUE}
                                        => {predator=FALSE} 0.1584158
##
        confidence lift
##
   [1]
        0.8461538
                   1.8991453
   [2]
##
        0.8461538
                   1.8991453
##
   [3]
        0.7894737
                   1.7719298
##
   [4]
        0.7083333
                   1.5898148
## [5]
        0.7037037
                   1.5794239
```

```
## [6]
        0.6875000
                   1.5430556
  [7]
        0.6764706
                   1.5183007
        0.6551724
  [8]
                   1.4704981
  [9]
        0.6363636
                   1.4282828
  [10] 0.6333333
                   1.4214815
## [11] 0.6315789
                   1.4175439
  [12] 0.6097561
                   1.3685637
## [13] 0.5901639
                   1.3245902
## [14] 0.5641026
                   1.2660969
## [15] 0.5641026
                   1.2660969
## [16] 0.5609756
                   1.2590786
## [17] 0.5500000
                   1.2344444
                   1.2344444
## [18] 0.5500000
## [19] 0.5454545
                   1.2242424
## [20] 0.5400000
                   1.2120000
## [21] 0.5277778
                   1.1845679
  [22] 0.5250000
                   1.1783333
  [23] 0.5208333
                   1.1689815
## [24] 0.5200000
                   1.1671111
                   1.1419103
## [25] 0.5087719
## [26] 0.5087719
                   1.1419103
## [27] 0.5064935
                   1.1367965
## [28] 0.4915254
                   1.1032015
## [29] 0.4634146
                   1.0401084
                   1.0401084
## [30] 0.4634146
## [31] 0.4615385
                   1.0358974
## [32] 0.4523810
                   1.0153439
## [33] 0.4406780
                   0.9890772
## [34] 0.4333333
                   0.9725926
  [35] 0.3863636
                   0.8671717
  [36] 0.3793103
                   0.8513410
##
   [37] 0.3636364
                   0.8161616
##
       lhs
                                            support
                                                      confidence lift
##
  [1] {breathes=FALSE} => {predator=TRUE} 0.1683168 0.8095238
                                                                 1.4600340
   [2] {aquatic=TRUE}
                        => {predator=TRUE} 0.2871287 0.8055556
                                                                  1.4528770
  [3] {fins=TRUE}
                        => {predator=TRUE} 0.1287129 0.7647059
                                                                  1.3792017
## [4] {catsize=TRUE}
                         => {predator=TRUE} 0.2772277 0.6363636
## [5] {backbone=TRUE}
                        => {predator=TRUE} 0.4653465 0.5662651
                                                                  1.0212995
  [6] {eggs=FALSE}
                         => {predator=TRUE} 0.2277228 0.5476190
                                                                  0.9876701
  [7] {legs=TRUE}
                        => {predator=TRUE} 0.3861386 0.5000000
                                                                  0.9017857
                        => {predator=TRUE} 0.1980198 0.4651163
  [8] {hair=TRUE}
                                                                  0.8388704
   [9] {aquatic=FALSE} => {predator=TRUE} 0.2673267 0.4153846 0.7491758
##
##
                                         rhs
                                                          support
                                                                     confidence
   [1] {toothed=FALSE,backbone=TRUE} => {predator=FALSE} 0.1188119 0.5454545
##
##
       lift
## [1] 1.224242
##
                                     rhs
                                                      support
                                                                 confidence
   [1] {legs=TRUE,catsize=FALSE} => {predator=FALSE} 0.2277228 0.5609756
##
   [2] {legs=TRUE,tail=TRUE}
                                  => {predator=FALSE} 0.2871287 0.5087719
##
       lift
  [1] 1.259079
##
##
   [2] 1.141910
##
       lhs
                                                      support
                                                                 confidence
                                     rhs
## [1] {hair=TRUE,catsize=FALSE} => {predator=FALSE} 0.1089109 0.8461538
```

```
##
       lift
  [1] 1.899145
##
##
       lhs
                                                           support
##
  [1] {airborne=TRUE, aquatic=FALSE}
                                       => {predator=FALSE} 0.1485149
##
   [2] {aquatic=FALSE,toothed=FALSE}
                                       => {predator=FALSE} 0.1881188
   [3] {aquatic=FALSE,tail=FALSE}
                                       => {predator=FALSE} 0.1089109
  [4] {aquatic=FALSE, catsize=FALSE}
                                          {predator=FALSE} 0.2277228
   [5] {eggs=TRUE,aquatic=FALSE}
                                          {predator=FALSE} 0.1881188
   [6] {milk=FALSE,aquatic=FALSE}
                                       => {predator=FALSE} 0.1881188
##
   [7] {aquatic=FALSE, venomous=FALSE} => {predator=FALSE} 0.3564356
       confidence lift
##
   [1] 0.7894737
                  1.771930
   [2] 0.7037037
                  1.579424
  [3] 0.6875000
                  1.543056
## [4] 0.6764706
                  1.518301
  [5] 0.6551724
                  1.470498
   [6] 0.6333333
                  1.421481
   [7] 0.5901639 1.324590
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                            support
##
  [1]
        {catsize=FALSE, type=bird}
                                           {airborne=TRUE} 0.1287129
  [2]
        {feathers=TRUE, catsize=FALSE}
                                           {airborne=TRUE} 0.1287129
  [3]
##
        {type=bird}
                                         => {airborne=TRUE} 0.1584158
   [4]
##
        {feathers=TRUE}
                                            {airborne=TRUE} 0.1584158
##
  [5]
        {toothed=FALSE,backbone=TRUE}
                                           {airborne=TRUE} 0.1584158
  [6]
        {predator=FALSE, toothed=FALSE}
                                         => {airborne=TRUE} 0.1485149
   [7]
        {toothed=FALSE,tail=TRUE}
##
                                           {airborne=TRUE} 0.1584158
##
   [8]
        {toothed=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
  [9]
        {aquatic=FALSE, toothed=FALSE}
                                         => {airborne=TRUE} 0.1683168
  [10] {toothed=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
  [11]
       {toothed=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
  [12] {eggs=TRUE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1683168
  [13] {eggs=TRUE,predator=FALSE}
                                         => {airborne=TRUE} 0.1485149
  [14] {milk=FALSE,predator=FALSE}
                                         => {airborne=TRUE} 0.1485149
   [15] {milk=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
  [16] {eggs=TRUE,breathes=TRUE}
                                           {airborne=TRUE} 0.2178218
  [17] {milk=FALSE,breathes=TRUE}
                                           {airborne=TRUE} 0.2178218
## [18] {toothed=FALSE, venomous=FALSE}
                                         => {airborne=TRUE} 0.1980198
                                            {airborne=TRUE} 0.2178218
  [19] {toothed=FALSE}
  [20] {eggs=TRUE,legs=TRUE}
                                           {airborne=TRUE} 0.2178218
  [21] {milk=FALSE,legs=TRUE}
                                           {airborne=TRUE} 0.2178218
  [22] {predator=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.1485149
## [23] {legs=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.2079208
## [24] {breathes=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.2079208
## [25] {hair=FALSE,predator=FALSE}
                                         => {airborne=TRUE} 0.1089109
  [26] {aquatic=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1683168
  [27] {hair=FALSE,aquatic=FALSE}
                                           {airborne=TRUE} 0.1287129
  [28] {hair=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.1782178
  [29] {hair=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.1782178
  [30] {eggs=TRUE,fins=FALSE}
                                           {airborne=TRUE} 0.2178218
##
  [31] {milk=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.2178218
## [32] {fins=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.2079208
## [33] {predator=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.1683168
## [34] {hair=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.1782178
```

```
## [35] {predator=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.1683168
                                            {airborne=TRUE} 0.1683168
   [36] {predator=FALSE,fins=FALSE}
  [37] {eggs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [38] {eggs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [39] {tail=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
  [40] {milk=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [41] {milk=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [42] {milk=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [43] {predator=FALSE,domestic=FALSE} =>
                                            {airborne=TRUE} 0.1287129
  [44] {hair=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [45] {eggs=TRUE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [46] {milk=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [47]
       {venomous=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
       {eggs=TRUE, venomous=FALSE}
                                         => {airborne=TRUE} 0.1980198
  [49] {backbone=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1485149
  [50]
        {hair=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1782178
       {breathes=TRUE,legs=TRUE}
   [51]
                                            {airborne=TRUE} 0.2376238
       {aquatic=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1881188
   [53] {legs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1782178
   [54] {breathes=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2376238
##
  [55] {fins=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2376238
  [56] {fins=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1782178
   [57] {aquatic=FALSE}
                                         => {airborne=TRUE} 0.1881188
                                         => {airborne=TRUE} 0.2178218
##
   [58] {venomous=FALSE}
##
        confidence lift
  [1]
        0.9285714
                   3.9077381
   [2]
        0.9285714
                   3.9077381
##
##
   [3]
        0.8000000
                   3.3666667
##
   [4]
        0.8000000
                   3.3666667
##
  [5]
        0.7272727
                   3.0606061
##
   [6]
        0.7142857
                   3.0059524
##
   [7]
        0.6956522
                   2.9275362
   [8]
        0.6666667
                   2.8055556
##
  [9]
        0.6296296
                   2.6496914
   [10]
       0.6129032
                   2.5793011
##
  [11] 0.6111111
                   2.5717593
  [12] 0.5862069
                   2.4669540
## [13] 0.5769231
                   2.4278846
  [14] 0.5769231
                   2.4278846
  [15] 0.5666667
                   2.3847222
  [16] 0.5641026
                   2.3739316
  [17] 0.5641026
                   2.3739316
  [18] 0.5555556
                   2.3379630
  [19] 0.5500000
                   2.3145833
  [20] 0.5500000
                   2.3145833
## [21] 0.5500000
                   2.3145833
  [22] 0.5172414
                   2.1767241
  [23] 0.5121951
                   2.1554878
  [24] 0.5121951
                   2.1554878
   [25] 0.5000000
                   2.1041667
##
  [26] 0.5000000
                   2.1041667
## [27] 0.5000000
                   2.1041667
## [28] 0.5000000
                   2.1041667
                   2.0472973
## [29] 0.4864865
```

```
## [30] 0.4782609
                   2.0126812
   [31] 0.4680851
                    1.9698582
   [32] 0.4375000
                    1.8411458
   [33] 0.4358974
                    1.8344017
##
   [34] 0.4186047
                    1.7616279
                    1.7449187
##
   [35] 0.4146341
   [36] 0.4146341
                    1.7449187
   [37] 0.4130435
                    1.7382246
   [38] 0.4102564
                    1.7264957
   [39] 0.4054054
                    1.7060811
   [40] 0.4000000
                    1.6833333
   [41] 0.3958333
                    1.6657986
##
   [42] 0.3846154
                    1.6185897
   [43] 0.3823529
                    1.6090686
   [44] 0.3809524
                    1.6031746
   [45]
       0.3809524
                    1.6031746
##
   [46] 0.3809524
                    1.6031746
   [47] 0.3800000
                    1.5991667
   [48] 0.3773585
                    1.5880503
   [49] 0.3750000
                    1.5781250
##
   [50] 0.3461538
                    1.4567308
   [51] 0.3287671
                    1.3835616
##
   [52] 0.3166667
                    1.3326389
##
   [53] 0.3157895
                    1.3289474
##
   [54] 0.3157895
                    1.3289474
   [55] 0.3116883
                    1.3116883
##
   [56] 0.3050847
                    1.2838983
##
   [57] 0.2923077
                    1.2301282
   [58] 0.2365591
                   0.9955197
##
##
        lhs
                             rhs
                                               support
                                                         confidence lift
##
   [1]
        {type=fish}
                          => {airborne=FALSE} 0.1287129 1.0000000
                                                                     1.3116883
##
   [2]
        {fins=TRUE}
                             {airborne=FALSE} 0.1683168 1.0000000
                                                                     1.3116883
##
   [3]
        {breathes=FALSE}
                             {airborne=FALSE} 0.2079208 1.0000000
   [4]
##
        {legs=FALSE}
                          => {airborne=FALSE} 0.2277228 1.0000000
                                                                     1.3116883
##
   [5]
        {toothed=TRUE}
                             {airborne=FALSE} 0.5841584 0.9672131
                                                                     1.2686821
##
   [6]
        {eggs=FALSE}
                          => {airborne=FALSE} 0.3960396 0.9523810
                                                                     1.2492270
##
   [7]
        {milk=TRUE}
                             {airborne=FALSE} 0.3861386 0.9512195
                                                                     1.2477035
   [8]
                          => {airborne=FALSE} 0.3861386 0.9512195
##
        {type=mammal}
                                                                     1.2477035
        {catsize=TRUE}
                             {airborne=FALSE} 0.4059406 0.9318182
   [9]
                                                                     1.2222550
##
   [10] {predator=TRUE}
                             {airborne=FALSE} 0.4851485 0.8750000
                                                                     1.1477273
   [11] {aquatic=TRUE}
                             {airborne=FALSE} 0.3069307 0.8611111
                                                                     1.1295094
                             {airborne=FALSE} 0.3663366 0.8604651
   [12] {hair=TRUE}
                                                                     1.1286620
   [13] {backbone=TRUE}
                             {airborne=FALSE} 0.6435644 0.7831325
                                                                     1.0272258
                             {airborne=FALSE} 0.1980198 0.7692308
   [14] {tail=FALSE}
                                                                     1.0089910
   [15] {tail=TRUE}
                          => {airborne=FALSE} 0.5643564 0.7600000
                                                                     0.9968831
   [16]
       {aquatic=FALSE}
                          =>
                             {airborne=FALSE} 0.4554455 0.7076923
                                                                     0.9282717
##
   [17]
       {hair=FALSE}
                             {airborne=FALSE} 0.3960396 0.6896552
                                                                     0.9046126
   [18] {backbone=FALSE}
                             {airborne=FALSE} 0.1188119 0.6666667
                                                                     0.8744589
   [19] {milk=FALSE}
                          => {airborne=FALSE} 0.3762376 0.6333333
                                                                     0.8307359
   [20] {eggs=TRUE}
                             {airborne=FALSE} 0.3663366 0.6271186
                                                                     0.8225842
   [21] {predator=FALSE}
##
                          => {airborne=FALSE} 0.2772277 0.6222222
                                                                     0.8161616
##
   [22] {toothed=FALSE}
                          => {airborne=FALSE} 0.1782178 0.4500000
                                                                     0.5902597
##
       lhs
                                         rhs
                                                           support
                                                                     confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
```

```
## [2] {eggs=TRUE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
                                      => {airborne=TRUE} 0.1584158 0.3809524
  [3] {milk=FALSE,backbone=TRUE}
   [4] {backbone=TRUE, catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift
##
  [1] 3.060606
##
  [2] 1.603175
## [3] 1.603175
## [4] 1.578125
##
       lhs
                                     rhs
                                                     support
                                                               confidence
## [1] {toothed=FALSE,tail=TRUE} => {airborne=TRUE} 0.1584158 0.6956522
## [2] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
## [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4000000
## [5] {hair=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.3809524
                                 => {airborne=TRUE} 0.1782178 0.3157895
## [6] {legs=TRUE,tail=TRUE}
   [7] {fins=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1782178 0.3050847
##
##
       lift
## [1] 2.927536
## [2] 1.726496
## [3] 1.706081
## [4] 1.683333
## [5] 1.603175
## [6] 1.328947
##
  [7] 1.283898
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
  [2] {eggs=TRUE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1683168 0.5862069
## [3] {milk=FALSE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1683168 0.5666667
  [4] {aquatic=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
## [5] {hair=FALSE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1287129 0.5000000
##
  [6] {aquatic=FALSE,legs=TRUE}
                                      => {airborne=TRUE} 0.1881188 0.3166667
##
       lift
## [1] 2.649691
## [2] 2.466954
   [3] 2.384722
##
  [4] 2.104167
## [5] 2.104167
## [6] 1.332639
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
                                   => {airborne=TRUE} 0.1287129 0.5000000
## [2] {hair=FALSE,aquatic=FALSE}
  [3] {hair=FALSE,legs=TRUE}
                                    => {airborne=TRUE} 0.1782178 0.5000000
## [4] {hair=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.4864865
## [5] {hair=FALSE,fins=FALSE}
                                    => {airborne=TRUE} 0.1782178 0.4186047
## [6] {hair=FALSE,tail=TRUE}
                                    => {airborne=TRUE} 0.1584158 0.3809524
## [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
##
       lift
## [1] 2.104167
## [2] 2.104167
## [3] 2.104167
## [4] 2.047297
## [5] 1.761628
## [6] 1.603175
## [7] 1.456731
```

```
##
                                                       support
                                                                 confidence
## [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
                                   => {airborne=TRUE} 0.1683168 0.5666667
  [2] {milk=FALSE,aquatic=FALSE}
  [3] {milk=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5641026
  [4] {milk=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5500000
  [5] {milk=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.2178218 0.4680851
## [6] {milk=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.4000000
## [7] {milk=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1881188 0.3958333
  [8] {milk=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
##
  [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
       lift
## [1] 2.427885
## [2] 2.384722
## [3] 2.373932
## [4] 2.314583
## [5] 1.969858
##
  [6] 1.683333
  [7] 1.665799
## [8] 1.618590
## [9] 1.603175
##
       lhs
                                     rhs
                                                                confidence
                                                      support
                                  => {airborne=TRUE} 0.1683168 0.5862069
## [1] {eggs=TRUE,aquatic=FALSE}
## [2] {eggs=TRUE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
## [3] {eggs=TRUE,breathes=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5641026
## [4] {eggs=TRUE,legs=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5500000
## [5] {eggs=TRUE,fins=FALSE}
                                  => {airborne=TRUE} 0.2178218 0.4782609
                                  => {airborne=TRUE} 0.1881188 0.4130435
  [6] {eggs=TRUE,catsize=FALSE}
## [7] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
                                  => {airborne=TRUE} 0.1584158 0.3809524
  [8] {eggs=TRUE,backbone=TRUE}
  [9] {eggs=TRUE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
       lift
## [1] 2.466954
  [2] 2.427885
## [3] 2.373932
   [4] 2.314583
##
  [5] 2.012681
## [6] 1.738225
## [7] 1.726496
## [8] 1.603175
  [9] 1.588050
##
##
       lhs
                                           rhs
                                                           support
## [1] {predator=FALSE, toothed=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [2] {eggs=TRUE,predator=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [3] {milk=FALSE,predator=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [4] {predator=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [5] {hair=FALSE, predator=FALSE}
                                       => {airborne=TRUE} 0.1089109
## [6] {predator=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.1683168
  [7] {predator=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.1683168
  [8] {predator=FALSE,fins=FALSE}
                                       => {airborne=TRUE} 0.1683168
   [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
       confidence lift
##
## [1] 0.7142857 3.005952
## [2] 0.5769231 2.427885
## [3] 0.5769231 2.427885
```

```
[4] 0.5172414
                  2.176724
   [5] 0.5000000
                  2.104167
  [6] 0.4358974
                  1.834402
  [7] 0.4146341
                  1.744919
   [8] 0.4146341
                  1.744919
##
   [9] 0.3823529
                  1.609069
##
       lhs
                                          rhs
                                                                     confidence
                                                          support
                                       => {airborne=TRUE} 0.1584158 0.7272727
## [1] {toothed=FALSE,backbone=TRUE}
   [2] {predator=FALSE, toothed=FALSE} =>
                                          {airborne=TRUE} 0.1485149 0.7142857
   [3] {toothed=FALSE,tail=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.6956522
  [4] {toothed=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6666667
   [5] {aquatic=FALSE,toothed=FALSE}
                                       => {airborne=TRUE} 0.1683168 0.6296296
   [6] {toothed=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1881188 0.6129032
  [7] {toothed=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6111111
  [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
       lift
##
  [1] 3.060606
   [2] 3.005952
  [3] 2.927536
   [4] 2.805556
##
  [5] 2.649691
  [6] 2.579301
##
  [7] 2.571759
##
   [8] 2.337963
   [1] "Número de reglas con consecuente negado"
##
##
        lhs
                                                        support
                                                                   confidence
##
   [1]
        {type=fish}
                                           {fins=TRUE} 0.1287129 1.0000000
##
   [2]
        {toothed=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
   [3]
##
        {breathes=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.9285714
##
  [4]
        {backbone=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
##
  [5]
        {aquatic=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1584158 0.8888889
##
   [6]
        {toothed=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1584158 0.8421053
##
   [7]
        {backbone=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1584158 0.8421053
  [8]
##
        {legs=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.8333333
   [9]
        {breathes=FALSE,legs=FALSE}
                                            {fins=TRUE} 0.1287129 0.8125000
##
  [10] {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
  [11] {aquatic=TRUE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.7391304
  [12] {predator=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1188119 0.7058824
  [13] {breathes=FALSE, venomous=FALSE} =>
                                            {fins=TRUE} 0.1188119 0.6666667
##
  [14] {hair=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1485149 0.6521739
  [15] {aquatic=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.6500000
  [16] {eggs=TRUE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.6500000
  [17] {breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.6190476
                                         => {fins=TRUE} 0.1287129 0.6190476
  [18] {milk=FALSE,toothed=TRUE}
## [19] {aquatic=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.6153846
                                           {fins=TRUE} 0.1683168 0.5666667
  [20] {feathers=FALSE,aquatic=TRUE}
  [21] {aquatic=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1683168 0.5666667
  [22] {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
  [23] {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
  [24] {hair=FALSE, feathers=FALSE}
                                           {fins=TRUE} 0.1485149 0.3947368
## [25] {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [26] {hair=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3571429
## [27] {predator=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [28] {eggs=TRUE,airborne=FALSE}
                                           {fins=TRUE} 0.1287129 0.3513514
```

```
## [29] {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
                                         => {fins=TRUE} 0.1485149 0.3409091
  [30] {hair=FALSE,backbone=TRUE}
  [31] {eggs=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.3333333
  [32] {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
  [33] {milk=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.3250000
  [34] {feathers=FALSE,milk=FALSE}
##
                                         => {fins=TRUE} 0.1287129 0.3250000
  [35] {eggs=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [36] {milk=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [37]
       {toothed=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.3076923
  [38] {toothed=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.3076923
  [39] {hair=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1089109 0.3055556
                                         => {fins=TRUE} 0.1584158 0.2909091
  [40] {feathers=FALSE,tail=TRUE}
## [41] {airborne=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
## [42] {predator=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1188119 0.2857143
## [43] {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [44]
        {airborne=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.2807018
                                         => {fins=TRUE} 0.1287129 0.2765957
  [45] {feathers=FALSE,predator=TRUE}
  [46] {predator=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
  [47] {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
## [48] {hair=FALSE, venomous=FALSE}
                                           {fins=TRUE} 0.1386139 0.2692308
## [49] {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
## [50] {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
  [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
##
  [52] {hair=FALSE}
                                           {fins=TRUE} 0.1485149 0.2586207
  [53] {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
  [54] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
   [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
   [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [57] {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
  [58] {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
  [59]
       {airborne=FALSE, venomous=FALSE} =>
                                           {fins=TRUE} 0.1584158 0.2253521
   [60]
       {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [61] {backbone=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2253521
   [62] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
   [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
   [64] {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
   [65] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
   [66] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
        lift.
##
  [1]
       5.941176
   [2]
        5.516807
   [3]
##
        5.516807
##
   [4]
        5.516807
##
   [5]
        5.281046
##
  [6]
        5.003096
  [7]
##
        5.003096
##
  [8]
        4.950980
##
  [9]
        4.827206
  [10] 4.690402
   [11] 4.391304
## [12] 4.193772
## [13] 3.960784
## [14] 3.874680
## [15] 3.861765
```

```
## [16] 3.861765
## [17] 3.677871
## [18] 3.677871
## [19] 3.656109
## [20] 3.366667
## [21] 3.366667
## [22] 3.258065
## [23] 2.970588
## [24] 2.345201
## [25] 2.227941
## [26] 2.121849
## [27] 2.087440
## [28] 2.087440
## [29] 2.032508
## [30] 2.025401
## [31] 1.980392
## [32] 1.980392
## [33] 1.930882
## [34] 1.930882
## [35] 1.838936
## [36] 1.838936
## [37] 1.828054
## [38] 1.828054
## [39] 1.815359
## [40] 1.728342
## [41] 1.711864
## [42] 1.697479
## [43] 1.667699
## [44] 1.667699
## [45] 1.643304
## [46] 1.643304
## [47] 1.603175
## [48] 1.599548
## [49] 1.576230
## [50] 1.553846
## [51] 1.540305
## [52] 1.536511
## [53] 1.425882
## [54] 1.397924
## [55] 1.383562
## [56] 1.371041
## [57] 1.371041
## [58] 1.345172
## [59] 1.338857
## [60] 1.338857
## [61] 1.338857
## [62] 1.320261
## [63] 1.302176
## [64] 1.296257
## [65] 1.284579
##
  [66] 1.100218
##
        lhs
                                          support
                                                    confidence lift
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000 1.2023810
## [1]
                         => {fins=FALSE} 0.1980198 1.0000000 1.2023810
## [2]
       {type=bird}
```

```
[3]
        {feathers=TRUE}
                         => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
   [4]
                         => {fins=FALSE} 0.2376238 1.0000000
        {airborne=TRUE}
                                                                1.2023810
##
  [5]
        {toothed=FALSE}
                         => {fins=FALSE} 0.3960396 1.0000000
                                                                1.2023810
  [6]
                          => {fins=FALSE} 0.7623762 0.9871795
##
        {legs=TRUE}
                                                                1.1869658
##
   [7]
        {hair=TRUE}
                          => {fins=FALSE} 0.4059406 0.9534884
                                                                1.1464563
  [8]
                         => {fins=FALSE} 0.7524752 0.9500000
##
        {breathes=TRUE}
                                                                1.1422619
                         => {fins=FALSE} 0.1188119 0.9230769
  [9]
        {domestic=TRUE}
                                                                1.1098901
## [10]
       {predator=FALSE} => {fins=FALSE} 0.4059406 0.9111111
                                                                1.0955026
##
  [11] {eggs=FALSE}
                          => {fins=FALSE} 0.3762376 0.9047619
                                                                1.0878685
##
  [12] {milk=TRUE}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
## [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
                         => {fins=FALSE} 0.4752475 0.8421053
  [14] {catsize=FALSE}
                                                                1.0125313
  [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
## [16] {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                0.9837662
## [17] {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                0.9837662
## [18]
        {backbone=TRUE}
                          => {fins=FALSE} 0.6534653 0.7951807
                                                                0.9561102
       {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
  [19]
                                                                0.9500294
  [20] {tail=TRUE}
                          => {fins=FALSE} 0.5841584 0.7866667
                                                                0.9458730
                          => {fins=FALSE} 0.4554455 0.7796610
  [21] {eggs=TRUE}
                                                                0.9374496
  [22] {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                0.9369202
## [23] {predator=TRUE}
                         => {fins=FALSE} 0.4257426 0.7678571
                                                                0.9232568
                          => {fins=FALSE} 0.4257426 0.7413793
## [24] {hair=FALSE}
                                                                0.8914204
                          => {fins=FALSE} 0.4356436 0.7213115
  [25] {toothed=TRUE}
                                                                0.8672912
##
   [26] {aquatic=TRUE}
                          => {fins=FALSE} 0.1881188 0.5277778
                                                                0.6345899
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
  [1]
        {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
   [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
##
##
   [3]
        {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
##
  [4]
                                         => {fins=TRUE} 0.1584158 0.2807018
        {toothed=TRUE, venomous=FALSE}
##
  [5]
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
##
  [6]
        {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
##
   [7]
        {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
##
  [8]
        {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
  [9]
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
        lift
## [1]
        4.690402
   [2]
        3.960784
##
  [3]
##
        2.970588
  [4]
        1.667699
   [5]
##
        1.599548
##
   [6]
        1.425882
##
   [7]
        1.371041
##
  [8]
        1.345172
  [9]
##
        1.338857
##
  [10] 1.302176
##
  [11] 1.100218
##
       lhs
                                                        support
                                                                  confidence
                                           rhs
##
  [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
  [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
## [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
## [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
```

```
## [6] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
                                        => {fins=TRUE} 0.1188119 0.2222222
## [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
  [8] {milk=FALSE,domestic=FALSE}
  [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
       lift.
## [1] 1.828054
## [2] 1.540305
## [3] 1.397924
## [4] 1.371041
## [5] 1.338857
## [6] 1.338857
  [7] 1.320261
##
  [8] 1.296257
##
  [9] 1.100218
##
        lhs
                                           rhs
                                                        support
                                                                  confidence
## [1]
        {backbone=TRUE, breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
##
   [2]
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
  [3]
        {aquatic=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
  [4]
##
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
##
   [5]
        {eggs=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
##
  [6]
        {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
        {predator=TRUE,backbone=TRUE}
  [7]
                                        => {fins=TRUE} 0.1287129 0.2765957
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
## [8]
##
  [9]
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
  [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [11] {backbone=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
        lift
## [1]
        5.516807
##
  [2]
        5.003096
## [3]
        3.366667
## [4]
        2.025401
##
   [5]
        1.838936
##
  [6]
        1.838936
  [7]
        1.643304
##
   [8]
##
        1.603175
        1.553846
##
  [9]
## [10] 1.338857
## [11] 1.284579
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
## [1]
        {feathers=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
        {hair=FALSE, feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
  [3]
        {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
##
##
   [4]
        {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
##
  [5]
        {feathers=FALSE, tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
  [6]
        {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
## [7]
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
##
  [8]
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [9]
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
   [10]
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
        lift
## [1]
        3.366667
## [2]
        2.345201
## [3]
        1.980392
## [4]
        1.930882
```

```
## [5]
        1.728342
##
   [6]
        1.643304
##
  [7]
        1.603175
  [8]
        1.383562
##
##
   [9]
        1.338857
   [10] 1.302176
##
##
        lhs
                                       rhs
                                                    support
                                                              confidence
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
## [1]
##
  [2]
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.8333333
##
  [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
  [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
   [5]
        {eggs=TRUE,tail=TRUE}
##
                                    => {fins=TRUE} 0.1287129 0.3333333
##
   [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
##
  [7]
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
## [8]
        {feathers=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
## [9]
        {predator=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1188119 0.2857143
  [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
  [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
   [12] {backbone=TRUE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
##
        lift
##
  [1]
        5.516807
  [2]
        4.950980
## [3]
        3.656109
  [4]
##
        2.121849
##
  [5]
        1.980392
  [6]
        1.930882
  [7]
##
        1.828054
##
   [8]
        1.728342
  [9]
##
        1.697479
## [10] 1.667699
## [11] 1.371041
##
  [12] 1.284579
##
       lhs
                                                             confidence
                                                   support
                                   => {fins=TRUE} 0.1287129 0.6500000
## [1] {eggs=TRUE,toothed=TRUE}
   [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
  [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
## [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
  [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
  [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
##
       lift
## [1] 3.861765
## [2] 2.087440
## [3] 1.980392
## [4] 1.980392
## [5] 1.838936
##
  [6] 1.345172
##
  [7] 1.320261
##
        lhs
                                                         support
                                                                   confidence
                                            rhs
##
  [1]
        {airborne=FALSE, aquatic=TRUE}
                                            {fins=TRUE} 0.1683168 0.5483871
##
  [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
## [5]
        {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
```

```
{airborne=FALSE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2807018
       {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
## [7]
       {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [9]
## [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
## [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
        lift
## [1]
       3.258065
## [2]
       2.227941
## [3]
       2.087440
## [4]
       2.032508
## [5]
        1.711864
## [6]
        1.667699
## [7]
        1.576230
## [8]
        1.553846
## [9]
        1.397924
## [10] 1.383562
## [11] 1.338857
##
       lhs
                                          rhs
                                                      support
                                                                confidence
## [1] {predator=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1188119 0.7058824
## [2] {predator=TRUE,toothed=TRUE}
                                      => {fins=TRUE} 0.1287129 0.3513514
## [3] {hair=FALSE,predator=TRUE}
                                      => {fins=TRUE} 0.1089109 0.3055556
                                      => {fins=TRUE} 0.1188119 0.2857143
## [4] {predator=TRUE,tail=TRUE}
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
## [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
## [4] 1.697479
## [5] 1.643304
## [6] 1.643304
## [7] 1.576230
## [8] 1.425882
##
       lhs
                                                   support
                                                             confidence
## [1] {hair=FALSE,toothed=TRUE}
                                   => {fins=TRUE} 0.1485149 0.6521739
## [2] {hair=FALSE,feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
## [4] {hair=FALSE,tail=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3571429
## [5] {hair=FALSE,backbone=TRUE} => {fins=TRUE} 0.1485149 0.3409091
## [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
## [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
## [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
       lift
## [1] 3.874680
## [2] 2.345201
## [3] 2.227941
## [4] 2.121849
## [5] 2.025401
## [6] 1.815359
## [7] 1.599548
## [8] 1.540305
```

```
##
        lhs
                                                       support
                                                                  confidence
##
   [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
   [2]
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
   [3]
        {aquatic=TRUE, toothed=TRUE}
##
                                       => {fins=TRUE} 0.1683168 0.7391304
##
   [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
##
   [5]
        {eggs=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
##
   [6]
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
##
   [7]
        {predator=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
##
   [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
##
   [9]
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
   [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
   [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
##
        lift
##
  [1]
        5.516807
   [2]
        5.003096
##
##
   [3]
        4.391304
   [4]
##
        3.874680
   [5]
##
        3.861765
   [6]
##
        3.677871
##
   [7]
        2.087440
##
   [8]
        1.828054
##
  [9]
        1.828054
## [10] 1.711864
##
   [11] 1.667699
##
       lhs
                                          rhs
                                                      support
                                                                confidence
## [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
                                      => {fins=TRUE} 0.1683168 0.7391304
   [2] {aquatic=TRUE,toothed=TRUE}
   [3] {aquatic=TRUE, breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
   [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
## [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
   [6] {aquatic=TRUE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
   [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
##
   [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
   [1] 5.281046
##
##
   [2] 4.391304
   [3] 3.861765
  [4] 3.656109
##
   [5] 3.366667
##
   [6] 3.366667
   [7] 3.258065
   [8] 2.970588
       "Número de reglas con consecuente negado"
##
   [1]
##
        lhs
                                             rhs
                                                         support
                                                                    confidence
        {type=fish}
## [1]
                                          => {fins=TRUE} 0.1287129 1.0000000
  [2]
##
        {toothed=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
##
   [3]
        {breathes=FALSE,tail=TRUE}
                                            {fins=TRUE} 0.1287129 0.9285714
##
   [4]
        {backbone=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
##
   [5]
        {aquatic=TRUE,legs=FALSE}
                                          => {fins=TRUE} 0.1584158 0.8888889
   [6]
        {toothed=TRUE,legs=FALSE}
                                            {fins=TRUE} 0.1584158 0.8421053
##
##
   [7]
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
## [8]
        {legs=FALSE,tail=TRUE}
                                          => {fins=TRUE} 0.1485149 0.8333333
## [9]
        {breathes=FALSE,legs=FALSE}
                                          => {fins=TRUE} 0.1287129 0.8125000
## [10] {venomous=FALSE,legs=FALSE}
                                          => {fins=TRUE} 0.1485149 0.7894737
```

```
## [11] {aquatic=TRUE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.7391304
                                           {fins=TRUE} 0.1188119 0.7058824
  [12] {predator=TRUE,legs=FALSE}
  [13] {breathes=FALSE, venomous=FALSE}
                                           {fins=TRUE} 0.1188119 0.6666667
  [14] {hair=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1485149 0.6521739
##
  [15] {aquatic=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.6500000
  [16] {eggs=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6500000
##
  [17] {breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6190476
  [18] {milk=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6190476
  [19] {aquatic=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.6153846
  [20] {feathers=FALSE,aquatic=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
  [21] {aquatic=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
                                           {fins=TRUE} 0.1683168 0.5483871
   [22] {airborne=FALSE,aquatic=TRUE}
  [23]
       {aquatic=TRUE, venomous=FALSE}
                                        => {fins=TRUE} 0.1584158 0.5000000
       {hair=FALSE,feathers=FALSE}
                                        => {fins=TRUE} 0.1485149 0.3947368
                                         => {fins=TRUE} 0.1485149 0.3750000
  [25] {hair=FALSE,airborne=FALSE}
   [26]
        {hair=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1485149 0.3571429
   [27] {predator=TRUE, toothed=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3513514
   [28] {eggs=TRUE,airborne=FALSE}
                                           {fins=TRUE} 0.1287129 0.3513514
  [29] {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
   [30] {hair=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1485149 0.3409091
##
  [31] {eggs=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3333333
                                         => {fins=TRUE} 0.1287129 0.3333333
  [32] {feathers=FALSE,eggs=TRUE}
  [33] {milk=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.3250000
##
  Г341
       {feathers=FALSE,milk=FALSE}
                                           {fins=TRUE} 0.1287129 0.3250000
  [35] {eggs=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.3095238
   [36] {milk=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.3095238
                                           {fins=TRUE} 0.1584158 0.3076923
   [37] {toothed=TRUE,tail=TRUE}
   [38] {toothed=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.3076923
  [39] {hair=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1089109 0.3055556
  [40] {feathers=FALSE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2909091
  [41] {airborne=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1683168 0.2881356
  [42] {predator=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1188119 0.2857143
  [43] {toothed=TRUE, venomous=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2807018
  [44] {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
   [45] {feathers=FALSE,predator=TRUE}
                                           {fins=TRUE} 0.1287129 0.2765957
##
  [46] {predator=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
  [47] {feathers=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1683168 0.2698413
  [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
  [49] {airborne=FALSE,predator=TRUE}
                                           {fins=TRUE} 0.1287129 0.2653061
##
##
  [50] {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
  [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
  [52] {hair=FALSE}
                                           {fins=TRUE} 0.1485149 0.2586207
##
   [53] {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
  [54] {airborne=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2352941
  [55] {feathers=FALSE,airborne=FALSE}
                                        => {fins=TRUE} 0.1683168 0.2328767
                                         => {fins=TRUE} 0.1188119 0.2307692
  [56]
       {milk=FALSE, venomous=FALSE}
##
   [57]
       {tail=TRUE,domestic=FALSE}
                                           {fins=TRUE} 0.1485149 0.2307692
       {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
  [59] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [60] {feathers=FALSE,domestic=FALSE}
                                           {fins=TRUE} 0.1584158 0.2253521
   [61] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
##
## [62] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
## [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
## [64] {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
```

```
## [65] {backbone=TRUE,tail=TRUE}
                                     => {fins=TRUE} 0.1584158 0.2162162
   [66] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
## [1]
        5.941176
##
  [2]
        5.516807
##
  [3]
        5.516807
        5.516807
## [4]
## [5]
        5.281046
## [6]
        5.003096
## [7]
        5.003096
## [8]
        4.950980
## [9]
        4.827206
## [10] 4.690402
## [11] 4.391304
## [12] 4.193772
## [13] 3.960784
## [14] 3.874680
## [15] 3.861765
## [16] 3.861765
## [17] 3.677871
## [18] 3.677871
## [19] 3.656109
## [20] 3.366667
## [21] 3.366667
## [22] 3.258065
## [23] 2.970588
## [24] 2.345201
## [25] 2.227941
## [26] 2.121849
## [27] 2.087440
## [28] 2.087440
## [29] 2.032508
## [30] 2.025401
## [31] 1.980392
## [32] 1.980392
## [33] 1.930882
## [34] 1.930882
## [35] 1.838936
## [36] 1.838936
## [37] 1.828054
## [38] 1.828054
## [39] 1.815359
## [40] 1.728342
## [41] 1.711864
## [42] 1.697479
## [43] 1.667699
## [44] 1.667699
## [45] 1.643304
## [46] 1.643304
## [47] 1.603175
## [48] 1.599548
## [49] 1.576230
## [50] 1.553846
## [51] 1.540305
```

```
[52] 1.536511
##
   [53] 1.425882
   [54] 1.397924
   [55] 1.383562
##
##
   [56] 1.371041
   [57] 1.371041
##
   [58] 1.345172
   [59] 1.338857
##
   [60] 1.338857
##
   [61] 1.338857
   [62] 1.320261
##
   [63] 1.302176
##
   [64] 1.296257
##
   [65] 1.284579
   [66] 1.100218
##
##
        lhs
                                                     confidence lift
                             rhs
                                           support
##
   [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000
                                                                1.2023810
   [2]
                          => {fins=FALSE} 0.1980198 1.0000000
        {type=bird}
                                                                1.2023810
   [3]
##
        {feathers=TRUE}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
   [4]
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
                                                                 1.2023810
##
   [5]
        {toothed=FALSE}
                          => {fins=FALSE} 0.3960396 1.0000000
                                                                1.2023810
   [6]
                          => {fins=FALSE} 0.7623762 0.9871795
##
        {legs=TRUE}
                                                                 1.1869658
   [7]
                          => {fins=FALSE} 0.4059406 0.9534884
##
        {hair=TRUE}
                                                                 1.1464563
                             {fins=FALSE} 0.7524752 0.9500000
##
   [8]
        {breathes=TRUE}
                                                                 1.1422619
##
   [9]
        {domestic=TRUE}
                          => {fins=FALSE} 0.1188119 0.9230769
                                                                 1.1098901
   [10] {predator=FALSE}
                          => {fins=FALSE} 0.4059406 0.9111111
                                                                 1.0955026
                          => {fins=FALSE} 0.3762376 0.9047619
   [11] {eggs=FALSE}
                                                                 1.0878685
##
   [12] {milk=TRUE}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                 1.0850755
  [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                 1.0850755
                          => {fins=FALSE} 0.4752475 0.8421053
   [14] {catsize=FALSE}
                                                                 1.0125313
   [15]
        {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                 0.9955197
##
   [16]
       {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                0.9837662
       {domestic=FALSE}
                          => {fins=FALSE} 0.7128713 0.8181818
                                                                 0.9837662
   Γ17]
       {backbone=TRUE}
                          => {fins=FALSE} 0.6534653 0.7951807
   Г187
                                                                 0.9561102
        {feathers=FALSE}
                          => {fins=FALSE} 0.6336634 0.7901235
   Γ197
                                                                 0.9500294
##
  [20] {tail=TRUE}
                          => {fins=FALSE} 0.5841584 0.7866667
                                                                 0.9458730
   [21] {eggs=TRUE}
                          => {fins=FALSE} 0.4554455 0.7796610
                                                                 0.9374496
  [22] {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
##
                                                                 0.9369202
                          => {fins=FALSE} 0.4257426 0.7678571
##
   [23]
       {predator=TRUE}
                                                                 0.9232568
##
   [24] {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
                                                                0.8914204
   [25]
       {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115
                                                                0.8672912
   [26]
                          => {fins=FALSE} 0.1881188 0.5277778
##
        {aquatic=TRUE}
                                                                0.6345899
##
        lhs
                                             rhs
                                                         support
                                                                    confidence
##
   [1]
        {venomous=FALSE,legs=FALSE}
                                          => {fins=TRUE} 0.1485149 0.7894737
##
   [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
   [3]
                                          => {fins=TRUE} 0.1584158 0.5000000
##
        {aquatic=TRUE, venomous=FALSE}
##
   [4]
        {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
   [5]
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
##
   [6]
        {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
##
   [7]
        {milk=FALSE, venomous=FALSE}
                                          => {fins=TRUE} 0.1188119 0.2307692
                                          => {fins=TRUE} 0.1188119 0.2264151
##
   [8]
        {eggs=TRUE, venomous=FALSE}
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
## [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
```

```
##
        lift
##
   [1]
        4.690402
##
   [2]
        3.960784
   [3]
        2.970588
##
##
   [4]
        1.667699
##
   [5]
        1.599548
##
   [6]
        1.425882
##
   [7]
        1.371041
##
   [8]
        1.345172
##
   [9]
        1.338857
   [10] 1.302176
##
   [11] 1.100218
##
       lhs
                                            rhs
                                                        support
                                                                   confidence
##
  [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
                                        => {fins=TRUE} 0.1386139 0.2592593
  [2] {hair=FALSE,domestic=FALSE}
   [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
   [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
   [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
   [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
  [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
   [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
       lift
## [1] 1.828054
  [2] 1.540305
   [3] 1.397924
   [4] 1.371041
##
   [5] 1.338857
##
   [6] 1.338857
  [7] 1.320261
##
   [8] 1.296257
##
   [9] 1.100218
##
        lhs
                                                                   confidence
                                                        support
##
   [1]
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
##
   [2]
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
        {aquatic=TRUE, backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
##
   [3]
##
   [4]
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
   [5]
        {eggs=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
##
   [6]
        {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
##
        {predator=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
##
   [7]
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
   [9]
##
   Γ107
       {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
   [11] {backbone=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
        lift
## [1]
        5.516807
##
   [2]
        5.003096
##
   [3]
        3.366667
        2.025401
##
   [4]
##
   [5]
        1.838936
##
   [6]
        1.838936
##
  [7]
        1.643304
## [8]
        1.603175
## [9]
        1.553846
```

```
## [10] 1.338857
   [11] 1.284579
##
##
        lhs
                                                         support
                                                                    confidence
##
        {feathers=FALSE, aquatic=TRUE}
                                          => {fins=TRUE} 0.1683168 0.5666667
  [1]
##
   [2]
        {hair=FALSE, feathers=FALSE}
                                          => {fins=TRUE} 0.1485149 0.3947368
   [3]
        {feathers=FALSE,eggs=TRUE}
##
                                          => {fins=TRUE} 0.1287129 0.3333333
        {feathers=FALSE, milk=FALSE}
  ۲4٦
                                          => {fins=TRUE} 0.1287129 0.3250000
## [5]
        {feathers=FALSE,tail=TRUE}
                                          => {fins=TRUE} 0.1584158 0.2909091
##
   [6]
        {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
##
   [7]
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
   [8]
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [9]
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
        lift
## [1]
        3.366667
##
   [2]
        2.345201
   [3]
##
        1.980392
##
   [4]
        1.930882
   [5]
##
        1.728342
##
   [6]
        1.643304
##
  [7]
        1.603175
## [8]
        1.383562
## [9]
        1.338857
   [10] 1.302176
##
##
        lhs
                                       rhs
                                                    support
                                                              confidence
## [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
   [2]
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.8333333
##
##
   [3]
        {aquatic=TRUE, tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
## [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
## [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
## [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
##
   [7]
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
  [8]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
        {predator=TRUE, tail=TRUE} => {fins=TRUE} 0.1188119 0.2857143
  [9]
   [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
  [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
##
   [12] {backbone=TRUE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
        lift
## [1]
        5.516807
##
   [2]
        4.950980
   [3]
        3.656109
  [4]
        2.121849
##
##
   [5]
        1.980392
##
   [6]
        1.930882
  [7]
        1.828054
## [8]
        1.728342
##
  [9]
        1.697479
## [10] 1.667699
## [11] 1.371041
##
  [12] 1.284579
##
       lhs
                                      rhs
                                                   support
                                                              confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {fins=TRUE} 0.1287129 0.6500000
## [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
## [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
```

```
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
## [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
## [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
  [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
       lift.
## [1] 3.861765
## [2] 2.087440
## [3] 1.980392
## [4] 1.980392
## [5] 1.838936
## [6] 1.345172
  [7] 1.320261
##
##
        lhs
                                                                   confidence
                                            rhs
                                                        support
## [1]
        {airborne=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
## [2]
                                         => {fins=TRUE} 0.1485149 0.3750000
        {hair=FALSE,airborne=FALSE}
## [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
## [5]
        {airborne=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
## [6]
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [7]
       {airborne=FALSE, predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
## [8]
       {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
## [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
        lift
## [1]
       3.258065
## [2]
       2.227941
##
  [3]
        2.087440
## [4]
       2.032508
## [5]
        1.711864
## [6]
        1.667699
##
  [7]
        1.576230
## [8]
        1.553846
## [9]
        1.397924
  [10] 1.383562
## [11] 1.338857
##
       lhs
                                                      support
                                                                 confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
## [2] {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
                                       => {fins=TRUE} 0.1089109 0.3055556
## [3] {hair=FALSE,predator=TRUE}
## [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
## [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
## [4] 1.697479
## [5] 1.643304
## [6] 1.643304
## [7] 1.576230
## [8] 1.425882
```

```
##
                                                   support
                                                             confidence
## [1] {hair=FALSE,toothed=TRUE}
                                    => {fins=TRUE} 0.1485149 0.6521739
  [2] {hair=FALSE,feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
  [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
  [4] {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
  [5] {hair=FALSE,backbone=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3409091
  [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
  [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
##
   [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
       lift
## [1] 3.874680
  [2] 2.345201
##
  [3] 2.227941
## [4] 2.121849
## [5] 2.025401
   [6] 1.815359
##
  [7] 1.599548
##
  [8] 1.540305
##
        lhs
                                          rhs
                                                      support
                                                                 confidence
##
  [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
                                       => {fins=TRUE} 0.1584158 0.8421053
##
  [2]
        {toothed=TRUE,legs=FALSE}
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
  [3]
## [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
##
  [5]
        {eggs=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
##
  [6]
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
  [7]
        {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
##
   [8]
   [9]
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
  [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
  [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
        lift
## [1]
        5.516807
##
   [2]
        5.003096
  [3]
##
        4.391304
   [4]
        3.874680
##
   [5]
##
        3.861765
  [6]
        3.677871
  [7]
        2.087440
##
  [8]
##
        1.828054
##
  [9]
        1.828054
  [10] 1.711864
##
  [11] 1.667699
##
       lhs
                                         rhs
                                                     support
                                                                confidence
  [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
##
## [2] {aquatic=TRUE,toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
## [3] {aquatic=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
  [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
  [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [6] {aquatic=TRUE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
   [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
   [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
##
       lift
## [1] 5.281046
## [2] 4.391304
```

```
[3] 3.861765
   [4] 3.656109
   [5] 3.366667
##
   [6] 3.366667
##
   [7] 3.258065
##
   [8] 2.970588
##
   [1] "Número de reglas con consecuente negado"
##
                                                             support
##
   [1]
        {aquatic=TRUE,catsize=TRUE}
                                         => {predator=TRUE} 0.1188119
##
   [2]
        {breathes=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.1683168
   [3]
        {aquatic=TRUE,fins=FALSE}
                                         => {predator=TRUE} 0.1584158
   [4]
##
        {airborne=FALSE,aquatic=TRUE}
                                            {predator=TRUE} 0.2574257
##
   [5]
        {aquatic=TRUE,legs=TRUE}
                                            {predator=TRUE} 0.1485149
        {feathers=FALSE, aquatic=TRUE}
##
   [6]
                                            {predator=TRUE} 0.2475248
   [7]
        {fins=TRUE,domestic=FALSE}
##
                                            {predator=TRUE} 0.1287129
##
   [8]
        {aquatic=TRUE, breathes=TRUE}
                                            {predator=TRUE} 0.1287129
##
   [9]
        {breathes=FALSE}
                                            {predator=TRUE} 0.1683168
   [10] {aquatic=TRUE}
                                            {predator=TRUE} 0.2871287
   [11] {backbone=TRUE,legs=FALSE}
                                            {predator=TRUE} 0.1485149
   [12] {hair=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1782178
##
  [13] {legs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.1683168
  [14] {fins=TRUE}
                                            {predator=TRUE} 0.1287129
  [15] {milk=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1584158
   [16] {eggs=TRUE, toothed=TRUE}
                                            {predator=TRUE} 0.1485149
   [17] {hair=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2871287
  [18] {hair=FALSE, feathers=FALSE}
                                            {predator=TRUE} 0.2673267
   [19] {milk=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2673267
   [20] {eggs=TRUE,airborne=FALSE}
                                            {predator=TRUE} 0.2574257
  [21] {airborne=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.4653465
  [22] {domestic=FALSE,catsize=TRUE}
                                           {predator=TRUE} 0.2574257
  [23] {toothed=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.3465347
   [24]
       {airborne=FALSE, toothed=FALSE}
                                            {predator=TRUE} 0.1188119
   [25] {hair=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.3564356
   [26] {catsize=TRUE}
                                            {predator=TRUE} 0.2772277
   [27] {feathers=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.4455446
  [28] {backbone=TRUE,domestic=FALSE}
##
                                            {predator=TRUE} 0.4455446
  [29] {tail=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4059406
  [30] {feathers=FALSE,milk=FALSE}
                                            {predator=TRUE} 0.2475248
   [31] {eggs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.2079208
   [32] {feathers=FALSE,eggs=TRUE}
                                            {predator=TRUE} 0.2376238
  [33] {feathers=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.3762376
   [34] {milk=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.2376238
   [35] {feathers=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.3267327
   [36] {eggs=TRUE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
  [37] {milk=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
       {eggs=TRUE,tail=TRUE}
   [38]
                                            {predator=TRUE} 0.2277228
   [39]
##
       {backbone=TRUE}
                                            {predator=TRUE} 0.4653465
   [40] {eggs=FALSE}
                                            {predator=TRUE} 0.2277228
   [41] {venomous=FALSE,tail=FALSE}
                                            {predator=TRUE} 0.1188119
   [42] {legs=TRUE}
                                            {predator=TRUE} 0.3861386
##
   [43] {hair=TRUE}
                                            {predator=TRUE} 0.1980198
##
  [44] {aquatic=FALSE}
                                            {predator=TRUE} 0.2673267
##
        confidence lift
## [1]
       0.9230769 1.6648352
```

```
[2]
        0.8500000
                    1.5330357
##
   [3]
        0.8421053
                    1.5187970
        0.8387097
   [4]
                    1.5126728
   [5]
        0.8333333
##
                    1.5029762
##
   [6]
        0.8333333
                    1.5029762
##
   [7]
        0.8125000
                    1.4654018
   [8]
        0.8125000
                    1.4654018
##
   [9]
        0.8095238
                    1.4600340
   [10] 0.8055556
                    1.4528770
   [11] 0.7894737
                    1.4238722
   [12] 0.7826087
                    1.4114907
   [13] 0.7727273
                    1.3936688
   [14] 0.7647059
                    1.3792017
   [15] 0.7619048
                    1.3741497
   [16] 0.7500000
                    1.3526786
   [17] 0.7250000
                    1.3075893
   [18] 0.7105263
                    1.2814850
   [19] 0.7105263
                    1.2814850
   [20] 0.7027027
                    1.2673745
   [21] 0.6911765
                    1.2465861
##
   [22] 0.6842105
                    1.2340226
   [23] 0.6730769
                    1.2139423
   [24] 0.6666667
                    1.2023810
   [25] 0.6666667
                    1.2023810
   [26] 0.6363636
                    1.1477273
   [27] 0.6338028
                    1.1431087
   [28] 0.6338028
                    1.1431087
##
   [29] 0.6307692
                    1.1376374
   [30] 0.6250000
                    1.1272321
   [31] 0.6176471
                    1.1139706
   [32] 0.6153846
                    1.1098901
##
   [33] 0.6031746
                    1.0878685
   [34] 0.6000000
                    1.0821429
   [35] 0.6000000
                    1.0821429
   [36] 0.5952381
                    1.0735544
##
   [37] 0.5952381
                    1.0735544
   [38] 0.5897436
                    1.0636447
   [39] 0.5662651
                    1.0212995
   [40] 0.5476190
                    0.9876701
##
   [41] 0.5454545
                    0.9837662
   [42] 0.5000000
                    0.9017857
   [43] 0.4651163
                    0.8388704
##
   [44]
        0.4153846
                    0.7491758
##
                                                          confidence lift
        lhs
                                                support
##
  [1]
        {domestic=TRUE}
                          => {predator=FALSE} 0.1089109 0.8461538
                                                                      1.8991453
   [2]
##
        {airborne=TRUE}
                             {predator=FALSE} 0.1683168 0.7083333
                                                                      1.5898148
        {type=bird}
##
   [3]
                          => {predator=FALSE} 0.1089109 0.5500000
                                                                      1.2344444
##
   [4]
        {feathers=TRUE}
                             {predator=FALSE} 0.1089109 0.5500000
                                                                      1.2344444
##
   [5]
        {toothed=FALSE}
                          => {predator=FALSE} 0.2079208 0.5250000
                                                                      1.1783333
##
   [6]
        {catsize=FALSE}
                          => {predator=FALSE} 0.2871287 0.5087719
                                                                      1.1419103
   [7]
##
        {milk=TRUE}
                          => {predator=FALSE} 0.1881188 0.4634146
                                                                      1.0401084
##
   [8]
        {type=mammal}
                          => {predator=FALSE} 0.1881188 0.4634146
##
  [9]
        {tail=FALSE}
                          => {predator=FALSE} 0.1188119 0.4615385
                                                                      1.0358974
## [10] {eggs=FALSE}
                          => {predator=FALSE} 0.1881188 0.4523810
                                                                     1.0153439
```

```
## [11] {eggs=TRUE}
                         => {predator=FALSE} 0.2574257 0.4406780
                                                                   0.9890772
                         => {predator=FALSE} 0.2574257 0.4333333
                                                                   0.9725926
## [12] {milk=FALSE}
  [13] {domestic=FALSE} => {predator=FALSE} 0.3366337 0.3863636
  [14] {hair=FALSE}
                         => {predator=FALSE} 0.2178218 0.3793103
                                                                   0.8513410
##
   [15] {catsize=TRUE}
                         => {predator=FALSE} 0.1584158 0.3636364
                                                                   0.8161616
##
       lhs
                                          rhs
                                                          support
                                                                     confidence
   [1] {airborne=FALSE,toothed=FALSE} => {predator=TRUE} 0.1188119 0.6666667
##
##
       lift
##
  [1] 1.202381
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
   [1] {venomous=FALSE,tail=FALSE} => {predator=TRUE} 0.1188119 0.5454545
##
       lift
##
   [1] 0.9837662
##
                                       rhs
                                                       support
                                                                  confidence
   [1] {eggs=FALSE,domestic=FALSE} => {predator=TRUE} 0.2079208 0.6176471
##
##
       lift
##
  [1] 1.113971
##
       lhs
                                      rhs
                                                      support
                                                                 confidence
  [1] {eggs=TRUE,toothed=TRUE}
                                   => {predator=TRUE} 0.1485149 0.7500000
  [2] {eggs=TRUE,airborne=FALSE} => {predator=TRUE} 0.2574257 0.7027027
  [3] {feathers=FALSE,eggs=TRUE} => {predator=TRUE} 0.2376238 0.6153846
## [4] {eggs=TRUE,backbone=TRUE}
                                  => {predator=TRUE} 0.2475248 0.5952381
  [5] {eggs=TRUE,tail=TRUE}
                                   => {predator=TRUE} 0.2277228 0.5897436
##
##
       lift
## [1] 1.352679
## [2] 1.267375
## [3] 1.109890
  [4] 1.073554
  [5] 1.063645
##
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1584158 0.7619048
  [2] {milk=FALSE,airborne=FALSE} => {predator=TRUE} 0.2673267 0.7105263
  [3] {feathers=FALSE,milk=FALSE} => {predator=TRUE} 0.2475248 0.6250000
  [4] {milk=FALSE,tail=TRUE}
                                    => {predator=TRUE} 0.2376238 0.6000000
   [5] {milk=FALSE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
##
       lift
## [1] 1.374150
## [2] 1.281485
## [3] 1.127232
## [4] 1.082143
  [5] 1.073554
##
        lhs
                                            rhs
                                                            support
## [1]
        {breathes=FALSE,domestic=FALSE} => {predator=TRUE} 0.1683168
##
  [2]
        {fins=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.1287129
## [3]
        {legs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.1683168
## [4]
        {airborne=FALSE,domestic=FALSE} => {predator=TRUE} 0.4653465
##
  [5]
        {domestic=FALSE, catsize=TRUE}
                                         => {predator=TRUE} 0.2574257
##
  [6]
        {toothed=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.3465347
                                         => {predator=TRUE} 0.3564356
  [7]
        {hair=FALSE,domestic=FALSE}
  [8]
        {feathers=FALSE,domestic=FALSE} => {predator=TRUE} 0.4455446
        {backbone=TRUE,domestic=FALSE}
  [9]
                                         => {predator=TRUE} 0.4455446
## [10] {tail=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4059406
## [11] {eggs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.2079208
##
        confidence lift
```

```
[1]
        0.8500000
                   1.533036
   [2]
        0.8125000
                   1.465402
  [3]
        0.7727273
                   1.393669
  [4]
        0.6911765
##
                   1.246586
##
   [5]
        0.6842105
                   1.234023
   [6]
        0.6730769
                   1.213942
##
  [7]
        0.6666667
                   1.202381
##
  [8]
        0.6338028
                   1.143109
##
   [9]
        0.6338028
                   1.143109
  [10] 0.6307692
                   1.137637
   [11] 0.6176471
                   1.113971
##
       lhs
                                                        support
                                                                  confidence
##
  [1] {hair=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1782178 0.7826087
   [2] {hair=FALSE,airborne=FALSE} => {predator=TRUE} 0.2871287 0.7250000
  [3] {hair=FALSE,feathers=FALSE} => {predator=TRUE} 0.2673267 0.7105263
   [4] {hair=FALSE,domestic=FALSE} => {predator=TRUE} 0.3564356 0.6666667
##
       lift
##
  [1] 1.411491
   [2] 1.307589
   [3] 1.281485
##
   [4] 1.202381
##
                                         rhs
                                                                    confidence
                                                          support
   [1] {aquatic=TRUE,catsize=TRUE}
                                      => {predator=TRUE} 0.1188119 0.9230769
   [2] {domestic=FALSE,catsize=TRUE} => {predator=TRUE} 0.2574257 0.6842105
##
##
       lift
  [1] 1.664835
   [2] 1.234023
##
##
       "Número de reglas con consecuente negado"
##
                                                            support
##
  [1]
        {milk=TRUE,predator=TRUE}
                                         => {catsize=TRUE} 0.1980198
##
   [2]
        {predator=TRUE, type=mammal}
                                            {catsize=TRUE} 0.1980198
##
   [3]
        {hair=TRUE, predator=TRUE}
                                            {catsize=TRUE} 0.1782178
  [4]
        {eggs=FALSE,predator=TRUE}
                                         => {catsize=TRUE} 0.1881188
##
  [5]
        {hair=TRUE,airborne=FALSE}
                                         => {catsize=TRUE} 0.2970297
   [6]
        {milk=TRUE,domestic=FALSE}
                                            {catsize=TRUE} 0.2574257
##
   [7]
        {domestic=FALSE, type=mammal}
                                            {catsize=TRUE} 0.2574257
  [8]
        {milk=TRUE}
                                            {catsize=TRUE} 0.3168317
  [9]
                                            {catsize=TRUE} 0.3168317
##
        {type=mammal}
  [10] {eggs=FALSE, venomous=FALSE}
                                             {catsize=TRUE} 0.3069307
  [11] {hair=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2970297
  [12] {hair=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2475248
  [13] {eggs=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3069307
  [14] {eggs=FALSE}
                                            {catsize=TRUE} 0.3069307
  [15] {hair=TRUE, venomous=FALSE}
                                         => {catsize=TRUE} 0.2970297
## [16] {hair=TRUE,domestic=FALSE}
                                         => {catsize=TRUE} 0.2376238
## [17] {hair=TRUE}
                                         => {catsize=TRUE} 0.2970297
  [18] {aquatic=FALSE,toothed=TRUE}
                                            {catsize=TRUE} 0.2574257
  [19] {toothed=TRUE,legs=TRUE}
                                         => {catsize=TRUE} 0.2772277
  [20] {toothed=TRUE,breathes=TRUE}
                                         => {catsize=TRUE} 0.3069307
  [21] {airborne=FALSE,breathes=TRUE}
                                            {catsize=TRUE} 0.3564356
                                            {catsize=TRUE} 0.2871287
## [22] {airborne=FALSE,aquatic=FALSE}
## [23] {airborne=FALSE,legs=TRUE}
                                         => {catsize=TRUE} 0.3366337
## [24] {predator=TRUE, toothed=TRUE}
                                         => {catsize=TRUE} 0.2277228
## [25] {airborne=FALSE,backbone=TRUE}
                                         => {catsize=TRUE} 0.3960396
```

```
[26] {airborne=FALSE,tail=TRUE}
                                         => {catsize=TRUE} 0.3465347
   [27] {toothed=TRUE,fins=FALSE}
                                            {catsize=TRUE} 0.2673267
  [28] {toothed=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.3366337
   [29] {aquatic=FALSE,predator=TRUE}
                                            {catsize=TRUE} 0.1584158
##
   [30] {predator=TRUE, breathes=TRUE}
                                             {catsize=TRUE} 0.2277228
   [31] {feathers=FALSE,backbone=TRUE}
##
                                            {catsize=TRUE} 0.3663366
   [32] {aquatic=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3069307
   [33] {feathers=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3168317
   [34]
       {toothed=TRUE,tail=TRUE}
                                             {catsize=TRUE} 0.2970297
   [35] {predator=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2673267
   [36] {backbone=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.3861386
   [37]
        {airborne=FALSE, venomous=FALSE} =>
                                            {catsize=TRUE} 0.3960396
   [38]
##
       {backbone=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.3564356
                                            {catsize=TRUE} 0.3168317
       {legs=TRUE,tail=TRUE}
   [40] {breathes=TRUE,tail=TRUE}
                                         => {catsize=TRUE} 0.3366337
   [41]
        {aquatic=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.2673267
   [42]
        {airborne=FALSE,fins=FALSE}
                                            {catsize=TRUE} 0.3267327
       {feathers=FALSE, breathes=TRUE}
                                            {catsize=TRUE} 0.3267327
   [44] {predator=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2277228
   [45] {predator=TRUE, venomous=FALSE}
                                             {catsize=TRUE} 0.2673267
##
  [46] {predator=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.2079208
  [47] {feathers=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3069307
   [48] {feathers=FALSE,predator=TRUE}
                                             {catsize=TRUE} 0.2475248
        {backbone=TRUE, venomous=FALSE}
##
   [49]
                                             {catsize=TRUE} 0.4158416
   [50]
       {backbone=TRUE,fins=FALSE}
                                            {catsize=TRUE} 0.3465347
   [51] {feathers=FALSE,aquatic=FALSE}
                                            {catsize=TRUE} 0.2673267
   [52] {fins=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3069307
##
   [53] {venomous=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3663366
       {backbone=TRUE,domestic=FALSE}
   [54]
                                            {catsize=TRUE} 0.3663366
       {breathes=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.3861386
   [55]
        {aquatic=FALSE, venomous=FALSE}
                                             {catsize=TRUE} 0.3069307
##
   [57]
        {feathers=FALSE, venomous=FALSE} =>
                                            {catsize=TRUE} 0.3663366
        {venomous=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3663366
   [59]
       {aquatic=FALSE}
                                         => {catsize=TRUE} 0.3069307
   [60]
        {aquatic=TRUE}
                                            {catsize=TRUE} 0.1287129
       {hair=FALSE}
##
   Γ61]
                                         => {catsize=TRUE} 0.1386139
##
   Γ62]
       {milk=FALSE}
                                            {catsize=TRUE} 0.1188119
##
        confidence lift
        0.9090909
                   2.0867769
##
   [1]
   [2]
##
        0.9090909
                   2.0867769
   [3]
        0.9000000
                   2.0659091
   [4]
##
        0.8260870
                   1.8962451
##
   [5]
        0.8108108
                   1.8611794
##
   [6]
        0.7878788
                   1.8085399
##
   [7]
        0.7878788
                   1.8085399
   [8]
##
        0.7804878
                   1.7915743
##
   [9]
        0.7804878
                   1.7915743
   [10] 0.7750000
                   1.7789773
   [11] 0.7692308
                   1.7657343
   [12]
        0.7575758
                   1.7389807
##
   [13] 0.7560976
                   1.7355876
  [14] 0.7380952
                   1.6942641
## [15] 0.7317073
                   1.6796009
## [16] 0.7058824
                   1.6203209
```

```
## [17] 0.6976744
                   1.6014799
   [18] 0.6842105
                    1.5705742
   [19] 0.6666667
                    1.5303030
   [20] 0.6595745
                    1.5140232
   [21] 0.6428571
                    1.4756494
  [22] 0.6304348
                    1.4471344
   [23] 0.6296296
                    1.4452862
  [24] 0.6216216
                    1.4269042
   [25] 0.6153846
                    1.4125874
   [26] 0.6140351
                    1.4094896
   [27] 0.6136364
                    1.4085744
   [28] 0.5964912
                    1.3692185
   [29] 0.5925926
                    1.3602694
   [30] 0.5897436
                    1.3537296
   [31] 0.5873016
                    1.3481241
   [32] 0.5849057
                    1.3426244
   [33] 0.5818182
                    1.3355372
   [34] 0.5769231
                    1.3243007
   [35] 0.5744681
                    1.3186654
   [36] 0.5652174
                    1.2974308
   [37] 0.5633803
##
                    1.2932138
   [38] 0.5625000
                    1.2911932
   [39] 0.5614035
                    1.2886762
   [40] 0.5573770
                    1.2794337
   [41] 0.5510204
                    1.2648423
   [42] 0.5500000
                    1.2625000
   [43] 0.5500000
                    1.2625000
   [44] 0.5476190
                    1.2570346
  [45] 0.5400000
                    1.2395455
   [46] 0.5384615
                    1.2360140
   [47] 0.5344828
                    1.2268809
   [48] 0.5319149
                    1.2209865
   [49] 0.5316456
                    1.2203682
   [50] 0.5303030
                    1.2172865
   [51] 0.5294118
                    1.2152406
##
   [52] 0.5254237
                    1.2060863
   [53] 0.5211268
                    1.1962228
   [54] 0.5211268
                    1.1962228
   [55] 0.5200000
                    1.1936364
   [56] 0.5081967
                    1.1665425
   [57] 0.5068493
                    1.1634496
   [58] 0.5000000
                    1.1477273
   [59] 0.4769231
                    1.0947552
   [60] 0.3611111
                   0.8289141
   [61] 0.2413793
                   0.5540752
   [62] 0.2000000
##
                   0.4590909
##
        lhs
                             rhs
                                              support
                                                        confidence lift
##
   [1]
        {backbone=FALSE} => {catsize=FALSE} 0.1683168 0.9444444
                                                                    1.6734893
        {airborne=TRUE}
   [2]
                          => {catsize=FALSE} 0.2079208 0.8750000
                                                                    1.5504386
##
   [3]
        {milk=FALSE}
                          => {catsize=FALSE} 0.4752475 0.8000000
                                                                    1.4175439
                          => {catsize=FALSE} 0.4554455 0.7796610
##
   [4]
        {eggs=TRUE}
                                                                    1.3815046
##
   [5]
        {tail=FALSE}
                          => {catsize=FALSE} 0.1980198 0.7692308
## [6]
        {breathes=FALSE} => {catsize=FALSE} 0.1584158 0.7619048
                                                                    1.3500418
                          => {catsize=FALSE} 0.1386139 0.7000000
## [7]
        {type=bird}
```

```
{feathers=TRUE}
                         => {catsize=FALSE} 0.1386139 0.7000000
                                                                  1.2403509
##
  [9]
                         => {catsize=FALSE} 0.1584158 0.6956522
        {legs=FALSE}
                                                                  1.2326468
  [10] {aquatic=TRUE}
                         => {catsize=FALSE} 0.2277228 0.6388889
  [11] {predator=TRUE}
                         => {catsize=FALSE} 0.2772277 0.5000000
                                                                   0.8859649
  [12] {airborne=FALSE} => {catsize=FALSE} 0.3564356 0.4675325
                                                                   0.8284347
                         => {catsize=FALSE} 0.1287129 0.3023256
##
  [13] {hair=TRUE}
                                                                   0.5356997
##
  [14] {eggs=FALSE}
                         => {catsize=FALSE} 0.1089109 0.2619048
                                                                   0.4640769
##
        lhs
                                           rhs
                                                           support
                                                                     confidence
## [1]
        {milk=TRUE,predator=TRUE}
                                        => {catsize=TRUE} 0.1980198 0.9090909
##
   [2]
        {predator=TRUE, type=mammal}
                                        => {catsize=TRUE} 0.1980198 0.9090909
  [3]
        {hair=TRUE,predator=TRUE}
                                        => {catsize=TRUE} 0.1782178 0.9000000
   [4]
        {eggs=FALSE,predator=TRUE}
##
                                        => {catsize=TRUE} 0.1881188 0.8260870
##
   [5]
        {predator=TRUE, toothed=TRUE}
                                        => {catsize=TRUE} 0.2277228 0.6216216
  [6]
##
        {aquatic=FALSE, predator=TRUE}
                                        => {catsize=TRUE} 0.1584158 0.5925926
  [7]
        {predator=TRUE,breathes=TRUE}
                                        => {catsize=TRUE} 0.2277228 0.5897436
## [8]
        {predator=TRUE, backbone=TRUE}
                                        => {catsize=TRUE} 0.2673267 0.5744681
##
  [9]
        {predator=TRUE,tail=TRUE}
                                        => {catsize=TRUE} 0.2277228 0.5476190
  [10] {predator=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2673267 0.5400000
  [11] {predator=TRUE,legs=TRUE}
                                        => {catsize=TRUE} 0.2079208 0.5384615
   [12] {feathers=FALSE,predator=TRUE} => {catsize=TRUE} 0.2475248 0.5319149
##
        lift
## [1]
        2.086777
## [2]
        2.086777
  [3]
        2.065909
##
  ۲4٦
        1.896245
  [5]
        1.426904
   [6]
##
        1.360269
##
   [7]
        1.353730
  [8]
##
        1.318665
## [9]
        1.257035
## [10] 1.239545
  [11] 1.236014
##
  [12] 1.220986
##
       lhs
                                                                     confidence
                                           rhs
                                                           support
   [1] {hair=TRUE,airborne=FALSE}
                                        => {catsize=TRUE} 0.2970297 0.8108108
  [2] {airborne=FALSE,breathes=TRUE}
                                        => {catsize=TRUE} 0.3564356 0.6428571
  [3] {airborne=FALSE,aquatic=FALSE}
                                        => {catsize=TRUE} 0.2871287 0.6304348
## [4] {airborne=FALSE,legs=TRUE}
                                        => {catsize=TRUE} 0.3366337 0.6296296
## [5] {airborne=FALSE,backbone=TRUE}
                                        => {catsize=TRUE} 0.3960396 0.6153846
  [6] {airborne=FALSE,tail=TRUE}
                                        => {catsize=TRUE} 0.3465347 0.6140351
  [7] {airborne=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3960396 0.5633803
  [8] {airborne=FALSE,fins=FALSE}
                                        => {catsize=TRUE} 0.3267327 0.5500000
##
##
       lift
## [1] 1.861179
## [2] 1.475649
## [3] 1.447134
## [4] 1.445286
## [5] 1.412587
## [6] 1.409490
## [7] 1.293214
##
  [8] 1.262500
##
                                      rhs
                                                     support
## [1] {hair=TRUE,predator=TRUE} => {catsize=TRUE} 0.1782178 0.9000000
## [2] {hair=TRUE,airborne=FALSE} => {catsize=TRUE} 0.2970297 0.8108108
```

```
## [3] {hair=TRUE,backbone=TRUE} => {catsize=TRUE} 0.2970297 0.7692308
  [4] {hair=TRUE,tail=TRUE}
                                  => {catsize=TRUE} 0.2475248 0.7575758
  [5] {hair=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2970297 0.7317073
   [6] {hair=TRUE,domestic=FALSE} => {catsize=TRUE} 0.2376238 0.7058824
       lift.
## [1] 2.065909
## [2] 1.861179
## [3] 1.765734
## [4] 1.738981
  [5] 1.679601
  [6] 1.620321
##
       lhs
                                       rhs
                                                      support
                                                                confidence
##
  [1] {eggs=FALSE,predator=TRUE} => {catsize=TRUE} 0.1881188 0.8260870
   [2] {eggs=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3069307 0.7750000
   [3] {eggs=FALSE,backbone=TRUE} => {catsize=TRUE} 0.3069307 0.7560976
##
       lift
## [1] 1.896245
   [2] 1.778977
  [3] 1.735588
   Γ17
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                            support
## [1]
        {catsize=FALSE, type=bird}
                                         => {airborne=TRUE} 0.1287129
## [2]
        {feathers=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1287129
  [3]
                                         => {airborne=TRUE} 0.1584158
##
        {type=bird}
## [4]
        {feathers=TRUE}
                                         => {airborne=TRUE} 0.1584158
  [5]
        {toothed=FALSE,backbone=TRUE}
                                         => {airborne=TRUE} 0.1584158
  [6]
        {predator=FALSE, toothed=FALSE}
                                         => {airborne=TRUE} 0.1485149
##
  [7]
        {toothed=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1584158
## [8]
        {toothed=FALSE, breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [9]
        {aquatic=FALSE, toothed=FALSE}
                                         => {airborne=TRUE} 0.1683168
## [10] {toothed=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
  [11] {toothed=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
  [12] {eggs=TRUE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1683168
## [13] {eggs=TRUE,predator=FALSE}
                                         => {airborne=TRUE} 0.1485149
  [14] {milk=FALSE,predator=FALSE}
                                           {airborne=TRUE} 0.1485149
## [15] {milk=FALSE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1683168
## [16] {eggs=TRUE,breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [17] {milk=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [18] {toothed=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
                                         => {airborne=TRUE} 0.2178218
## [19] {toothed=FALSE}
## [20] {eggs=TRUE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [21] {milk=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [22] {predator=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1485149
## [23] {legs=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.2079208
## [24] {breathes=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.2079208
## [25] {hair=FALSE,predator=FALSE}
                                         => {airborne=TRUE} 0.1089109
## [26] {aquatic=FALSE, catsize=FALSE}
                                         => {airborne=TRUE} 0.1683168
## [27] {hair=FALSE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1287129
## [28] {hair=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.1782178
## [29] {hair=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.1782178
                                         => {airborne=TRUE} 0.2178218
## [30] {eggs=TRUE,fins=FALSE}
## [31] {milk=FALSE,fins=FALSE}
                                         => {airborne=TRUE} 0.2178218
## [32] {fins=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.2079208
## [33] {predator=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.1683168
```

```
## [34] {hair=FALSE,fins=FALSE}
                                         => {airborne=TRUE} 0.1782178
                                            {airborne=TRUE} 0.1683168
  [35] {predator=FALSE,breathes=TRUE}
  [36] {predator=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1683168
  [37] {eggs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [38] {eggs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
##
  [39] {tail=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
  [40] {milk=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
## [41] {milk=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [42] {milk=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [43] {predator=FALSE,domestic=FALSE} =>
                                            {airborne=TRUE} 0.1287129
  [44] {hair=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [45] {eggs=TRUE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [46] {milk=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
## [47] {venomous=FALSE, catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
## [48] {eggs=TRUE, venomous=FALSE}
                                         => {airborne=TRUE} 0.1980198
  [49]
        {backbone=TRUE, catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
       {hair=FALSE, venomous=FALSE}
                                         => {airborne=TRUE} 0.1782178
   [50]
   [51] {breathes=TRUE,legs=TRUE}
                                         => {airborne=TRUE} 0.2376238
   [52] {aquatic=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1881188
   [53] {legs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1782178
##
  [54] {breathes=TRUE,fins=FALSE}
                                         => {airborne=TRUE} 0.2376238
  [55] {fins=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2376238
   [56] {fins=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1782178
                                            {airborne=TRUE} 0.1881188
##
   [57] {aquatic=FALSE}
##
   [58] {venomous=FALSE}
                                         => {airborne=TRUE} 0.2178218
        confidence lift
##
   [1]
        0.9285714
                   3.9077381
##
   [2]
        0.9285714
                   3.9077381
##
   [3]
        0.8000000
                   3.3666667
##
  [4]
        0.8000000
                   3.3666667
##
  [5]
        0.7272727
                   3.0606061
##
   [6]
        0.7142857
                   3.0059524
##
   [7]
        0.6956522
                   2.9275362
  [8]
##
        0.6666667
                   2.8055556
   [9]
        0.6296296
                   2.6496914
##
  [10] 0.6129032
                   2.5793011
  [11] 0.6111111
                   2.5717593
## [12] 0.5862069
                   2.4669540
  [13] 0.5769231
                   2.4278846
  [14] 0.5769231
                   2.4278846
  [15] 0.5666667
                   2.3847222
  [16] 0.5641026
                   2.3739316
  Γ17 ] 0.5641026
                   2.3739316
  [18] 0.5555556
                   2.3379630
  [19] 0.5500000
                   2.3145833
## [20] 0.5500000
                   2.3145833
  [21] 0.5500000
                   2.3145833
  [22] 0.5172414
                   2.1767241
  [23] 0.5121951
                   2.1554878
  [24] 0.5121951
                   2.1554878
##
  [25] 0.5000000
                   2.1041667
## [26] 0.5000000
                   2.1041667
## [27] 0.5000000
                   2.1041667
## [28] 0.5000000
                   2.1041667
```

```
## [29] 0.4864865
                   2.0472973
   [30] 0.4782609
                    2.0126812
   [31] 0.4680851
                    1.9698582
   [32] 0.4375000
                    1.8411458
   [33] 0.4358974
                    1.8344017
##
   [34] 0.4186047
                    1.7616279
   [35] 0.4146341
                    1.7449187
   [36] 0.4146341
                    1.7449187
   [37] 0.4130435
                    1.7382246
   [38] 0.4102564
                    1.7264957
   [39] 0.4054054
                    1.7060811
   [40] 0.4000000
                    1.6833333
   [41] 0.3958333
                    1.6657986
   [42] 0.3846154
                    1.6185897
   [43] 0.3823529
                    1.6090686
   [44] 0.3809524
                    1.6031746
##
   [45] 0.3809524
                    1.6031746
                    1.6031746
   [46] 0.3809524
   [47] 0.3800000
                    1.5991667
   [48] 0.3773585
                    1.5880503
##
   [49] 0.3750000
                    1.5781250
   [50] 0.3461538
                    1.4567308
   [51] 0.3287671
                    1.3835616
   [52] 0.3166667
                    1.3326389
   [53] 0.3157895
                    1.3289474
   [54] 0.3157895
                    1.3289474
   [55] 0.3116883
                    1.3116883
##
   [56] 0.3050847
                    1.2838983
##
   [57]
       0.2923077
                    1.2301282
##
   [58] 0.2365591
                   0.9955197
##
        lhs
                                               support
                                                         confidence lift
##
   [1]
        {type=fish}
                          => {airborne=FALSE} 0.1287129 1.0000000
                                                                    1.3116883
##
   [2]
        {fins=TRUE}
                             {airborne=FALSE} 0.1683168 1.0000000
                                                                     1.3116883
   [3]
        {breathes=FALSE} => {airborne=FALSE} 0.2079208 1.0000000
##
                                                                     1.3116883
##
   [4]
        {legs=FALSE}
                             {airborne=FALSE} 0.2277228 1.0000000
                                                                     1.3116883
##
   [5]
                          => {airborne=FALSE} 0.5841584 0.9672131
        {toothed=TRUE}
                                                                     1.2686821
##
   [6]
        {eggs=FALSE}
                             {airborne=FALSE} 0.3960396 0.9523810
##
   [7]
        {milk=TRUE}
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                     1.2477035
   [8]
        {type=mammal}
                             {airborne=FALSE} 0.3861386 0.9512195
##
                                                                     1.2477035
##
                             {airborne=FALSE} 0.4059406 0.9318182
   [9]
        {catsize=TRUE}
                                                                     1.2222550
                          => {airborne=FALSE} 0.4851485 0.8750000
   [10] {predator=TRUE}
                                                                     1.1477273
   [11] {aquatic=TRUE}
                             {airborne=FALSE} 0.3069307 0.8611111
                                                                     1.1295094
   [12] {hair=TRUE}
                             {airborne=FALSE} 0.3663366 0.8604651
                                                                     1.1286620
   [13] {backbone=TRUE}
                          => {airborne=FALSE} 0.6435644 0.7831325
                                                                     1.0272258
  [14] {tail=FALSE}
                          => {airborne=FALSE} 0.1980198 0.7692308
                                                                     1.0089910
       {tail=TRUE}
                             {airborne=FALSE} 0.5643564 0.7600000
   [15]
                                                                     0.9968831
   [16]
       {aquatic=FALSE}
                             {airborne=FALSE} 0.4554455 0.7076923
                                                                     0.9282717
   [17]
       {hair=FALSE}
                             {airborne=FALSE} 0.3960396 0.6896552
                                                                     0.9046126
   [18]
       {backbone=FALSE} => {airborne=FALSE} 0.1188119 0.6666667
                                                                     0.8744589
   [19] {milk=FALSE}
                             {airborne=FALSE} 0.3762376 0.6333333
                                                                     0.8307359
##
   [20] {eggs=TRUE}
                          => {airborne=FALSE} 0.3663366 0.6271186
                                                                     0.8225842
  [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.6222222
                                                                     0.8161616
##
  [22] {toothed=FALSE}
                          => {airborne=FALSE} 0.1782178 0.4500000
                                                                     0.5902597
##
       lhs
                                          rhs
                                                           support
                                                                     confidence
```

```
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
                                      => {airborne=TRUE} 0.1584158 0.3809524
## [2] {eggs=TRUE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
  [3] {milk=FALSE,backbone=TRUE}
  [4] {backbone=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift.
## [1] 3.060606
## [2] 1.603175
## [3] 1.603175
## [4] 1.578125
##
       lhs
                                     rhs
                                                     support
                                                               confidence
## [1] {toothed=FALSE,tail=TRUE} =>
                                    {airborne=TRUE} 0.1584158 0.6956522
  [2] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
## [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4000000
                                  => {airborne=TRUE} 0.1584158 0.3809524
## [5] {hair=FALSE,tail=TRUE}
  [6] {legs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1782178 0.3157895
##
  [7] {fins=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1782178 0.3050847
##
       lift
## [1] 2.927536
## [2] 1.726496
## [3] 1.706081
## [4] 1.683333
## [5] 1.603175
##
  [6] 1.328947
## [7] 1.283898
       lhs
                                         rhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
  [2] {eggs=TRUE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1683168 0.5862069
  [3] {milk=FALSE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1683168 0.5666667
  [4] {aquatic=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
   [5] {hair=FALSE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1287129 0.5000000
##
   [6] {aquatic=FALSE,legs=TRUE}
                                      => {airborne=TRUE} 0.1881188 0.3166667
##
       lift
## [1] 2.649691
   [2] 2.466954
##
  [3] 2.384722
  [4] 2.104167
## [5] 2.104167
  [6] 1.332639
##
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
  [2] {hair=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1287129 0.5000000
## [3] {hair=FALSE,legs=TRUE}
                                    => {airborne=TRUE} 0.1782178 0.5000000
## [4] {hair=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.4864865
## [5] {hair=FALSE,fins=FALSE}
                                    => {airborne=TRUE} 0.1782178 0.4186047
## [6] {hair=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.3809524
##
  [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
##
       lift
## [1] 2.104167
## [2] 2.104167
## [3] 2.104167
## [4] 2.047297
## [5] 1.761628
## [6] 1.603175
```

```
## [7] 1.456731
##
                                      rhs
       lhs
                                                       support
                                                                 confidence
  [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
  [2] {milk=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1683168 0.5666667
  [3] {milk=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5641026
                                    => {airborne=TRUE} 0.2178218 0.5500000
## [4] {milk=FALSE,legs=TRUE}
## [5] {milk=FALSE,fins=FALSE}
                                    => {airborne=TRUE} 0.2178218 0.4680851
## [6] {milk=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.4000000
## [7] {milk=FALSE,catsize=FALSE}
                                   => {airborne=TRUE} 0.1881188 0.3958333
  [8] {milk=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
   [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
       lift
## [1] 2.427885
## [2] 2.384722
## [3] 2.373932
## [4] 2.314583
##
  [5] 1.969858
  [6] 1.683333
  [7] 1.665799
  [8] 1.618590
##
   [9] 1.603175
##
       lhs
                                                      support
                                                                confidence
## [1] {eggs=TRUE,aquatic=FALSE}
                                  => {airborne=TRUE} 0.1683168 0.5862069
  [2] {eggs=TRUE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
  [3] {eggs=TRUE,breathes=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5641026
  [4] {eggs=TRUE,legs=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5500000
                                  => {airborne=TRUE} 0.2178218 0.4782609
  [5] {eggs=TRUE,fins=FALSE}
  [6] {eggs=TRUE,catsize=FALSE}
                                  => {airborne=TRUE} 0.1881188 0.4130435
                                  => {airborne=TRUE} 0.1584158 0.4102564
  [7] {eggs=TRUE,tail=TRUE}
## [8] {eggs=TRUE,backbone=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
##
   [9] {eggs=TRUE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
       lift
## [1] 2.466954
  [2] 2.427885
   [3] 2.373932
  [4] 2.314583
##
  [5] 2.012681
## [6] 1.738225
  [7] 1.726496
##
  [8] 1.603175
  [9] 1.588050
##
       lhs
                                           rhs
                                                           support
## [1] {predator=FALSE, toothed=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [2] {eggs=TRUE,predator=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [3] {milk=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
## [4] {predator=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [5] {hair=FALSE, predator=FALSE}
                                       => {airborne=TRUE} 0.1089109
  [6] {predator=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.1683168
  [7] {predator=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.1683168
   [8] {predator=FALSE,fins=FALSE}
                                       => {airborne=TRUE} 0.1683168
##
   [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
##
       confidence lift
## [1] 0.7142857 3.005952
## [2] 0.5769231 2.427885
```

```
[3] 0.5769231
                  2.427885
   [4] 0.5172414
                  2.176724
   [5] 0.5000000
                  2.104167
   [6] 0.4358974
                  1.834402
   [7] 0.4146341
                  1.744919
##
   [8] 0.4146341
                  1.744919
##
   [9] 0.3823529
                  1.609069
##
       lhs
                                          rhs
                                                           support
                                                                     confidence
##
  [1] {toothed=FALSE,backbone=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.7272727
   [2] {predator=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1485149 0.7142857
  [3] {toothed=FALSE,tail=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.6956522
   [4] {toothed=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6666667
   [5] {aquatic=FALSE, toothed=FALSE}
                                       => {airborne=TRUE} 0.1683168 0.6296296
   [6] {toothed=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1881188 0.6129032
                                       => {airborne=TRUE} 0.2178218 0.6111111
  [7] {toothed=FALSE,legs=TRUE}
##
   [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
       lift
##
  [1] 3.060606
   [2] 3.005952
##
   [3] 2.927536
##
   [4] 2.805556
  [5] 2.649691
##
  [6] 2.579301
   [7] 2.571759
   [8] 2.337963
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                             support
##
   [1]
        {catsize=FALSE, type=bird}
                                            {airborne=TRUE} 0.1287129
##
   [2]
        {feathers=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1287129
##
  [3]
                                         => {airborne=TRUE} 0.1584158
        {type=bird}
##
  [4]
        {feathers=TRUE}
                                            {airborne=TRUE} 0.1584158
##
   [5]
        {toothed=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
##
   [6]
        {predator=FALSE, toothed=FALSE}
                                            {airborne=TRUE} 0.1485149
##
   [7]
        {toothed=FALSE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
   [8]
        {toothed=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
##
##
   [9]
        {aquatic=FALSE, toothed=FALSE}
                                            {airborne=TRUE} 0.1683168
  [10] {toothed=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
                                            {airborne=TRUE} 0.2178218
  [11] {toothed=FALSE,legs=TRUE}
  [12] {eggs=TRUE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
##
  [13] {eggs=TRUE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
  [14] {milk=FALSE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
  [15] {milk=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
  [16] {eggs=TRUE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
  [17] {milk=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [18] {toothed=FALSE, venomous=FALSE}
                                         => {airborne=TRUE} 0.1980198
## [19] {toothed=FALSE}
                                           {airborne=TRUE} 0.2178218
  [20] {eggs=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
  [21] {milk=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
  [22] {predator=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.1485149
  [23] {legs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
  [24] {breathes=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
## [25] {hair=FALSE,predator=FALSE}
                                           {airborne=TRUE} 0.1089109
## [26] {aquatic=FALSE, catsize=FALSE}
                                         => {airborne=TRUE} 0.1683168
## [27] {hair=FALSE,aquatic=FALSE}
                                           {airborne=TRUE} 0.1287129
```

```
## [28] {hair=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.1782178
                                           {airborne=TRUE} 0.1782178
  Г291
       {hair=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
  [30] {eggs=TRUE,fins=FALSE}
  [31] {milk=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.2178218
  [32]
       {fins=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
  [33] {predator=FALSE,legs=TRUE}
##
                                           {airborne=TRUE} 0.1683168
  [34] {hair=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1782178
  [35] {predator=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1683168
   [36]
       {predator=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1683168
       {eggs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [38] {eggs=TRUE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
  [39] {tail=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.1485149
  [40] {milk=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
## [41] {milk=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.1881188
## [42] {milk=FALSE, venomous=FALSE}
                                           {airborne=TRUE} 0.1980198
        {predator=FALSE,domestic=FALSE} =>
                                            {airborne=TRUE} 0.1287129
  [44]
       {hair=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [45] {eggs=TRUE,backbone=TRUE}
                                           {airborne=TRUE} 0.1584158
  [46] {milk=FALSE,backbone=TRUE}
                                           {airborne=TRUE} 0.1584158
  [47] {venomous=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
##
  [48]
       {eggs=TRUE, venomous=FALSE}
                                           {airborne=TRUE} 0.1980198
       {backbone=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
  [50] {hair=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1782178
       {breathes=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2376238
   [51]
  [52]
       {aquatic=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1881188
  [53] {legs=TRUE,tail=TRUE}
                                           {airborne=TRUE} 0.1782178
   [54] {breathes=TRUE,fins=FALSE}
                                           {airborne=TRUE} 0.2376238
   [55] {fins=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2376238
   [56] {fins=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1782178
   [57] {aquatic=FALSE}
                                         => {airborne=TRUE} 0.1881188
##
   [58] {venomous=FALSE}
                                         => {airborne=TRUE} 0.2178218
##
        confidence lift
##
  [1]
        0.9285714
                   3.9077381
   [2]
##
        0.9285714
                   3.9077381
##
   [3]
        0.8000000
                   3.3666667
##
   [4]
        0.8000000
                   3.3666667
##
  [5]
        0.7272727
                   3.0606061
##
  [6]
        0.7142857
                   3.0059524
   [7]
        0.6956522
                   2.9275362
  [8]
##
        0.6666667
                   2.8055556
  [9]
        0.6296296
                   2.6496914
  [10] 0.6129032
                   2.5793011
   [11] 0.6111111
                   2.5717593
  [12] 0.5862069
                   2.4669540
  [13] 0.5769231
                   2.4278846
## [14] 0.5769231
                   2.4278846
   [15] 0.5666667
                   2.3847222
  [16] 0.5641026
                   2.3739316
  [17] 0.5641026
                   2.3739316
  [18] 0.5555556
                   2.3379630
## [19] 0.5500000
                   2.3145833
## [20] 0.5500000
                   2.3145833
## [21] 0.5500000
                   2.3145833
## [22] 0.5172414 2.1767241
```

```
## [23] 0.5121951
                   2.1554878
   [24] 0.5121951
                   2.1554878
   [25] 0.5000000
                   2.1041667
   [26] 0.5000000
                   2.1041667
   [27] 0.5000000
                   2.1041667
                   2.1041667
   [28] 0.5000000
   [29] 0.4864865
                   2.0472973
   [30] 0.4782609
                   2.0126812
   [31] 0.4680851
                   1.9698582
   [32] 0.4375000
                   1.8411458
   [33] 0.4358974
                   1.8344017
   [34] 0.4186047
                   1.7616279
   [35] 0.4146341
                   1.7449187
   [36] 0.4146341
                   1.7449187
   [37] 0.4130435
                   1.7382246
   [38] 0.4102564
                   1.7264957
   [39] 0.4054054
                   1.7060811
   [40] 0.4000000
                   1.6833333
   [41] 0.3958333
                   1.6657986
   [42] 0.3846154
                   1.6185897
##
  [43] 0.3823529
                   1.6090686
   [44] 0.3809524
                   1.6031746
   [45] 0.3809524
                   1.6031746
   [46] 0.3809524
                   1.6031746
   [47] 0.3800000
                   1.5991667
   [48] 0.3773585
                   1.5880503
   [49] 0.3750000
                   1.5781250
   [50] 0.3461538
                   1.4567308
   [51] 0.3287671
                   1.3835616
   [52] 0.3166667
                   1.3326389
   [53] 0.3157895
                   1.3289474
##
   [54] 0.3157895
                   1.3289474
   [55] 0.3116883
                   1.3116883
   [56] 0.3050847
                   1.2838983
                   1.2301282
        0.2923077
   [58]
       0.2365591
                   0.9955197
##
##
        lhs
                             rhs
                                               support
                                                         confidence lift
## [1]
                          => {airborne=FALSE} 0.1287129 1.0000000 1.3116883
        {type=fish}
##
   [2]
        {fins=TRUE}
                          => {airborne=FALSE} 0.1683168 1.0000000
                                                                    1.3116883
##
   [3]
        {breathes=FALSE} => {airborne=FALSE} 0.2079208 1.0000000
                                                                     1.3116883
   [4]
        {legs=FALSE}
                          => {airborne=FALSE} 0.2277228 1.0000000
                                                                     1.3116883
   [5]
        {toothed=TRUE}
                          => {airborne=FALSE} 0.5841584 0.9672131
##
                                                                     1.2686821
##
   [6]
        {eggs=FALSE}
                          => {airborne=FALSE} 0.3960396 0.9523810
                                                                     1.2492270
##
   [7]
                          => {airborne=FALSE} 0.3861386 0.9512195
        {milk=TRUE}
                                                                     1.2477035
  [8]
        {type=mammal}
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                     1.2477035
  [9]
##
        {catsize=TRUE}
                             {airborne=FALSE} 0.4059406 0.9318182
                                                                     1.2222550
##
   [10] {predator=TRUE}
                             {airborne=FALSE} 0.4851485 0.8750000
                                                                     1.1477273
   [11] {aquatic=TRUE}
                             {airborne=FALSE} 0.3069307 0.8611111
                                                                     1.1295094
   [12] {hair=TRUE}
                          => {airborne=FALSE} 0.3663366 0.8604651
                                                                     1.1286620
   [13]
       {backbone=TRUE}
                             {airborne=FALSE} 0.6435644 0.7831325
                                                                     1.0272258
##
  [14]
       {tail=FALSE}
                          => {airborne=FALSE} 0.1980198 0.7692308
                                                                     1.0089910
## [15] {tail=TRUE}
                          => {airborne=FALSE} 0.5643564 0.7600000
                                                                     0.9968831
## [16] {aquatic=FALSE}
                          => {airborne=FALSE} 0.4554455 0.7076923
                                                                     0.9282717
## [17] {hair=FALSE}
                          => {airborne=FALSE} 0.3960396 0.6896552 0.9046126
```

```
## [18] {backbone=FALSE} => {airborne=FALSE} 0.1188119 0.6666667
                                                                   0.8744589
                         => {airborne=FALSE} 0.3762376 0.6333333
## [19] {milk=FALSE}
                                                                   0.8307359
## [20] {eggs=TRUE}
                         => {airborne=FALSE} 0.3663366 0.6271186
                                                                   0.8225842
  [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.6222222
                                                                   0.8161616
   [22] {toothed=FALSE} => {airborne=FALSE} 0.1782178 0.4500000
                                                                   0.5902597
##
       lhs
                                        rhs
                                                         support
                                                                   confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
## [2] {eggs=TRUE,backbone=TRUE}
                                     => {airborne=TRUE} 0.1584158 0.3809524
   [3] {milk=FALSE,backbone=TRUE}
                                     => {airborne=TRUE} 0.1584158 0.3809524
##
  [4] {backbone=TRUE, catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift
## [1] 3.060606
  [2] 1.603175
## [3] 1.603175
## [4] 1.578125
##
       lhs
                                                     support
                                                               confidence
                                    rhs
## [1] {toothed=FALSE,tail=TRUE} => {airborne=TRUE} 0.1584158 0.6956522
  [2] {eggs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4102564
## [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4000000
                                 => {airborne=TRUE} 0.1584158 0.3809524
## [5] {hair=FALSE,tail=TRUE}
## [6] {legs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1782178 0.3157895
## [7] {fins=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1782178 0.3050847
##
       lift.
## [1] 2.927536
## [2] 1.726496
## [3] 1.706081
## [4] 1.683333
## [5] 1.603175
## [6] 1.328947
## [7] 1.283898
##
       lhs
                                                         support
                                                                   confidence
                                         rhs
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
                                     => {airborne=TRUE} 0.1683168 0.5862069
## [2] {eggs=TRUE,aquatic=FALSE}
## [3] {milk=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5666667
## [4] {aquatic=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
## [5] {hair=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1287129 0.5000000
## [6] {aquatic=FALSE,legs=TRUE}
                                     => {airborne=TRUE} 0.1881188 0.3166667
##
       lift
## [1] 2.649691
## [2] 2.466954
## [3] 2.384722
## [4] 2.104167
## [5] 2.104167
## [6] 1.332639
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
  [2] {hair=FALSE,aquatic=FALSE}
                                  => {airborne=TRUE} 0.1287129 0.5000000
## [3] {hair=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.5000000
## [4] {hair=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.4864865
                                   => {airborne=TRUE} 0.1782178 0.4186047
## [5] {hair=FALSE,fins=FALSE}
## [6] {hair=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.3809524
## [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
##
       lift
```

```
## [1] 2.104167
  [2] 2.104167
  [3] 2.104167
  [4] 2.047297
##
   [5] 1.761628
##
  [6] 1.603175
##
  [7] 1.456731
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
##
  [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
   [2] {milk=FALSE,aquatic=FALSE}
                                    => {airborne=TRUE} 0.1683168 0.5666667
  [3] {milk=FALSE,breathes=TRUE}
                                    => {airborne=TRUE} 0.2178218 0.5641026
   [4] {milk=FALSE,legs=TRUE}
                                    => {airborne=TRUE} 0.2178218 0.5500000
   [5] {milk=FALSE,fins=FALSE}
                                    => {airborne=TRUE} 0.2178218 0.4680851
  [6] {milk=FALSE,tail=TRUE}
                                    => {airborne=TRUE} 0.1584158 0.4000000
                                    => {airborne=TRUE} 0.1881188 0.3958333
  [7] {milk=FALSE,catsize=FALSE}
   [8] {milk=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
##
   [9] {milk=FALSE,backbone=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.3809524
##
       lift
  [1] 2.427885
##
   [2] 2.384722
##
   [3] 2.373932
  [4] 2.314583
##
  [5] 1.969858
##
   [6] 1.683333
##
  [7] 1.665799
  [8] 1.618590
##
   [9] 1.603175
##
       lhs
                                      rhs
                                                      support
                                                                 confidence
##
  [1] {eggs=TRUE,aquatic=FALSE}
                                     {airborne=TRUE} 0.1683168 0.5862069
  [2] {eggs=TRUE,predator=FALSE}
                                  => {airborne=TRUE} 0.1485149 0.5769231
   [3] {eggs=TRUE,breathes=TRUE}
                                      {airborne=TRUE} 0.2178218 0.5641026
   [4] {eggs=TRUE,legs=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5500000
  [5] {eggs=TRUE,fins=FALSE}
                                   => {airborne=TRUE} 0.2178218 0.4782609
  [6] {eggs=TRUE,catsize=FALSE}
                                  => {airborne=TRUE} 0.1881188 0.4130435
   [7] {eggs=TRUE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.4102564
##
   [8] {eggs=TRUE,backbone=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
   [9] {eggs=TRUE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
       lift.
   [1] 2.466954
##
   [2] 2.427885
##
  [3] 2.373932
   [4] 2.314583
##
   [5] 2.012681
##
   [6] 1.738225
  [7] 1.726496
##
  [8] 1.603175
##
   [9] 1.588050
##
       lhs
                                           rhs
                                                            support
  [1] {predator=FALSE,toothed=FALSE}
                                        => {airborne=TRUE} 0.1485149
   [2] {eggs=TRUE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [3] {milk=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
##
## [4] {predator=FALSE,catsize=FALSE}
                                        => {airborne=TRUE} 0.1485149
## [5] {hair=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1089109
## [6] {predator=FALSE,legs=TRUE}
                                        => {airborne=TRUE} 0.1683168
```

```
## [7] {predator=FALSE,breathes=TRUE} => {airborne=TRUE} 0.1683168
  [8] {predator=FALSE,fins=FALSE}
                                        => {airborne=TRUE} 0.1683168
   [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
##
       confidence lift
##
   [1] 0.7142857
                  3.005952
##
  [2] 0.5769231
                  2.427885
  [3] 0.5769231
                  2.427885
## [4] 0.5172414
                  2.176724
   [5] 0.5000000
                  2.104167
   [6] 0.4358974
                  1.834402
  [7] 0.4146341
                  1.744919
   [8] 0.4146341
                  1.744919
##
   [9] 0.3823529
                  1.609069
##
       lhs
                                                          support
                                                                     confidence
## [1] {toothed=FALSE,backbone=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.7272727
   [2] {predator=FALSE, toothed=FALSE}
                                          {airborne=TRUE} 0.1485149 0.7142857
   [3] {toothed=FALSE,tail=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.6956522
  [4] {toothed=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6666667
  [5] {aquatic=FALSE,toothed=FALSE}
                                       => {airborne=TRUE} 0.1683168 0.6296296
   [6] {toothed=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1881188 0.6129032
  [7] {toothed=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6111111
  [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
       lift
  [1] 3.060606
##
  [2] 3.005952
  [3] 2.927536
  [4] 2.805556
   [5] 2.649691
  [6] 2.579301
  [7] 2.571759
##
   [8] 2.337963
##
   [1] "Número de reglas con consecuente negado"
##
                                                              support
        {toothed=FALSE,tail=FALSE}
##
  [1]
                                            {backbone=FALSE} 0.1683168
##
   [2]
        {feathers=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
   [3]
##
        {eggs=TRUE,tail=FALSE}
                                           {backbone=FALSE} 0.1683168
  [4]
        {milk=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
  [5]
        {hair=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1287129
##
   [6]
        {tail=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
##
##
  [7]
        {tail=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
  [8]
        {aquatic=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1089109
        {fins=FALSE,tail=FALSE}
                                           {backbone=FALSE} 0.1683168
  [9]
  [10] {airborne=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1188119
  [11] {toothed=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
## [12] {toothed=FALSE,domestic=FALSE}
                                           {backbone=FALSE} 0.1683168
## [13] {milk=FALSE,toothed=FALSE}
                                           {backbone=FALSE} 0.1782178
  [14] {toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
  [15] {feathers=FALSE,milk=FALSE}
                                           {backbone=FALSE} 0.1782178
  [16] {feathers=FALSE,eggs=TRUE}
                                         => {backbone=FALSE} 0.1683168
  [17] {milk=FALSE,aquatic=FALSE}
                                           {backbone=FALSE} 0.1188119
## [18] {feathers=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
## [19] {milk=FALSE,fins=FALSE}
                                           {backbone=FALSE} 0.1782178
## [20] {eggs=TRUE,aquatic=FALSE}
                                         => {backbone=FALSE} 0.1089109
## [21] {eggs=TRUE,fins=FALSE}
                                           {backbone=FALSE} 0.1683168
```

```
## [22] {hair=FALSE,feathers=FALSE}
                                         => {backbone=FALSE} 0.1386139
  [23] {milk=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
  [24] {fins=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
  [25] {aquatic=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1188119
  [26] {milk=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
  [27]
       {eggs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
       {hair=FALSE,fins=FALSE}
  Г281
                                            {backbone=FALSE} 0.1386139
## [29] {eggs=TRUE,legs=TRUE}
                                            {backbone=FALSE} 0.1287129
   [30]
       {domestic=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
   [31] {legs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1287129
  [32] {milk=FALSE,airborne=FALSE}
                                            {backbone=FALSE} 0.1188119
  [33] {milk=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
   [34]
       {airborne=FALSE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1089109
       {eggs=TRUE,airborne=FALSE}
                                         => {backbone=FALSE} 0.1089109
                                         => {backbone=FALSE} 0.1584158
   [36] {eggs=TRUE,domestic=FALSE}
   [37]
        {eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
   [38]
        {feathers=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
   [39] {hair=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1386139
   [40] {feathers=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
   [41] {feathers=FALSE,domestic=FALSE} =>
                                            {backbone=FALSE} 0.1683168
##
  [42] {fins=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
  [43] {feathers=FALSE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
  [44] {aquatic=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1089109
   [45] {legs=TRUE,domestic=FALSE}
                                            {backbone=FALSE} 0.1287129
##
##
   [46] {aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
        confidence lift
##
   [1]
        1.0000000 5.611111
##
   [2]
        0.9000000
                   5.050000
##
   [3]
        0.8500000
                   4.769444
                   4.769444
##
  [4]
        0.8500000
##
   [5]
        0.8125000
                   4.559028
##
   [6]
        0.8000000
                   4.488889
##
   [7]
        0.6956522
                   3.903382
   [8]
##
        0.6875000
                   3.857639
   [9]
        0.6800000
                   3.815556
##
  [10] 0.6666667
                   3.740741
  [11] 0.5483871
                   3.077061
  [12] 0.4722222
                   2.649691
  [13] 0.4615385
                   2.589744
  [14] 0.4500000
                   2.525000
  [15] 0.4500000
                   2.525000
  [16] 0.4358974
                   2.445869
   [17] 0.4000000
                   2.244444
  [18] 0.3953488
                   2.218346
  [19] 0.3829787
                   2.148936
  [20] 0.3793103
                   2.128352
  [21] 0.3695652
                   2.073671
  [22] 0.3684211
                   2.067251
  [23] 0.3541667
                   1.987269
  [24]
        0.3541667
                   1.987269
## [25] 0.3529412
                   1.980392
## [26] 0.3500000
                   1.963889
## [27] 0.3478261
                   1.951691
## [28] 0.3255814 1.826873
```

```
## [29] 0.3250000
                   1.823611
  [30] 0.3200000
                   1.795556
  [31] 0.3170732
                   1.779133
  [32] 0.3157895
                   1.771930
   [33] 0.3090909
                   1.734343
  [34] 0.3055556
                   1.714506
  [35] 0.2972973
                   1.668168
  [36] 0.2962963
                   1.662551
   [37] 0.2881356
                   1.616761
   [38] 0.2812500
                   1.578125
  [39] 0.2592593
                   1.454733
   [40] 0.2413793
                   1.354406
   [41] 0.2394366
                   1.343505
  [42] 0.2361111
                   1.324846
  [43] 0.2352941
                   1.320261
   [44] 0.2075472
                   1.164570
   [45] 0.1969697
                   1.105219
   [46] 0.1846154
                   1.035897
##
        lhs
                                             support
                                                       confidence lift
##
  [1]
        {type=fish}
                            {backbone=TRUE} 0.1287129 1.0000000
##
  [2]
        {fins=TRUE}
                          => {backbone=TRUE} 0.1683168 1.0000000
                                                                   1.2168675
  [3]
                          => {backbone=TRUE} 0.1980198 1.0000000
        {type=bird}
  [4]
                             {backbone=TRUE} 0.1980198 1.0000000
##
        {feathers=TRUE}
                                                                   1.2168675
##
  [5]
        {milk=TRUE}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                   1.2168675
##
  [6]
        {type=mammal}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                   1.2168675
  [7]
        {toothed=TRUE}
                          => {backbone=TRUE} 0.6039604 1.0000000
                                                                   1.2168675
  [8]
        {tail=TRUE}
                          => {backbone=TRUE} 0.7326733 0.9866667
##
                                                                   1.2006426
   [9]
        {catsize=TRUE}
                          => {backbone=TRUE} 0.4257426 0.9772727
                                                                   1.1892114
## [10] {domestic=TRUE}
                         => {backbone=TRUE} 0.1188119 0.9230769
                                                                   1.1232623
                                                                   1.0495482
       {breathes=TRUE}
                         => {backbone=TRUE} 0.6831683 0.8625000
## [11]
## [12]
        {legs=FALSE}
                          => {backbone=TRUE} 0.1881188 0.8260870
                                                                   1.0052383
##
  [13]
       {legs=TRUE}
                          => {backbone=TRUE} 0.6336634 0.8205128
                                                                   0.9984554
  [14] {aquatic=FALSE}
                         => {backbone=TRUE} 0.5247525 0.8153846
                                                                   0.9922150
  [15] {predator=FALSE} => {backbone=TRUE} 0.3564356 0.8000000
                                                                   0.9734940
   [16] {feathers=FALSE} =>
                             {backbone=TRUE} 0.6237624 0.7777778
                                                                   0.9464525
##
  [17] {airborne=TRUE}
                         => {backbone=TRUE} 0.1782178 0.7500000
                                                                   0.9126506
  [18] {eggs=TRUE}
                          => {backbone=TRUE} 0.4158416 0.7118644
                         => {backbone=TRUE} 0.3960396 0.7017544
  [19] {catsize=FALSE}
                                                                   0.8539421
   [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                   0.8112450
##
   [21] {toothed=FALSE} => {backbone=TRUE} 0.2178218 0.5500000
                                                                   0.6692771
##
       lhs
                                      rhs
                                                        support
                                                                  confidence
  [1] {milk=FALSE,legs=TRUE}
                                   => {backbone=FALSE} 0.1386139 0.3500000
##
   [2] {eggs=TRUE,legs=TRUE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
   [3] {legs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1287129 0.3170732
  [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
##
       lift
##
  [1] 1.963889
  [2] 1.823611
   [3] 1.779133
##
  [4] 1.354406
##
  [5] 1.105219
##
       lhs
                                          rhs
                                                            support
## [1] {aquatic=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1089109
```

```
## [2] {milk=FALSE,aquatic=FALSE}
                                      => {backbone=FALSE} 0.1188119
                                      => {backbone=FALSE} 0.1089109
## [3] {eggs=TRUE,aquatic=FALSE}
  [4] {aquatic=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1188119
  [5] {feathers=FALSE, aquatic=FALSE} => {backbone=FALSE} 0.1188119
##
   [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
##
       confidence lift
  [1] 0.6875000 3.857639
## [2] 0.4000000
                  2.244444
  [3] 0.3793103
                  2.128352
  [4] 0.3529412
                  1.980392
  [5] 0.2352941
                  1.320261
##
  [6] 0.2075472
                  1.164570
##
       lhs
                                           rhs
                                                            support
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
                                       => {backbone=FALSE} 0.1782178
## [2] {feathers=FALSE,milk=FALSE}
  [3] {feathers=FALSE,eggs=TRUE}
                                        => {backbone=FALSE} 0.1683168
  [4] {feathers=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
## [5] {hair=FALSE,feathers=FALSE}
                                       => {backbone=FALSE} 0.1386139
## [6] {feathers=FALSE,fins=FALSE}
                                       => {backbone=FALSE} 0.1782178
  [7] {feathers=FALSE,legs=TRUE}
                                        => {backbone=FALSE} 0.1386139
## [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
  [9] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
##
       confidence lift
## [1] 0.9000000 5.050000
  [2] 0.4500000 2.525000
  [3] 0.4358974
                  2.445869
## [4] 0.3953488
                  2.218346
  [5] 0.3684211
                  2.067251
## [6] 0.2812500
                  1.578125
## [7] 0.2413793
                  1.354406
## [8] 0.2394366
                  1.343505
##
  [9] 0.2352941
                  1.320261
##
       lhs
                                                       support
                                                                 confidence
## [1] {eggs=TRUE,tail=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.8500000
  [2] {feathers=FALSE,eggs=TRUE} => {backbone=FALSE} 0.1683168 0.4358974
## [3] {eggs=TRUE,aquatic=FALSE}
                                  => {backbone=FALSE} 0.1089109 0.3793103
## [4] {eggs=TRUE,fins=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.3695652
                                  => {backbone=FALSE} 0.1584158 0.3478261
## [5] {eggs=TRUE,catsize=FALSE}
                                  => {backbone=FALSE} 0.1287129 0.3250000
## [6] {eggs=TRUE,legs=TRUE}
  [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
   [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
       lift.
## [1] 4.769444
## [2] 2.445869
## [3] 2.128352
## [4] 2.073671
## [5] 1.951691
  [6] 1.823611
  [7] 1.668168
##
  [8] 1.662551
##
        lhs
                                           rhs
                                                            support
## [1]
        {tail=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1584158
        {toothed=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1683168
## [2]
## [3]
        {feathers=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1683168
```

```
[4]
        {milk=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
  [5]
        {fins=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
                                        => {backbone=FALSE} 0.1188119
  [6]
        {aquatic=FALSE, catsize=FALSE}
   [7]
##
        {eggs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
##
   [8]
        {domestic=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
##
   [9]
        {legs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1287129
##
   [10] {airborne=FALSE.catsize=FALSE} => {backbone=FALSE} 0.1089109
##
        confidence lift
##
  [1]
        0.8000000
                   4.488889
##
   [2]
        0.5483871
                   3.077061
   [3]
        0.3953488
                   2.218346
   [4]
##
        0.3541667
                   1.987269
##
   [5]
                   1.987269
        0.3541667
##
   [6]
        0.3529412
                   1.980392
  [7]
##
        0.3478261
                   1.951691
##
   [8]
        0.3200000
                   1.795556
##
   [9]
        0.3170732
                   1.779133
   [10] 0.3055556
                   1.714506
##
       lhs
                                          rhs
                                                            support
##
  [1] {toothed=FALSE,tail=FALSE}
                                          {backbone=FALSE} 0.1683168
  [2] {feathers=FALSE, toothed=FALSE} => {backbone=FALSE} 0.1782178
  [3] {airborne=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1188119
   [4] {toothed=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
   [5] {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
##
   [6] {milk=FALSE, toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
       confidence lift
  [1] 1.0000000 5.611111
##
   [2] 0.9000000
                  5.050000
  [3] 0.6666667
                  3.740741
## [4] 0.5483871
                  3.077061
  [5] 0.4722222
                  2.649691
   [6] 0.4615385
                  2.589744
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                                    confidence
                                            rhs
                                                          support
   [1]
        {type=fish}
                                            {legs=FALSE} 0.1287129 1.0000000
##
##
   [2]
        {hair=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1485149 1.0000000
  [3]
        {eggs=TRUE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
##
  ۲4٦
        {milk=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
  [5]
        {toothed=TRUE, breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
##
  [6]
        {breathes=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1386139 1.0000000
  [7]
        {backbone=TRUE, breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
  [8]
                                         => {legs=FALSE} 0.1584158 0.9411765
##
        {fins=TRUE}
   [9]
        {hair=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1782178 0.7826087
  [10] {breathes=FALSE}
                                         => {legs=FALSE} 0.1584158 0.7619048
## [11] {milk=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1584158 0.7619048
  [12] {eggs=TRUE,toothed=TRUE}
                                            {legs=FALSE} 0.1485149 0.7500000
  [13] {aquatic=TRUE, toothed=TRUE}
                                         => {legs=FALSE} 0.1683168 0.7391304
  [14] {aquatic=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.6153846
  [15] {feathers=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.6000000
  [16] {airborne=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
## [17] {hair=FALSE,feathers=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5789474
## [18] {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
## [19] {hair=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1683168 0.5312500
## [20] {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
```

```
## [21] {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
   [22] {feathers=FALSE,milk=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5000000
  [23] {feathers=FALSE,eggs=TRUE}
                                         => {legs=FALSE} 0.1881188 0.4871795
  [24] {toothed=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.4615385
##
   [25] {hair=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4444444
  [26] {airborne=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
##
  [27] {hair=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4285714
                                         => {legs=FALSE} 0.1386139 0.4117647
  [28] {milk=FALSE,predator=TRUE}
   [29]
       {hair=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4090909
   [30] {predator=TRUE, toothed=TRUE}
                                         => {legs=FALSE} 0.1485149 0.4054054
  [31] {milk=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4000000
   [32] {eggs=TRUE,predator=TRUE}
                                           {legs=FALSE} 0.1287129 0.3939394
   [33] {hair=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.2079208 0.3888889
##
       {eggs=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1485149 0.3846154
  [35] {milk=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1584158 0.3809524
        {feathers=FALSE, catsize=FALSE}
                                            {legs=FALSE} 0.1584158 0.3720930
   [37]
       {feathers=FALSE, predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3617021
   [38] {eggs=TRUE,backbone=TRUE}
                                           {legs=FALSE} 0.1485149 0.3571429
   [39] {airborne=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
   [40] {toothed=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3461538
##
  [41] {milk=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.1881188 0.3454545
  [42] {predator=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1386139 0.3333333
  [43] {eggs=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3333333
   [44] {feathers=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3272727
  [45] {tail=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3243243
  [46] {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
   [47] {airborne=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
  [48] {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
  [49] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
  [50] {feathers=FALSE,domestic=FALSE} =>
                                           {legs=FALSE} 0.2178218 0.3098592
   [51]
       {predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3035714
##
   [52]
       {feathers=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3015873
       {backbone=TRUE, catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
       {domestic=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1485149 0.3000000
   [54]
       {tail=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1683168 0.2615385
   [56]
       {backbone=TRUE,domestic=FALSE}
                                        => {legs=FALSE} 0.1782178 0.2535211
##
##
        lift.
##
  [1]
        4.391304
   [2]
##
        4.391304
   [3]
##
        4.391304
   [4]
        4.391304
   [5]
##
        4.391304
##
   [6]
        4.391304
##
   [7]
        4.391304
##
  [8]
        4.132992
  [9]
##
        3.436673
##
   [10] 3.345756
   [11] 3.345756
  [12] 3.293478
   [13]
       3.245747
##
  [14] 2.702341
## [15] 2.634783
## [16] 2.549790
## [17] 2.542334
```

```
## [18] 2.415217
   [19] 2.332880
   [20] 2.311213
   [21] 2.254994
   [22] 2.195652
   [23] 2.139353
##
   [24] 2.026756
   [25] 1.951691
   [26] 1.951691
   [27] 1.881988
   [28] 1.808184
   [29] 1.796443
##
   [30] 1.780259
   [31] 1.756522
   [32] 1.729908
   [33] 1.707729
   [34] 1.688963
   [35] 1.672878
   [36] 1.633974
   [37] 1.588344
##
   [38] 1.568323
   [39] 1.523514
##
  [40] 1.520067
##
   [41] 1.516996
   [42] 1.463768
   [43] 1.463768
   [44] 1.437154
##
   [45] 1.424207
   [46] 1.420716
   [47] 1.414149
   [48] 1.386728
##
   [49] 1.383562
   [50] 1.360686
   [51] 1.333075
   [52]
       1.324362
##
   [53] 1.317391
   [54] 1.317391
   [55] 1.148495
##
   [56] 1.113288
##
##
        lhs
                                          support
                                                    confidence lift
                             rhs
                          => {legs=TRUE} 0.1980198 1.0000000
   [1]
        {type=bird}
                                                               1.2948718
   [2]
                          => {legs=TRUE} 0.1980198 1.0000000
##
        {feathers=TRUE}
                                                                1.2948718
##
   [3]
        {airborne=TRUE}
                          => {legs=TRUE} 0.2376238 1.0000000
                                                                1.2948718
   [4]
##
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                                1.2647585
   [5]
                                                                1.2001251
##
        {milk=TRUE}
                          => {legs=TRUE} 0.3762376 0.9268293
   [6]
                          => {legs=TRUE} 0.3762376 0.9268293
##
        {type=mammal}
                                                                1.2001251
                                                                1.1952663
##
   [7]
        {domestic=TRUE}
                          => {legs=TRUE} 0.1188119 0.9230769
   [8]
##
        {aquatic=FALSE}
                          => {legs=TRUE} 0.5940594 0.9230769
                                                                1.1952663
   [9]
        {eggs=FALSE}
                          => {legs=TRUE} 0.3762376 0.9047619
                                                                1.1715507
   [10]
       {toothed=FALSE}
                          => {legs=TRUE} 0.3564356 0.9000000
                                                                1.1653846
       {predator=FALSE} => {legs=TRUE} 0.3861386 0.8666667
                                                                1.122222
  [12] {catsize=TRUE}
                          => {legs=TRUE} 0.3663366 0.8409091
                                                                1.0888695
## [13] {tail=FALSE}
                          => {legs=TRUE} 0.2079208 0.8076923
                                                                1.0458580
## [14] {backbone=FALSE} => {legs=TRUE} 0.1386139 0.7777778
                                                               1.0071225
```

```
## [15] {tail=TRUE}
                          => {legs=TRUE} 0.5643564 0.7600000
                                                               0.9841026
  [16] {catsize=FALSE}
                          => {legs=TRUE} 0.4059406 0.7192982
                                                               0.9313990
  [17] {airborne=FALSE} => {legs=TRUE} 0.5346535 0.7012987
                                                               0.9080919
  [18] {toothed=TRUE}
                          => {legs=TRUE} 0.4158416 0.6885246
                                                               0.8915511
##
  [19] {eggs=TRUE}
                          => {legs=TRUE} 0.3960396 0.6779661
                                                               0.8778792
  [20] {milk=FALSE}
                          => {legs=TRUE} 0.3960396 0.6666667
##
                                                               0.8632479
##
  [21] {aquatic=TRUE}
                          => {legs=TRUE} 0.1782178 0.5000000
                                                               0.6474359
##
        lhs
                                       rhs
                                                     support
                                                               confidence
## [1]
        {breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
##
   [2]
        {aquatic=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.6153846
   [3]
        {hair=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1782178 0.4285714
   [4]
##
        {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
##
   [5]
        {eggs=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1485149 0.3846154
##
   [6]
        {predator=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1386139 0.3333333
  [7]
##
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
##
   [8]
        {tail=TRUE,catsize=FALSE}
                                    => {legs=FALSE} 0.1188119 0.3243243
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
##
   [9]
       {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
        lift
##
   [1]
        4.391304
##
   [2]
        2.702341
  [3]
##
        1.881988
  [4]
##
        1.756522
##
   [5]
        1.688963
##
   [6]
        1.463768
   [7]
        1.437154
   [8]
##
        1.424207
##
   [9]
        1.386728
   [10] 1.148495
##
##
       lhs
                                          rhs
                                                        support
                                                                  confidence
##
  [1] {toothed=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.4615385
   [2] {airborne=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.4444444
   [3] {feathers=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
  [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
   [5] {backbone=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3000000
   [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
##
##
       lift
## [1] 2.026756
   [2] 1.951691
##
  [3] 1.633974
  [4] 1.424207
   [5] 1.317391
##
##
   [6] 1.317391
##
        lhs
                                             rhs
                                                          support
                                                                     confidence
## [1]
        {airborne=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
  [2]
        {hair=FALSE,airborne=FALSE}
##
                                         => {legs=FALSE} 0.2178218 0.5500000
##
   [3]
        {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
##
  [4]
        {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
##
  [5]
        {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
##
   [6]
        {airborne=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
##
   [7]
        {airborne=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.2178218 0.3235294
  [8]
        {airborne=FALSE, toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
## [9]
        {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
## [10] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
```

```
##
        lift
        2.549790
##
  [1]
##
   [2]
        2.415217
   [3]
        2.311213
##
##
   [4]
        2.254994
##
   [5]
        1.951691
##
  [6]
        1.523514
  [7]
##
        1.420716
##
   [8]
        1.414149
##
  [9]
        1.386728
  [10] 1.383562
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
## [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
  [2] {hair=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1782178 0.7826087
## [3] {milk=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1584158 0.7619048
  [4] {eggs=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.7500000
  [5] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
  [6] {toothed=TRUE,catsize=FALSE}
                                      => {legs=FALSE} 0.1188119 0.4615385
  [7] {predator=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.4054054
   [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
   [9] {airborne=FALSE,toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
##
       lift.
## [1] 4.391304
   [2] 3.436673
##
  [3] 3.345756
##
  [4] 3.293478
##
  [5] 3.245747
##
   [6] 2.026756
##
  [7] 1.780259
## [8] 1.520067
##
  [9] 1.414149
##
       lhs
                                      rhs
                                                    support
                                                              confidence
  [1] {eggs=TRUE,fins=TRUE}
                                   => {legs=FALSE} 0.1287129 1.0000000
  [2] {eggs=TRUE,toothed=TRUE}
                                   => {legs=FALSE} 0.1485149 0.7500000
   [3] {eggs=TRUE,airborne=FALSE}
                                  => {legs=FALSE} 0.1881188 0.5135135
  [4] {feathers=FALSE,eggs=TRUE} => {legs=FALSE} 0.1881188 0.4871795
## [5] {eggs=TRUE,predator=TRUE}
                                   => {legs=FALSE} 0.1287129 0.3939394
                                   => {legs=FALSE} 0.1485149 0.3846154
  [6] {eggs=TRUE,tail=TRUE}
   [7] {eggs=TRUE,backbone=TRUE} => {legs=FALSE} 0.1485149 0.3571429
   [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
##
       lift
  [1] 4.391304
##
##
   [2] 3.293478
##
  [3] 2.254994
## [4] 2.139353
## [5] 1.729908
##
   [6] 1.688963
##
  [7] 1.568323
##
  [8] 1.463768
##
                                                               confidence
       lhs
                                                    support
## [1] {milk=FALSE,fins=TRUE}
                                    => {legs=FALSE} 0.1287129 1.0000000
## [2] {milk=FALSE,toothed=TRUE}
                                    => {legs=FALSE} 0.1584158 0.7619048
## [3] {milk=FALSE,airborne=FALSE} => {legs=FALSE} 0.1980198 0.5263158
## [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
```

```
## [5] {milk=FALSE,predator=TRUE}
                                   => {legs=FALSE} 0.1386139 0.4117647
  [6] {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
  [7] {milk=FALSE,backbone=TRUE} => {legs=FALSE} 0.1584158 0.3809524
   [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
       lift.
## [1] 4.391304
## [2] 3.345756
## [3] 2.311213
##
  [4] 2.195652
  [5] 1.808184
  [6] 1.756522
##
  [7] 1.672878
##
   [8] 1.516996
##
       lhs
                                                      support
                                                                 confidence
## [1] {aquatic=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
   [2] {aquatic=TRUE,tail=TRUE}
                                      => {legs=FALSE} 0.1584158 0.6153846
   [3] {feathers=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.6000000
   [4] {airborne=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.5806452
   [5] {hair=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1683168 0.5312500
##
##
       lift
##
  [1] 3.245747
  [2] 2.702341
## [3] 2.634783
##
   [4] 2.549790
   [5] 2.332880
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                        support
                                                                   confidence
##
   [1]
        {milk=TRUE,predator=FALSE}
                                            {hair=TRUE} 0.1881188 1.0000000
  [2]
##
        {milk=TRUE, aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 1.0000000
##
  [3]
        {milk=TRUE,legs=TRUE}
                                         => {hair=TRUE} 0.3762376 1.0000000
##
  [4]
        {milk=TRUE,fins=FALSE}
                                           {hair=TRUE} 0.3663366 1.0000000
##
   [5]
        {predator=FALSE,type=mammal}
                                           {hair=TRUE} 0.1881188 1.0000000
   [6]
        {aquatic=FALSE, type=mammal}
                                           {hair=TRUE} 0.3465347 1.0000000
  [7]
        {legs=TRUE, type=mammal}
                                         => {hair=TRUE} 0.3762376 1.0000000
##
   [8]
        {fins=FALSE, type=mammal}
                                            {hair=TRUE} 0.3663366 1.0000000
##
##
  [9]
        {eggs=FALSE,predator=FALSE}
                                           {hair=TRUE} 0.1881188 1.0000000
  [10] {eggs=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3663366 0.9736842
## [11] {eggs=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3465347 0.9722222
  [12] {milk=TRUE}
                                            {hair=TRUE} 0.3861386 0.9512195
##
  [13] {type=mammal}
                                            {hair=TRUE} 0.3861386 0.9512195
##
  [14] {eggs=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.9500000
  [15] {eggs=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.3564356 0.9473684
  [16] {eggs=FALSE,breathes=TRUE}
                                           {hair=TRUE} 0.3762376 0.9268293
##
  [17] {aquatic=FALSE,toothed=TRUE}
                                         => {hair=TRUE} 0.3465347 0.9210526
## [18] {eggs=FALSE}
                                         => {hair=TRUE} 0.3762376 0.9047619
## [19] {toothed=TRUE,legs=TRUE}
                                           {hair=TRUE} 0.3663366 0.8809524
## [20] {aquatic=FALSE,catsize=TRUE}
                                         => {hair=TRUE} 0.2574257 0.8387097
  [21] {toothed=TRUE,catsize=TRUE}
                                         => {hair=TRUE} 0.2871287 0.8285714
## [22] {toothed=TRUE,fins=FALSE}
                                         => {hair=TRUE} 0.3564356 0.8181818
  [23] {toothed=TRUE,breathes=TRUE}
                                           {hair=TRUE} 0.3762376 0.8085106
## [24] {predator=FALSE,toothed=TRUE}
                                         => {hair=TRUE} 0.1881188 0.7916667
## [25] {feathers=FALSE,catsize=TRUE}
                                         => {hair=TRUE} 0.2970297 0.7894737
## [26] {legs=TRUE,catsize=TRUE}
                                         => {hair=TRUE} 0.2871287 0.7837838
## [27] {fins=FALSE,catsize=TRUE}
                                           {hair=TRUE} 0.2772277 0.7777778
```

```
## [28] {breathes=TRUE,catsize=TRUE}
                                         => {hair=TRUE} 0.2970297 0.7692308
  [29] {feathers=FALSE, aquatic=FALSE}
                                            {hair=TRUE} 0.3861386 0.7647059
  [30] {predator=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.1188119 0.7500000
                                           {hair=TRUE} 0.4158416 0.7241379
  [31] {feathers=FALSE,legs=TRUE}
##
   [32] {airborne=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3267327 0.7173913
  [33] {feathers=FALSE, breathes=TRUE}
##
                                            {hair=TRUE} 0.4257426 0.7166667
  [34] {feathers=FALSE,predator=FALSE}
                                            {hair=TRUE} 0.2277228 0.6764706
  [35] {toothed=TRUE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.6666667
   [36] {airborne=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3564356 0.6666667
   [37] {airborne=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3663366 0.6607143
   [38] {aquatic=FALSE,backbone=TRUE}
                                           {hair=TRUE} 0.3465347 0.6603774
   [39] {aquatic=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.3861386 0.6500000
   [40] {feathers=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.4059406 0.6406250
  [41] {toothed=TRUE}
                                           {hair=TRUE} 0.3762376 0.6229508
  [42] {feathers=FALSE,backbone=TRUE}
                                           {hair=TRUE} 0.3861386 0.6190476
   [43]
        {aquatic=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.2970297 0.6122449
   [44]
       {aquatic=FALSE, breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.6093750
   [45] {airborne=FALSE,predator=FALSE} =>
                                            {hair=TRUE} 0.1683168 0.6071429
   [46] {aquatic=FALSE, venomous=FALSE}
                                           {hair=TRUE} 0.3663366 0.6065574
   [47] {feathers=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.6000000
##
  [48] {backbone=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3762376 0.5937500
  [49] {predator=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.2277228 0.5897436
  [50] {airborne=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3465347 0.5833333
##
   [51] {legs=TRUE,tail=TRUE}
##
                                            {hair=TRUE} 0.3267327 0.5789474
   [52] {breathes=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.5753425
   [53] {airborne=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3663366 0.5692308
   [54] {backbone=TRUE, breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.5652174
   [55] {feathers=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.4059406 0.5616438
   [56] {predator=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.2277228 0.5609756
  [57] {predator=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.2277228 0.5609756
   [58]
       {backbone=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.3663366 0.5606061
##
   [59]
        {breathes=TRUE, venomous=FALSE}
                                            {hair=TRUE} 0.4059406 0.5466667
   [60] {airborne=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.3069307 0.5438596
   [61] {fins=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.3168317 0.5423729
       {breathes=TRUE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.5409836
##
   [63]
       {venomous=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3960396 0.5405405
  [64] {breathes=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.4059406 0.5394737
  [65] {predator=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.1881188 0.5277778
##
       {airborne=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3663366 0.5211268
##
   [66]
       {predator=FALSE,tail=TRUE}
##
   [67]
                                            {hair=TRUE} 0.1683168 0.5151515
   [68] {predator=FALSE}
                                            {hair=TRUE} 0.2277228 0.5111111
   [69] {venomous=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.3861386 0.5064935
   [70] {backbone=TRUE, venomous=FALSE}
                                         => {hair=TRUE} 0.3861386 0.4936709
   [71] {backbone=TRUE}
                                         => {hair=TRUE} 0.3861386 0.4698795
  [72] {venomous=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.3267327 0.4647887
   [73] {domestic=FALSE}
                                         => {hair=TRUE} 0.3366337 0.3863636
##
##
        lift
##
  [1]
        2.3488372
##
   [2]
        2.3488372
##
   [3]
        2.3488372
   [4]
##
        2.3488372
##
  [5]
        2.3488372
## [6]
        2.3488372
## [7]
        2.3488372
```

- ## [8] 2.3488372
- ## [9] 2.3488372
- [10] 2.2870257
- ## [11] 2.2835917
- ## [12] 2.2342598
- ## [13] 2.2342598
- ## [14] 2.2313953
- ## [15] 2.2252142
- ## [16] 2.1769711
- [17] 2.1634027
- ## [18] 2.1251384
- ## [19] 2.0692137
- ## [20] 1.9699925
- ## [21] 1.9461794
- ## [22] 1.9217759
- ## [23] 1.8990599
- [24] 1.8594961
- [25] 1.8543452
- [26] 1.8409805
- ## [27] 1.8268734
- ## [28] 1.8067979
- ## [29] 1.7961696
- ## [30] 1.7616279
- ## [31] 1.7008821
- ## [32] 1.6850354
- ## [33] 1.6833333
- ## [34] 1.5889193 ## [35] 1.5658915
- ## [36] 1.5658915
- ## [37] 1.5519103
- ## [38] 1.5511189 ##
- [39] 1.5267442
- ## [40] 1.5047238
- ## [41] 1.4632101 ## [42] 1.4540421
- ## [43] 1.4380636
- ## [44] 1.4313227
- ## [45] 1.4260797
- ## [46] 1.4247045
- ## [47] 1.4093023
- ## [48] 1.3946221
- ## [49] 1.3852117
- ## [50] 1.3701550
- ## [51] 1.3598531
- ## [52] 1.3513858
- ## [53] 1.3370304
- ## [54] 1.3276036
- ## [55] 1.3192099
- ## [56] 1.3176404 ## [57] 1.3176404
- ## [58] 1.3167724
- ## [59] 1.2840310
- ## [60] 1.2774378
- ## [61] 1.2739456

```
[62] 1.2706824
##
   [63] 1.2696417
   [64] 1.2671359
   [65] 1.2396641
##
##
   [66] 1.2240419
   [67] 1.2100070
##
   [68] 1.2005168
##
   [69] 1.1896708
##
   [70] 1.1595525
##
   [71] 1.1036705
   [72] 1.0917131
   [73]
##
        0.9075053
##
        lhs
                             rhs
                                                     confidence lift
                                           support
##
   [1]
        {type=fish}
                             {hair=FALSE} 0.1287129 1.0000000
   [2]
                             {hair=FALSE} 0.2079208 1.0000000
##
        {breathes=FALSE} =>
                                                                 1.7413793
##
   [3]
        {legs=FALSE}
                             {hair=FALSE} 0.2178218 0.9565217
                                                                 1.6656672
   [4]
##
        {aquatic=TRUE}
                             {hair=FALSE} 0.3168317 0.8888889
                                                                 1.5478927
   [5]
                          => {hair=FALSE} 0.3465347 0.8750000
##
        {toothed=FALSE}
                                                                 1.5237069
##
   [6]
        {backbone=FALSE} => {hair=FALSE} 0.1386139 0.7777778
                                                                 1.3544061
##
   [7]
        {catsize=FALSE}
                             {hair=FALSE} 0.4356436 0.7719298
                                                                 1.3442226
##
   [8]
        {airborne=TRUE}
                          => {hair=FALSE} 0.1782178 0.7500000
                                                                 1.3060345
                             {hair=FALSE} 0.3564356 0.6428571
##
   [9]
        {predator=TRUE}
                                                                 1.1194581
       {tail=FALSE}
                          => {hair=FALSE} 0.1584158 0.6153846
##
   Γ107
                                                                 1.0716180
##
   [11] {backbone=TRUE}
                             {hair=FALSE} 0.4356436 0.5301205
                                                                 0.9231408
   [12] {breathes=TRUE}
                             {hair=FALSE} 0.3663366 0.4625000
                                                                 0.8053879
   [13] {legs=TRUE}
                          => {hair=FALSE} 0.3564356 0.4615385
                                                                 0.8037135
                          => {hair=FALSE} 0.2574257 0.4000000
##
   [14] {aquatic=FALSE}
                                                                 0.6965517
##
       lhs
                                           rhs
                                                       support
                                                                  confidence
                                          {hair=TRUE} 0.3465347 0.6603774
##
   [1] {aquatic=FALSE,backbone=TRUE}
                                       =>
   [2] {feathers=FALSE,backbone=TRUE} => {hair=TRUE} 0.3861386 0.6190476
   [3] {backbone=TRUE,legs=TRUE}
                                        => {hair=TRUE} 0.3762376 0.5937500
##
   [4] {airborne=FALSE,backbone=TRUE} => {hair=TRUE} 0.3663366 0.5692308
   [5] {backbone=TRUE,breathes=TRUE}
                                       => {hair=TRUE} 0.3861386 0.5652174
   [6] {backbone=TRUE,fins=FALSE}
                                       => {hair=TRUE} 0.3663366 0.5606061
   [7] {predator=FALSE,backbone=TRUE} => {hair=TRUE} 0.1881188 0.5277778
   [8] {backbone=TRUE, venomous=FALSE} => {hair=TRUE} 0.3861386 0.4936709
##
##
       lift
##
  [1] 1.551119
   [2] 1.454042
##
##
   [3] 1.394622
   [4] 1.337030
##
   [5] 1.327604
##
   [6] 1.316772
##
   [7] 1.239664
##
   [8] 1.159553
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
##
   [1]
        {eggs=FALSE,breathes=TRUE}
                                         => {hair=TRUE} 0.3762376 0.9268293
##
   [2]
        {toothed=TRUE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.8085106
##
   [3]
        {breathes=TRUE, catsize=TRUE}
                                         => {hair=TRUE} 0.2970297 0.7692308
##
   [4]
        {feathers=FALSE, breathes=TRUE}
                                            {hair=TRUE} 0.4257426 0.7166667
   [5]
##
        {airborne=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3663366 0.6607143
##
   [6]
        {aquatic=FALSE,breathes=TRUE}
                                         => {hair=TRUE} 0.3861386 0.6093750
  [7]
##
        {breathes=TRUE,legs=TRUE}
                                         => {hair=TRUE} 0.4158416 0.5753425
## [8]
        {backbone=TRUE,breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.5652174
```

```
{predator=FALSE,breathes=TRUE} => {hair=TRUE} 0.2277228 0.5609756
   [10] {breathes=TRUE, venomous=FALSE} => {hair=TRUE} 0.4059406 0.5466667
   [11] {breathes=TRUE,tail=TRUE}
                                        => {hair=TRUE} 0.3267327 0.5409836
   [12] {breathes=TRUE,fins=FALSE}
                                        => {hair=TRUE} 0.4059406 0.5394737
        lift.
##
  [1]
        2.176971
   [2]
        1.899060
   [3]
##
        1.806798
##
   [4]
        1.683333
##
   [5]
        1.551910
   [6]
        1.431323
   [7]
##
        1.351386
##
   [8]
        1.327604
##
   [9]
        1.317640
   [10] 1.284031
   [11] 1.270682
##
   [12] 1.267136
##
        lhs
                                                    support
                                                               confidence
##
   [1]
        {milk=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.3762376 1.0000000
   [2]
        {legs=TRUE, type=mammal}
                                    => {hair=TRUE} 0.3762376 1.0000000
##
                                    => {hair=TRUE} 0.3663366 0.9736842
   [3]
        {eggs=FALSE,legs=TRUE}
  [4]
        {toothed=TRUE,legs=TRUE}
                                       {hair=TRUE} 0.3663366 0.8809524
##
  [5]
        {legs=TRUE,catsize=TRUE}
##
                                    =>
                                       {hair=TRUE} 0.2871287 0.7837838
   [6]
        {feathers=FALSE,legs=TRUE} =>
##
                                       {hair=TRUE} 0.4158416 0.7241379
##
   [7]
        {airborne=FALSE,legs=TRUE} => {hair=TRUE} 0.3564356 0.6666667
   [8]
        {aquatic=FALSE,legs=TRUE}
                                    => {hair=TRUE} 0.3861386 0.6500000
   [9]
        {backbone=TRUE,legs=TRUE}
##
                                    => {hair=TRUE} 0.3762376 0.5937500
##
   [10] {predator=FALSE,legs=TRUE} => {hair=TRUE} 0.2277228 0.5897436
   [11] {legs=TRUE,tail=TRUE}
                                    => {hair=TRUE} 0.3267327 0.5789474
   [12] {breathes=TRUE,legs=TRUE} => {hair=TRUE} 0.4158416 0.5753425
##
   [13] {venomous=FALSE,legs=TRUE} => {hair=TRUE} 0.3960396 0.5405405
##
        lift
##
   [1]
        2.348837
   [2]
        2.348837
##
   [3]
        2.287026
##
   [4]
##
        2.069214
##
   [5]
        1.840981
##
   [6]
        1.700882
   [7]
        1.565891
##
   [8]
##
        1.526744
   [9]
        1.394622
   [10] 1.385212
##
   [11] 1.359853
##
   [12] 1.351386
##
   [13] 1.269642
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
##
  [1]
        {milk=TRUE,aquatic=FALSE}
                                        => {hair=TRUE} 0.3465347 1.0000000
   [2]
        {aquatic=FALSE, type=mammal}
                                        => {hair=TRUE} 0.3465347 1.0000000
##
   [3]
        {eggs=FALSE,aquatic=FALSE}
                                        => {hair=TRUE} 0.3465347 0.9722222
##
   [4]
        {aquatic=FALSE, toothed=TRUE}
                                        => {hair=TRUE} 0.3465347 0.9210526
   [5]
##
        {aquatic=FALSE,catsize=TRUE}
                                         => {hair=TRUE} 0.2574257 0.8387097
##
   [6]
        {feathers=FALSE,aquatic=FALSE} => {hair=TRUE} 0.3861386 0.7647059
##
  [7]
        {airborne=FALSE,aquatic=FALSE} => {hair=TRUE} 0.3267327 0.7173913
## [8]
        {aquatic=FALSE,backbone=TRUE} => {hair=TRUE} 0.3465347 0.6603774
```

```
{aquatic=FALSE,legs=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6500000
  [10] {aquatic=FALSE,tail=TRUE}
                                        => {hair=TRUE} 0.2970297 0.6122449
   [11] {aquatic=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6093750
   [12] {aquatic=FALSE, venomous=FALSE} => {hair=TRUE} 0.3663366 0.6065574
        lift.
##
  [1]
        2.348837
   [2]
        2.348837
  [3]
        2.283592
##
##
   [4]
        2.163403
##
   [5]
        1.969992
   [6]
        1.796170
   [7]
##
        1.685035
##
   [8]
        1.551119
##
   [9]
        1.526744
  [10] 1.438064
##
   [11] 1.431323
   [12] 1.424705
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                              support
##
   [1]
        {type=fish}
                                            {breathes=FALSE} 0.1287129
##
   [2]
        {eggs=TRUE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
   [3]
        {milk=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
  [4]
                                            {breathes=FALSE} 0.1287129
##
        {hair=FALSE,fins=TRUE}
##
   [5]
        {aquatic=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
##
   [6]
        {milk=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
  [7]
        {eggs=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
   [8]
        {legs=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
##
   [9]
        {hair=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
  [10] {predator=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1188119
  [11] {milk=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [12] {feathers=FALSE, aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
  [13] {milk=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
  [14] {aquatic=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
  [15] {eggs=TRUE,toothed=TRUE}
                                            {breathes=FALSE} 0.1287129
   [16] {airborne=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
  [17] {eggs=TRUE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1881188
  [18] {hair=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
  [19] {aquatic=TRUE, toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
  [20] {hair=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
  [21] {hair=FALSE,feathers=FALSE}
                                            {breathes=FALSE} 0.2079208
  [22] {milk=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
  [23] {eggs=TRUE,airborne=FALSE}
                                            {breathes=FALSE} 0.1980198
  [24] {hair=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
  [25] {feathers=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
  [26] {feathers=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
                                            {breathes=FALSE} 0.1683168
  [27]
        {milk=FALSE,predator=TRUE}
  [28]
       {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
  [29]
       {hair=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
  [30] {airborne=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [31] {predator=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
##
  [32]
       {hair=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
## [33] {feathers=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
## [34] {hair=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
## [35] {hair=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
```

```
## [36] {hair=FALSE,catsize=FALSE}
                                         => {breathes=FALSE} 0.1584158
                                         => {breathes=FALSE} 0.1980198
  [37] {milk=FALSE,domestic=FALSE}
  [38] {feathers=FALSE,predator=TRUE}
                                         => {breathes=FALSE} 0.1683168
  [39] {eggs=TRUE,domestic=FALSE}
                                         => {breathes=FALSE} 0.1881188
  [40] {airborne=FALSE,predator=TRUE}
                                         => {breathes=FALSE} 0.1683168
  [41] {domestic=FALSE, catsize=FALSE}
                                         => {breathes=FALSE} 0.1485149
## [42] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
## [43] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
   [44] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [45] {toothed=TRUE,domestic=FALSE}
                                         => {breathes=FALSE} 0.1287129
   [46] {tail=TRUE}
                                         => {breathes=FALSE} 0.1386139
##
        confidence lift
##
  [1]
        1.0000000
                   4.8095238
##
  [2]
        1.0000000
                   4.8095238
  [3]
##
        1.0000000
                   4.8095238
##
  [4]
        0.8666667
                   4.1682540
  [5]
##
        0.8333333
                   4.0079365
  [6]
        0.8000000
                   3.8476190
##
  [7]
        0.7894737
                   3.7969925
   [8]
        0.7500000
                   3.6071429
##
  [9]
        0.7272727
                   3.4978355
  [10] 0.7058824
                   3.3949580
## [11] 0.6666667
                   3.2063492
  Γ12 ] 0.6666667
                   3.2063492
  [13] 0.6666667
                   3.2063492
  [14] 0.6521739
                   3.1366460
  [15] 0.6500000
                   3.1261905
  [16] 0.6451613
                   3.1029186
  [17] 0.6333333
                   3.0460317
## [18] 0.6250000
                   3.0059524
## [19] 0.6086957
                   2.9275362
  [20] 0.6086957
                   2.9275362
  [21] 0.5526316
                   2.6578947
  [22] 0.5526316
                   2.6578947
   [23] 0.5405405
                   2.5997426
## [24] 0.5250000
                   2.5250000
  [25] 0.5250000
                   2.5250000
## [26] 0.5128205
                   2.4664225
  [27] 0.5000000
                   2.4047619
  [28] 0.4848485
                   2.3318903
  [29] 0.4722222
                   2.2711640
  [30] 0.444444
                   2.1375661
  [31] 0.4285714
                   2.0612245
  [32] 0.3750000
                   1.8035714
## [33] 0.3720930
                   1.7895903
## [34] 0.3703704
                   1.7813051
##
  [35] 0.3703704
                   1.7813051
  [36] 0.3636364
                   1.7489177
  [37] 0.3636364
                   1.7489177
  [38]
       0.3617021
                   1.7396150
  [39] 0.3518519
##
                   1.6922399
## [40] 0.3469388
                   1.6686103
## [41] 0.3000000
                   1.4428571
## [42] 0.2941176 1.4145658
```

```
[43] 0.2876712
                   1.3835616
   [44] 0.2816901
                   1.3547954
   [45] 0.2500000
                   1.2023810
##
   [46] 0.1866667
                   0.8977778
##
        lhs
                                             support
                                                        confidence lift
##
  [1]
                          => {breathes=TRUE} 0.1980198 1.0000000
                                                                   1.2625000
        {type=bird}
##
   [2]
        {feathers=TRUE}
                          => {breathes=TRUE} 0.1980198 1.0000000
                                                                   1.2625000
##
   [3]
        {airborne=TRUE}
                          => {breathes=TRUE} 0.2376238 1.0000000
                                                                   1.2625000
##
   [4]
        {milk=TRUE}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                   1.2625000
##
   [5]
        {type=mammal}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                   1.2625000
##
   [6]
        {hair=TRUE}
                          => {breathes=TRUE} 0.4257426 1.0000000
                                                                   1.2625000
   [7]
        {aquatic=FALSE}
##
                             {breathes=TRUE} 0.6336634 0.9846154
                                                                   1.2430769
##
   [8]
        {eggs=FALSE}
                             {breathes=TRUE} 0.4059406 0.9761905
                                                                   1.2324405
##
   [9]
        {legs=TRUE}
                             {breathes=TRUE} 0.7227723 0.9358974
                                                                   1.1815705
                         => {breathes=TRUE} 0.1188119 0.9230769
##
  [10]
       {domestic=TRUE}
                                                                   1.1653846
        {predator=FALSE}
                             {breathes=TRUE} 0.4059406 0.9111111
                                                                   1.1502778
   [12] {catsize=TRUE}
                          => {breathes=TRUE} 0.3861386 0.8863636
                                                                   1.1190341
   [13] {toothed=FALSE}
                         => {breathes=TRUE} 0.3267327 0.8250000
                                                                   1.0415625
                          => {breathes=TRUE} 0.6039604 0.8133333
  [14] {tail=TRUE}
                                                                   1.0268333
   [15] {domestic=FALSE}
                         => {breathes=TRUE} 0.6732673 0.7727273
                                                                   0.9755682
##
  [16] {tail=FALSE}
                          => {breathes=TRUE} 0.1881188 0.7307692
                                                                   0.9225962
  [17] {airborne=FALSE} => {breathes=TRUE} 0.5544554 0.7272727
                                                                   0.9181818
  [18] {catsize=FALSE}
                          => {breathes=TRUE} 0.4059406 0.7192982
                                                                   0.9081140
##
   [19] {predator=TRUE}
                             {breathes=TRUE} 0.3861386 0.6964286
                                                                   0.8792411
##
   [20] {eggs=TRUE}
                          => {breathes=TRUE} 0.3861386 0.6610169
                                                                   0.8345339
   [21] {milk=FALSE}
                          => {breathes=TRUE} 0.3861386 0.6500000
                                                                   0.8206250
##
   [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
                                                                   0.7715278
##
       lhs
                                           rhs
                                                             support
                                        => {breathes=FALSE} 0.1980198
##
  [1] {hair=FALSE,domestic=FALSE}
   [2] {milk=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
   [3] {eggs=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1881188
##
   [4] {domestic=FALSE, catsize=FALSE}
                                        => {breathes=FALSE} 0.1485149
   [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
       {toothed=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1287129
##
##
       confidence lift
  [1] 0.3703704 1.781305
  [2] 0.3636364
                  1.748918
##
   [3] 0.3518519
                  1.692240
##
   [4] 0.3000000
                  1.442857
   [5] 0.2941176
                  1.414566
   [6] 0.2816901
##
                  1.354795
##
   [7] 0.2500000
                  1.202381
##
       lhs
                                           rhs
                                                             support
## [1] {airborne=FALSE,aquatic=TRUE}
                                        => {breathes=FALSE} 0.1980198
   [2] {milk=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
##
   [3] {eggs=TRUE,airborne=FALSE}
                                           {breathes=FALSE} 0.1980198
   [4] {hair=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
  [5] {airborne=FALSE, catsize=FALSE}
                                        => {breathes=FALSE} 0.1584158
   [6] {airborne=FALSE,predator=TRUE}
                                        => {breathes=FALSE} 0.1683168
##
   [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
##
   [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
##
       confidence lift
## [1] 0.6451613 3.102919
```

```
## [2] 0.5526316
                  2.657895
  [3] 0.5405405
                  2.599743
                  2.525000
  [4] 0.5250000
  [5] 0.444444
                  2.137566
   [6] 0.3469388
                  1.668610
##
  [7] 0.2941176
                 1.414566
##
  [8] 0.2876712 1.383562
##
       lhs
                                          rhs
                                                           support
## [1] {legs=FALSE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1188119
   [2] {aquatic=TRUE, catsize=FALSE}
                                       => {breathes=FALSE} 0.1485149
  [3] {airborne=FALSE, catsize=FALSE} => {breathes=FALSE} 0.1584158
   [4] {predator=TRUE, catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
   [5] {feathers=FALSE, catsize=FALSE} => {breathes=FALSE} 0.1584158
  [6] {hair=FALSE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1584158
  [7] {domestic=FALSE, catsize=FALSE} => {breathes=FALSE} 0.1485149
##
##
       confidence lift
##
  [1] 0.7500000 3.607143
   [2] 0.6521739
                  3.136646
  [3] 0.444444
                  2.137566
  [4] 0.4285714
                  2.061224
##
  [5] 0.3720930
                  1.789590
  [6] 0.3636364
                  1.748918
## [7] 0.3000000
                  1.442857
##
                                                           support
                                       => {breathes=FALSE} 0.1188119
##
  [1] {predator=TRUE,legs=FALSE}
  [2] {milk=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
   [3] {eggs=TRUE,predator=TRUE}
                                       => {breathes=FALSE} 0.1584158
  [4] {hair=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
   [5] {predator=TRUE, catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
##
   [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
##
       confidence lift
  [1] 0.7058824
                 3.394958
  [2] 0.5000000
                  2.404762
   [3] 0.4848485
                  2.331890
##
  [4] 0.4722222
                  2.271164
  [5] 0.4285714
                  2.061224
## [6] 0.3617021
                  1.739615
  [7] 0.3469388
                  1.668610
##
##
       lhs
                                                       support
                                                                 confidence
                                      rhs
  [1] {eggs=TRUE,fins=TRUE}
                                  => {breathes=FALSE} 0.1287129 1.0000000
  [2] {eggs=TRUE,legs=FALSE}
                                  => {breathes=FALSE} 0.1485149 0.7894737
   [3] {eggs=TRUE,toothed=TRUE}
                                  => {breathes=FALSE} 0.1287129 0.6500000
  [4] {eggs=TRUE,aquatic=TRUE}
                                  => {breathes=FALSE} 0.1881188 0.6333333
## [5] {eggs=TRUE,airborne=FALSE} => {breathes=FALSE} 0.1980198 0.5405405
                                     {breathes=FALSE} 0.1980198 0.5128205
  [6] {feathers=FALSE,eggs=TRUE} =>
   [7] {eggs=TRUE,predator=TRUE}
                                  => {breathes=FALSE} 0.1584158 0.4848485
   [8] {hair=FALSE,eggs=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.3703704
   [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
##
       lift
## [1] 4.809524
## [2] 3.796992
## [3] 3.126190
## [4] 3.046032
```

```
[5] 2.599743
   [6] 2.466422
   [7] 2.331890
   [8] 1.781305
##
##
   [9] 1.692240
##
       lhs
                                       rhs
                                                         support
                                                                   confidence
  [1] {milk=FALSE,fins=TRUE}
                                       {breathes=FALSE} 0.1287129 1.0000000
  [2] {milk=FALSE,legs=FALSE}
                                       {breathes=FALSE} 0.1584158 0.8000000
   [3] {milk=FALSE,aquatic=TRUE}
                                       {breathes=FALSE} 0.1980198 0.6666667
   [4] {milk=FALSE,toothed=TRUE}
                                       {breathes=FALSE} 0.1386139 0.6666667
  [5] {milk=FALSE,airborne=FALSE} =>
                                       {breathes=FALSE} 0.2079208 0.5526316
                                       {breathes=FALSE} 0.2079208 0.5250000
   [6] {feathers=FALSE,milk=FALSE} =>
   [7] {milk=FALSE,predator=TRUE}
                                    => {breathes=FALSE} 0.1683168 0.5000000
   [8] {hair=FALSE,milk=FALSE}
                                    => {breathes=FALSE} 0.2079208 0.3750000
   [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
##
       lift
##
  [1] 4.809524
   [2] 3.847619
  [3] 3.206349
   [4] 3.206349
##
   [5] 2.657895
  [6] 2.525000
##
  [7] 2.404762
##
   [8] 1.803571
   [9] 1.748918
##
       "Número de reglas con consecuente negado"
##
                                         rhs
                                                          support
                                                                    confidence
##
   [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
   [2] {aquatic=FALSE,legs=TRUE}
                                      => {domestic=TRUE} 0.1188119 0.2000000
   [3] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
   [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
##
   [5] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
##
  [1] 1.612482
##
   [2] 1.553846
##
   [3] 1.335337
  [4] 1.294872
##
  [5] 1.238573
##
        lhs
                             rhs
                                              support
                                                         confidence lift
##
  [1]
        {aquatic=TRUE}
                          => {domestic=FALSE} 0.3465347 0.9722222
                                                                    1.1158460
   [2]
        {predator=TRUE}
                          => {domestic=FALSE} 0.5346535 0.9642857
                                                                    1.1067370
   [3]
                          => {domestic=FALSE} 0.2178218 0.9565217
##
        {legs=FALSE}
                                                                    1.0978261
##
   [4]
        {breathes=FALSE}
                             {domestic=FALSE} 0.1980198 0.9523810
                                                                    1.0930736
##
   [5]
                             {domestic=FALSE} 0.1683168 0.9444444
        {backbone=FALSE}
                                                                    1.0839646
##
  [6]
        {fins=TRUE}
                          => {domestic=FALSE} 0.1584158 0.9411765
                                                                    1.0802139
  [7]
##
        {hair=FALSE}
                          => {domestic=FALSE} 0.5346535 0.9310345
                                                                    1.0685737
        {type=fish}
##
  [8]
                             {domestic=FALSE} 0.1188119 0.9230769
                                                                    1.0594406
##
  [9]
        {milk=FALSE}
                         => {domestic=FALSE} 0.5445545 0.9166667
                                                                    1.0520833
  [10]
       {eggs=TRUE}
                          => {domestic=FALSE} 0.5346535 0.9152542
                                                                    1.0504622
   [11] {toothed=FALSE}
                          => {domestic=FALSE} 0.3564356 0.9000000
                                                                    1.0329545
##
   [12]
       {airborne=FALSE}
                         => {domestic=FALSE} 0.6732673 0.8831169
                                                                    1.0135773
## [13] {catsize=FALSE}
                          => {domestic=FALSE} 0.4950495 0.8771930
## [14] {feathers=FALSE} => {domestic=FALSE} 0.7029703 0.8765432
                                                                    1.0060325
## [15] {catsize=TRUE}
                          => {domestic=FALSE} 0.3762376 0.8636364
```

```
## [16] {backbone=TRUE}
                         => {domestic=FALSE} 0.7029703 0.8554217
                                                                   0.9817908
                                                                   0.9711538
## [17] {legs=TRUE}
                         => {domestic=FALSE} 0.6534653 0.8461538
  [18] {airborne=TRUE}
                         => {domestic=FALSE} 0.1980198 0.8333333
                                                                   0.9564394
                         => {domestic=FALSE} 0.3366337 0.8095238
  [19] {eggs=FALSE}
                                                                   0.9291126
  [20] {milk=TRUE}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                   0.9237805
##
   [21] {type=mammal}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                   0.9237805
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
   [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
   [3] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
   [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
## [1] 1.612482
##
  [2] 1.335337
## [3] 1.294872
##
  [4] 1.238573
##
       lhs
                                     rhs
                                                     support
                                                               confidence
   [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
##
##
  [1] 1.553846
  [2] 1.335337
##
   [1] "Número de reglas con consecuente negado"
##
                                                        support
                                                                   confidence
## [1]
        {type=fish}
                                         => {fins=TRUE} 0.1287129 1.0000000
  [2]
        {toothed=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
  [3]
        {breathes=FALSE, tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.9285714
##
##
   [4]
        {backbone=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
  [5]
##
        {aquatic=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8888889
##
  [6]
                                         => {fins=TRUE} 0.1584158 0.8421053
        {toothed=TRUE,legs=FALSE}
##
  [7]
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
##
  [8]
        {legs=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.8333333
  [9]
        {breathes=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1287129 0.8125000
                                         => {fins=TRUE} 0.1485149 0.7894737
  [10] {venomous=FALSE,legs=FALSE}
  [11] {aquatic=TRUE, toothed=TRUE}
                                           {fins=TRUE} 0.1683168 0.7391304
## [12] {predator=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1188119 0.7058824
## [13] {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
## [14] {hair=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1485149 0.6521739
## [15] {aquatic=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.6500000
## [16] {eggs=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6500000
## [17] {breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6190476
## [18] {milk=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.6190476
## [19] {aquatic=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.6153846
## [20] {feathers=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
## [21] {aquatic=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
                                         => {fins=TRUE} 0.1683168 0.5483871
## [22] {airborne=FALSE,aquatic=TRUE}
## [23] {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
## [24] {hair=FALSE,feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
## [25] {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [26] {hair=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3571429
                                         => {fins=TRUE} 0.1287129 0.3513514
## [27] {predator=TRUE,toothed=TRUE}
## [28] {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [29] {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
## [30] {hair=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3409091
```

```
## [31] {eggs=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
                                         => {fins=TRUE} 0.1287129 0.3333333
  [32] {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3250000
  [33] {milk=FALSE,tail=TRUE}
## [34] {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
  [35] {eggs=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.3095238
  [36] {milk=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [37] {toothed=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.3076923
## [38] {toothed=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.3076923
  [39] {hair=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1089109 0.3055556
  [40] {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
## [41] {airborne=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
  [42] {predator=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1188119 0.2857143
## [43] {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [44] {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
                                         => {fins=TRUE} 0.1287129 0.2765957
## [45] {feathers=FALSE,predator=TRUE}
  [46] {predator=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
                                         => {fins=TRUE} 0.1683168 0.2698413
  [47] {feathers=FALSE,backbone=TRUE}
  [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
                                         => {fins=TRUE} 0.1287129 0.2653061
  [49] {airborne=FALSE,predator=TRUE}
  [50] {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
##
  [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
  [52] {hair=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2586207
                                         => {fins=TRUE} 0.1188119 0.2400000
## [53] {predator=TRUE, venomous=FALSE}
  [54] {airborne=FALSE,domestic=FALSE} =>
                                           {fins=TRUE} 0.1584158 0.2352941
  [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [57] {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
  [58] {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
  [59] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
## [60] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [61] {backbone=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2253521
##
   [62]
       {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
   [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [64] {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
       {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
       {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
   [66]
##
        lift.
## [1]
       5.941176
   [2]
##
       5.516807
  [3]
##
       5.516807
  [4]
        5.516807
   [5]
##
        5.281046
##
   [6]
        5.003096
##
   [7]
        5.003096
## [8]
        4.950980
## [9]
        4.827206
## [10] 4.690402
## [11] 4.391304
## [12] 4.193772
## [13] 3.960784
## [14] 3.874680
## [15] 3.861765
## [16] 3.861765
## [17] 3.677871
```

```
## [18] 3.677871
## [19] 3.656109
## [20] 3.366667
## [21] 3.366667
## [22] 3.258065
## [23] 2.970588
  [24] 2.345201
## [25] 2.227941
  [26] 2.121849
  [27] 2.087440
  [28] 2.087440
  [29] 2.032508
  [30] 2.025401
  [31] 1.980392
## [32] 1.980392
  [33] 1.930882
  [34] 1.930882
  [35] 1.838936
  [36] 1.838936
  [37] 1.828054
## [38] 1.828054
## [39] 1.815359
## [40] 1.728342
## [41] 1.711864
## [42] 1.697479
## [43] 1.667699
## [44] 1.667699
## [45] 1.643304
## [46] 1.643304
## [47] 1.603175
## [48] 1.599548
  [49] 1.576230
  [50] 1.553846
  [51] 1.540305
   [52] 1.536511
  [53] 1.425882
##
## [54] 1.397924
## [55] 1.383562
  [56] 1.371041
##
  [57] 1.371041
  [58] 1.345172
  [59] 1.338857
   [60] 1.338857
  [61] 1.338857
  [62] 1.320261
  [63] 1.302176
##
   [64] 1.296257
   [65] 1.284579
##
   [66]
       1.100218
##
        lhs
                            rhs
                                          support
                                                    confidence lift
##
  [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000 1.2023810
  [2]
        {type=bird}
                         => {fins=FALSE} 0.1980198 1.0000000 1.2023810
## [3]
        {feathers=TRUE} => {fins=FALSE} 0.1980198 1.0000000 1.2023810
        {airborne=TRUE} => {fins=FALSE} 0.2376238 1.0000000 1.2023810
## [4]
```

```
[5]
        {toothed=FALSE}
                          => {fins=FALSE} 0.3960396 1.0000000
                                                                1.2023810
##
   [6]
                          => {fins=FALSE} 0.7623762 0.9871795
        {legs=TRUE}
                                                                1.1869658
##
  [7]
        {hair=TRUE}
                          => {fins=FALSE} 0.4059406 0.9534884
                                                                1.1464563
  [8]
                          => {fins=FALSE} 0.7524752 0.9500000
##
        {breathes=TRUE}
                                                                1.1422619
##
   [9]
        {domestic=TRUE}
                          => {fins=FALSE} 0.1188119 0.9230769
                                                                1.1098901
  [10]
       {predator=FALSE} => {fins=FALSE} 0.4059406 0.9111111
                                                                1.0955026
##
  [11] {eggs=FALSE}
                          => {fins=FALSE} 0.3762376 0.9047619
                                                                1.0878685
  [12] {milk=TRUE}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
##
  [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
  [14] {catsize=FALSE}
                          => {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
  [15] {venomous=FALSE}
                         => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
  [16] {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                0.9837662
  [17] {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                0.9837662
                          => {fins=FALSE} 0.6534653 0.7951807
## [18] {backbone=TRUE}
                                                                0.9561102
## [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
  [20]
        {tail=TRUE}
                          => {fins=FALSE} 0.5841584 0.7866667
                                                                0.9458730
##
  [21]
       {eggs=TRUE}
                          => {fins=FALSE} 0.4554455 0.7796610
                                                                0.9374496
   [22] {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                0.9369202
  [23] {predator=TRUE}
                          => {fins=FALSE} 0.4257426 0.7678571
                                                                0.9232568
   [24] {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
                                                                0.8914204
##
  [25] {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115
                                                                0.8672912
                          => {fins=FALSE} 0.1881188 0.5277778
##
   [26] {aquatic=TRUE}
                                                                0.6345899
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
  Г17
        {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
##
   [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
  [3]
        {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
   [4]
                                         => {fins=TRUE} 0.1584158 0.2807018
##
        {toothed=TRUE, venomous=FALSE}
##
   [5]
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
   [6]
        {predator=TRUE, venomous=FALSE}
##
                                         => {fins=TRUE} 0.1188119 0.2400000
##
  [7]
        {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
##
   [8]
        {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
##
   [9]
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
        lift
##
  Г17
        4.690402
##
  [2]
        3.960784
  [3]
        2.970588
##
   [4]
##
        1.667699
##
   [5]
        1.599548
  [6]
        1.425882
   [7]
##
        1.371041
##
   [8]
        1.345172
##
   [9]
        1.338857
## [10] 1.302176
## [11] 1.100218
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
##
  [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
  [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
   [3] {airborne=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2352941
  [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
## [5] {feathers=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
## [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
## [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
```

```
## [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
  [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
       lift
## [1] 1.828054
## [2] 1.540305
## [3] 1.397924
## [4] 1.371041
## [5] 1.338857
## [6] 1.338857
## [7] 1.320261
## [8] 1.296257
  [9] 1.100218
##
##
        lhs
                                           rhs
                                                        support
                                                                  confidence
## [1]
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
## [2]
                                        => {fins=TRUE} 0.1584158 0.8421053
        {backbone=TRUE,legs=FALSE}
## [3]
        {aquatic=TRUE, backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
## [4]
                                        => {fins=TRUE} 0.1485149 0.3409091
        {hair=FALSE,backbone=TRUE}
## [5]
        {eggs=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
                                        => {fins=TRUE} 0.1287129 0.3095238
##
  [6]
        {milk=FALSE,backbone=TRUE}
  [7]
        {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [8]
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
## [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
                                        => {fins=TRUE} 0.1584158 0.2162162
  [11] {backbone=TRUE.tail=TRUE}
##
##
        lift
## [1]
        5.516807
  [2]
        5.003096
##
##
   [3]
        3.366667
## [4]
        2.025401
## [5]
        1.838936
## [6]
        1.838936
##
  [7]
        1.643304
##
  [8]
        1.603175
  [9]
##
        1.553846
   [10]
       1.338857
##
  [11] 1.284579
##
                                                         support
                                                                   confidence
## [1]
        {feathers=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
  [2]
        {hair=FALSE, feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
  [3]
        {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
##
        {feathers=FALSE, milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
  [4]
  [5]
        {feathers=FALSE, tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
##
##
   [6]
        {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
##
  [7]
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
## [9]
##
  [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
        lift
## [1]
        3.366667
##
  [2]
        2.345201
##
  [3]
        1.980392
## [4]
        1.930882
## [5]
        1.728342
## [6]
        1.643304
```

```
## [7]
        1.603175
##
  [8]
        1.383562
##
  [9]
        1.338857
##
  [10] 1.302176
##
        lhs
                                       rhs
                                                    support
                                                              confidence
## [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
  [2]
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.8333333
## [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
##
  [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
##
  [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
  [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
  [7]
##
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
##
  [8]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
## [9]
        {predator=TRUE, tail=TRUE} => {fins=TRUE} 0.1188119 0.2857143
## [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
  [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
   [12] {backbone=TRUE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
##
        lift
  Г17
        5.516807
##
##
   [2]
        4.950980
##
  [3]
        3.656109
## [4]
        2.121849
## [5]
        1.980392
##
  [6]
        1.930882
##
  [7]
        1.828054
  [8]
        1.728342
  [9]
##
        1.697479
##
  [10] 1.667699
## [11] 1.371041
## [12] 1.284579
##
       lhs
                                                   support
                                                             confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {fins=TRUE} 0.1287129 0.6500000
  [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
  [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
   [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
  [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
## [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
  [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
##
       lift
## [1] 3.861765
  [2] 2.087440
## [3] 1.980392
  [4] 1.980392
## [5] 1.838936
## [6] 1.345172
## [7] 1.320261
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
## [1]
        {airborne=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
                                         => {fins=TRUE} 0.1485149 0.3750000
  [2]
        {hair=FALSE,airborne=FALSE}
##
  [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
##
  [4]
                                         => {fins=TRUE} 0.1287129 0.3421053
        {milk=FALSE,airborne=FALSE}
## [5]
        {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
## [6]
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [7]
        {airborne=FALSE, predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
```

```
{airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
       {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [9]
## [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
## [11] {airborne=FALSE,venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
        lift.
## [1]
       3.258065
## [2]
       2.227941
## [3]
       2.087440
## [4]
        2.032508
## [5]
        1.711864
## [6]
        1.667699
## [7]
        1.576230
## [8]
        1.553846
## [9]
       1.397924
## [10] 1.383562
## [11] 1.338857
##
       lhs
                                          rhs
                                                      support
                                                                confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
## [2] {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
## [3] {hair=FALSE, predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
## [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
  [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
       lift
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
## [4] 1.697479
## [5] 1.643304
## [6] 1.643304
## [7] 1.576230
## [8] 1.425882
##
       lhs
                                       rhs
                                                   support
                                                             confidence
## [1] {hair=FALSE,toothed=TRUE}
                                   => {fins=TRUE} 0.1485149 0.6521739
## [2] {hair=FALSE, feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
## [4] {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
## [5] {hair=FALSE,backbone=TRUE} => {fins=TRUE} 0.1485149 0.3409091
## [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
## [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
## [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
       lift
## [1] 3.874680
## [2] 2.345201
## [3] 2.227941
## [4] 2.121849
## [5] 2.025401
## [6] 1.815359
## [7] 1.599548
## [8] 1.540305
##
        lhs
                                                      support
                                                                confidence
                                          rhs
## [1] {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
```

```
{toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
## [3]
                                       => {fins=TRUE} 0.1683168 0.7391304
        {aquatic=TRUE, toothed=TRUE}
## [4]
        {hair=FALSE, toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
  [5]
        {eggs=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
##
##
  [6]
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
##
  [7]
        {predator=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
## [8]
        {toothed=TRUE.tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
## [9]
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
  [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
##
  [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
        lift
## [1]
        5.516807
##
  [2]
        5.003096
## [3]
        4.391304
## [4]
        3.874680
## [5]
        3.861765
  [6]
##
        3.677871
  [7]
        2.087440
  [8]
##
        1.828054
  [9]
        1.828054
## [10] 1.711864
## [11] 1.667699
##
       lhs
                                         rhs
                                                     support
                                                                confidence
## [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
  [2] {aquatic=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
## [3] {aquatic=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
## [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
## [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
## [6] {aquatic=TRUE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
## [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
## [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
## [1] 5.281046
## [2] 4.391304
## [3] 3.861765
## [4] 3.656109
## [5] 3.366667
## [6] 3.366667
  [7] 3.258065
  [8] 2.970588
  [1] "Número de reglas con consecuente negado"
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
## [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
## [2] {aquatic=FALSE,legs=TRUE}
                                      => {domestic=TRUE} 0.1188119 0.2000000
## [3] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
## [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
##
  [5] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
## [1] 1.612482
## [2] 1.553846
## [3] 1.335337
## [4] 1.294872
## [5] 1.238573
##
        lhs
                                              support
                                                        confidence lift
                             rhs
```

```
[1]
        {aquatic=TRUE}
                          => {domestic=FALSE} 0.3465347 0.9722222
                                                                    1.1158460
##
                             {domestic=FALSE} 0.5346535 0.9642857
  [2]
        {predator=TRUE}
                                                                    1.1067370
                          => {domestic=FALSE} 0.2178218 0.9565217
##
  [3]
        {legs=FALSE}
                                                                    1.0978261
  [4]
                             {domestic=FALSE} 0.1980198 0.9523810
##
        {breathes=FALSE}
                                                                    1.0930736
##
   [5]
        {backbone=FALSE}
                             {domestic=FALSE} 0.1683168 0.9444444
                                                                    1.0839646
                                                                    1.0802139
##
   [6]
        {fins=TRUE}
                          => {domestic=FALSE} 0.1584158 0.9411765
##
  [7]
        {hair=FALSE}
                          => {domestic=FALSE} 0.5346535 0.9310345
                                                                    1.0685737
##
  [8]
        {type=fish}
                          => {domestic=FALSE} 0.1188119 0.9230769
                                                                    1.0594406
##
   [9]
        {milk=FALSE}
                             {domestic=FALSE} 0.5445545 0.9166667
                                                                    1.0520833
##
  [10] {eggs=TRUE}
                             {domestic=FALSE} 0.5346535 0.9152542
                                                                    1.0504622
  [11] {toothed=FALSE}
                          => {domestic=FALSE} 0.3564356 0.9000000
                                                                    1.0329545
  [12] {airborne=FALSE}
                         =>
                             {domestic=FALSE} 0.6732673 0.8831169
                                                                    1.0135773
  [13] {catsize=FALSE}
                             {domestic=FALSE} 0.4950495 0.8771930
                                                                    1.0067783
  [14] {feathers=FALSE}
                             {domestic=FALSE} 0.7029703 0.8765432
                                                                    1.0060325
                          => {domestic=FALSE} 0.3762376 0.8636364
## [15] {catsize=TRUE}
                                                                    0.9912190
  [16]
        {backbone=TRUE}
                             {domestic=FALSE} 0.7029703 0.8554217
                                                                    0.9817908
                          => {domestic=FALSE} 0.6534653 0.8461538
  [17] {legs=TRUE}
                                                                    0.9711538
                         => {domestic=FALSE} 0.1980198 0.8333333
  [18] {airborne=TRUE}
                                                                    0.9564394
                          => {domestic=FALSE} 0.3366337 0.8095238
  [19] {eggs=FALSE}
                                                                    0.9291126
##
   [20] {milk=TRUE}
                          => {domestic=FALSE} 0.3267327 0.8048780
                                                                    0.9237805
##
   [21] {type=mammal}
                          => {domestic=FALSE} 0.3267327 0.8048780
                                                                    0.9237805
##
                                         rhs
                                                          support
                                                                    confidence
   [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
##
   [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
   [3] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
##
   [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
##
  [1] 1.612482
##
   [2] 1.335337
  [3] 1.294872
##
   [4] 1.238573
##
       lhs
                                     rhs
                                                      support
                                                                confidence
   [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
       lift
##
  [1] 1.553846
   [2] 1.335337
##
  [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                             support
##
  [1]
        {type=bird}
                                         => {toothed=FALSE} 0.1980198
  [2]
        {feathers=TRUE}
                                            {toothed=FALSE} 0.1980198
  [3]
        {hair=FALSE,airborne=TRUE}
##
                                            {toothed=FALSE} 0.1782178
        {eggs=TRUE,airborne=TRUE}
##
   [4]
                                            {toothed=FALSE} 0.2178218
##
   [5]
        {milk=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
##
  [6]
        {milk=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2673267
  [7]
##
        {eggs=TRUE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2574257
##
  [8]
        {hair=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2277228
  [9]
        {eggs=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
  [10] {milk=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
   [11] {hair=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3069307
##
       {eggs=TRUE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
  [12]
## [13] {milk=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
## [14] {eggs=TRUE,fins=FALSE}
                                         => {toothed=FALSE} 0.3861386
## [15] {milk=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
```

```
## [16] {eggs=TRUE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
   [17] {milk=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
  [18] {hair=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3465347
                                            {toothed=FALSE} 0.1287129
  [19] {hair=FALSE,tail=FALSE}
   [20] {eggs=TRUE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
  [21] {milk=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
  [22] {tail=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1584158
  [23] {hair=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.1683168
   [24]
       {hair=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.2772277
   [25] {tail=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.1584158
   [26] {aquatic=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1089109
   [27] {aquatic=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.1287129
##
   [28] {fins=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
  [29] {eggs=TRUE, venomous=FALSE}
                                            {toothed=FALSE} 0.3564356
  [30] {milk=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3465347
        {aquatic=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.1188119
##
   [32]
        {legs=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
   [33] {tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   [34] {milk=FALSE}
                                            {toothed=FALSE} 0.3861386
   [35] {aquatic=FALSE, catsize=FALSE}
                                            {toothed=FALSE} 0.2178218
##
   [36] {fins=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
       {hair=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3267327
       {hair=FALSE,catsize=FALSE}
##
  [38]
                                            {toothed=FALSE} 0.2673267
        {breathes=TRUE,catsize=FALSE}
##
   [39]
                                            {toothed=FALSE} 0.2475248
  [40] {predator=FALSE, catsize=FALSE}
                                            {toothed=FALSE} 0.1683168
  [41] {catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
   [42] {predator=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.2079208
   [43] {predator=FALSE,domestic=FALSE} =>
                                            {toothed=FALSE} 0.1683168
  [44] {fins=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.3564356
   [45] {predator=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.1881188
   [46]
       {legs=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.3168317
##
   [47]
        {aquatic=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.2277228
   [48]
        {breathes=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.2871287
   [49]
##
       {predator=TRUE}
                                         => {toothed=FALSE} 0.1881188
##
        confidence lift
##
  [1]
        1.0000000
                   2.5250000
##
   [2]
        1.0000000
                   2.5250000
##
  [3]
                   2.5250000
        1.0000000
   [4]
##
        1.0000000
                   2.5250000
##
   [5]
        1.0000000
                   2.5250000
   [6]
        0.9000000
                   2.2725000
   [7]
##
        0.8965517
                   2.2637931
##
   [8]
        0.8846154
                   2.2336538
##
   [9]
        0.8750000
                   2.2093750
  [10] 0.8750000
                   2.2093750
  [11] 0.8611111
                   2.1743056
##
   [12] 0.8500000
                   2.1462500
   [13] 0.8500000
                   2.1462500
  [14] 0.8478261
                   2.1407609
   [15] 0.8297872
                   2.0952128
##
  [16] 0.8205128
                   2.0717949
## [17] 0.8205128
                   2.0717949
## [18] 0.8139535
                   2.0552326
## [19] 0.8125000
                   2.0515625
```

```
## [20] 0.8076923
                   2.0394231
   [21] 0.8076923
                   2.0394231
   [22] 0.8000000
                   2.0200000
   [23] 0.7727273
                    1.9511364
   [24] 0.7567568
                    1.9108108
##
   [25] 0.6956522
                    1.7565217
   [26] 0.6875000
                    1.7359375
   [27] 0.6842105
                    1.7276316
   [28] 0.6800000
                    1.7170000
   [29] 0.6792453
                    1.7150943
   [30] 0.6730769
                    1.6995192
   [31] 0.6666667
                    1.6833333
                    1.6628049
   [32] 0.6585366
   [33] 0.6538462
                    1.6509615
   [34] 0.6500000
                    1.6412500
   [35] 0.6470588
                    1.6338235
   [36] 0.6458333
                    1.6307292
   [37] 0.6346154
                    1.6024038
                    1.5494318
   [38] 0.6136364
   [39] 0.6097561
                    1.5396341
##
   [40] 0.5862069
                    1.4801724
   [41] 0.5438596
                    1.3732456
                   1.2932927
   [42] 0.5121951
   [43] 0.5000000
                    1.2625000
   [44] 0.5000000
                    1.2625000
   [45] 0.4871795
                    1.2301282
   [46] 0.4848485
                    1.2242424
   [47] 0.4339623
                    1.0957547
                    1.0768382
##
   [48] 0.4264706
##
   [49] 0.3392857
                   0.8566964
##
        lhs
                                             support
                                                       confidence lift
##
   [1]
        {type=fish}
                          => {toothed=TRUE} 0.1287129 1.0000000
                                                                  1.6557377
##
   [2]
        {fins=TRUE}
                          => {toothed=TRUE} 0.1683168 1.0000000
                                                                   1.6557377
   [3]
##
        {eggs=FALSE}
                          => {toothed=TRUE} 0.4059406 0.9761905
                                                                   1.6163154
##
   [4]
        {legs=FALSE}
                          => {toothed=TRUE} 0.1881188 0.8260870
                                                                   1.3677833
##
   [5]
                          => {toothed=TRUE} 0.3465347 0.7954545
        {catsize=TRUE}
                                                                   1.3170641
##
   [6]
        {feathers=FALSE} => {toothed=TRUE} 0.6039604 0.7530864
                                                                   1.2469136
##
  [7]
        {tail=TRUE}
                          => {toothed=TRUE} 0.5148515 0.6933333
                                                                  1.1479781
   [8]
        {breathes=FALSE} => {toothed=TRUE} 0.1386139 0.6666667
##
                                                                   1.1038251
                          => {toothed=TRUE} 0.3663366 0.6607143
##
   [9]
        {predator=TRUE}
                                                                   1.0939696
                          => {toothed=TRUE} 0.2277228 0.6388889
   [10] {aquatic=TRUE}
                                                                   1.0578324
   [11] {domestic=FALSE} => {toothed=TRUE} 0.5148515 0.5909091
                                                                   0.9783905
   [12] {breathes=TRUE}
                          => {toothed=TRUE} 0.4653465 0.5875000
                                                                   0.9727459
   [13] {predator=FALSE} => {toothed=TRUE} 0.2376238 0.5333333
                                                                   0.8830601
  [14] {catsize=FALSE}
                          => {toothed=TRUE} 0.2574257 0.4561404
                                                                   0.7552488
                          => {toothed=TRUE} 0.2277228 0.3965517
   [15] {hair=FALSE}
                                                                   0.6565856
##
   [16] {eggs=TRUE}
                          => {toothed=TRUE} 0.1980198 0.3389831
                                                                   0.5612670
##
       lhs
                                     rhs
                                                      support
   [1] {aquatic=TRUE,fins=FALSE} => {toothed=FALSE} 0.1287129 0.6842105
##
   [2] {aquatic=TRUE,legs=TRUE} => {toothed=FALSE} 0.1188119 0.6666667
##
       lift
## [1] 1.727632
##
  [2] 1.683333
##
       lhs
                                            rhs
                                                            support
```

```
## [1] {tail=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.1584158
## [2] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
  [3] {fins=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3564356
## [4] {legs=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3168317
   [5] {aquatic=FALSE,domestic=FALSE}
                                       => {toothed=FALSE} 0.2277228
   [6] {breathes=TRUE,domestic=FALSE}
                                       => {toothed=FALSE} 0.2871287
##
       confidence lift
## [1] 0.6956522 1.756522
   [2] 0.5000000
                  1.262500
  [3] 0.5000000
                  1.262500
  [4] 0.4848485
                  1.224242
  [5] 0.4339623
                  1.095755
##
   [6] 0.4264706
                  1.076838
##
       lhs
                                                          support
                                                                    confidence
## [1] {eggs=TRUE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
  [2] {milk=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
  [3] {hair=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.2772277 0.7567568
  [4] {breathes=TRUE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2475248 0.6097561
   [5] {breathes=TRUE,domestic=FALSE} => {toothed=FALSE} 0.2871287 0.4264706
##
##
       lift
## [1] 2.071795
## [2] 2.071795
## [3] 1.910811
## [4] 1.539634
## [5] 1.076838
       lhs
                                           rhs
                                                           support
  [1] {eggs=TRUE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
##
  [2] {milk=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [3] {hair=FALSE, predator=FALSE}
                                        => {toothed=FALSE} 0.1683168
## [4] {predator=FALSE,catsize=FALSE}
                                        => {toothed=FALSE} 0.1683168
## [5] {predator=FALSE,fins=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [6] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
##
   [7] {predator=FALSE,legs=TRUE}
                                        => {toothed=FALSE} 0.1881188
##
       confidence lift
   [1] 0.8076923
                  2.039423
  [2] 0.8076923
                  2.039423
  [3] 0.7727273
                  1.951136
## [4] 0.5862069
                  1.480172
  [5] 0.5121951
                  1.293293
##
  [6] 0.5000000
                  1.262500
  [7] 0.4871795
                 1.230128
##
       lhs
                                                          support
                                                                    confidence
## [1] {tail=FALSE, catsize=FALSE}
                                       => {toothed=FALSE} 0.1584158 0.8000000
  [2] {legs=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6585366
## [3] {aquatic=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2178218 0.6470588
## [4] {fins=FALSE, catsize=FALSE}
                                       => {toothed=FALSE} 0.3069307 0.6458333
## [5] {hair=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6136364
  [6] {breathes=TRUE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2475248 0.6097561
##
   [7] {predator=FALSE, catsize=FALSE} => {toothed=FALSE} 0.1683168 0.5862069
##
       lift
## [1] 2.020000
## [2] 1.662805
## [3] 1.633824
## [4] 1.630729
```

```
[5] 1.549432
   [6] 1.539634
   [7] 1.480172
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
##
  [1] {hair=FALSE,airborne=TRUE}
                                    => {toothed=FALSE} 0.1782178 1.0000000
                                    => {toothed=FALSE} 0.2277228 0.8846154
  [2] {hair=FALSE,aquatic=FALSE}
  [3] {hair=FALSE,legs=TRUE}
                                    => {toothed=FALSE} 0.3069307 0.8611111
## [4] {hair=FALSE,fins=FALSE}
                                    => {toothed=FALSE} 0.3465347 0.8139535
  [5] {hair=FALSE,tail=FALSE}
                                      {toothed=FALSE} 0.1287129 0.8125000
  [6] {hair=FALSE, predator=FALSE} =>
                                      {toothed=FALSE} 0.1683168 0.7727273
  [7] {hair=FALSE,breathes=TRUE}
                                   => {toothed=FALSE} 0.2772277 0.7567568
   [8] {hair=FALSE, venomous=FALSE} => {toothed=FALSE} 0.3267327 0.6346154
   [9] {hair=FALSE, catsize=FALSE} => {toothed=FALSE} 0.2673267 0.6136364
##
       lift
## [1] 2.525000
##
   [2] 2.233654
  [3] 2.174306
  [4] 2.055233
  [5] 2.051563
   [6] 1.951136
##
  [7] 1.910811
  [8] 1.602404
## [9] 1.549432
##
                                      rhs
                                                      support
                                                                 confidence
  [1] {eggs=TRUE,airborne=TRUE}
                                  => {toothed=FALSE} 0.2178218 1.0000000
  [2] {eggs=TRUE,aquatic=FALSE}
                                   => {toothed=FALSE} 0.2574257 0.8965517
                                   => {toothed=FALSE} 0.3465347 0.8750000
  [3] {eggs=TRUE,legs=TRUE}
  [4] {eggs=TRUE,tail=FALSE}
                                   => {toothed=FALSE} 0.1683168 0.8500000
  [5] {eggs=TRUE,fins=FALSE}
                                   => {toothed=FALSE} 0.3861386 0.8478261
  [6] {eggs=TRUE,breathes=TRUE}
                                  => {toothed=FALSE} 0.3168317 0.8205128
   [7] {eggs=TRUE,predator=FALSE} => {toothed=FALSE} 0.2079208 0.8076923
##
   [8] {eggs=TRUE, venomous=FALSE} => {toothed=FALSE} 0.3564356 0.6792453
##
       lift
  [1] 2.525000
##
   [2] 2.263793
##
   [3] 2.209375
  [4] 2.146250
  [5] 2.140761
##
   [6] 2.071795
##
  [7] 2.039423
  [8] 1.715094
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                                         support
                                                                   confidence
##
  [1]
        {type=fish}
                                           {hair=FALSE} 0.1287129 1.0000000
## [2]
        {breathes=FALSE}
                                           {hair=FALSE} 0.2079208 1.0000000
## [3]
                                            {hair=FALSE} 0.1287129 1.0000000
        {eggs=TRUE,fins=TRUE}
##
  [4]
        {milk=FALSE,fins=TRUE}
                                            {hair=FALSE} 0.1287129 1.0000000
##
  [5]
        {airborne=FALSE,backbone=FALSE} =>
                                            {hair=FALSE} 0.1188119 1.0000000
  [6]
        {legs=FALSE,catsize=FALSE}
                                         => {hair=FALSE} 0.1584158 1.0000000
   [7]
        {eggs=TRUE,legs=FALSE}
                                           {hair=FALSE} 0.1881188 1.0000000
##
                                           {hair=FALSE} 0.1980198 1.0000000
##
  [8]
        {milk=FALSE,legs=FALSE}
        {aquatic=TRUE, catsize=FALSE}
                                         => {hair=FALSE} 0.2277228 1.0000000
## [10] {milk=FALSE,aquatic=TRUE}
                                         => {hair=FALSE} 0.2970297 1.0000000
## [11] {milk=FALSE,catsize=TRUE}
                                           {hair=FALSE} 0.1188119 1.0000000
```

```
## [12] {milk=FALSE,predator=TRUE}
                                         => {hair=FALSE} 0.3366337 1.0000000
                                           {hair=FALSE} 0.1980198 1.0000000
  [13] {eggs=TRUE,toothed=TRUE}
                                           {hair=FALSE} 0.2079208 1.0000000
  [14] {milk=FALSE,toothed=TRUE}
  [15] {milk=FALSE,tail=TRUE}
                                           {hair=FALSE} 0.3960396 1.0000000
  [16] {milk=FALSE,airborne=FALSE}
                                            {hair=FALSE} 0.3762376 1.0000000
## [17] {milk=FALSE,backbone=TRUE}
                                           {hair=FALSE} 0.4158416 1.0000000
## [18] {eggs=TRUE,backbone=TRUE}
                                           {hair=FALSE} 0.4059406 0.9761905
## [19] {eggs=TRUE,tail=TRUE}
                                           {hair=FALSE} 0.3762376 0.9743590
  [20] {eggs=TRUE,airborne=FALSE}
                                            {hair=FALSE} 0.3564356 0.9729730
  [21] {eggs=TRUE,predator=TRUE}
                                           {hair=FALSE} 0.3168317 0.9696970
  [22] {eggs=TRUE,aquatic=TRUE}
                                         => {hair=FALSE} 0.2871287 0.9666667
  [23] {milk=FALSE, venomous=FALSE}
                                           {hair=FALSE} 0.4950495 0.9615385
  [24] {legs=FALSE}
                                           {hair=FALSE} 0.2178218 0.9565217
## [25] {toothed=FALSE,tail=TRUE}
                                         => {hair=FALSE} 0.2178218 0.9565217
                                         => {hair=FALSE} 0.2079208 0.9545455
## [26] {toothed=FALSE,backbone=TRUE}
  [27] {predator=TRUE, toothed=FALSE}
                                           {hair=FALSE} 0.1782178 0.9473684
                                         => {hair=FALSE} 0.5148515 0.9454545
  [28]
       {milk=FALSE,domestic=FALSE}
  [29] {airborne=FALSE,toothed=FALSE}
                                         => {hair=FALSE} 0.1683168 0.9444444
  [30] {predator=TRUE, catsize=FALSE}
                                           {hair=FALSE} 0.2574257 0.9285714
  [31] {eggs=TRUE,domestic=FALSE}
                                            {hair=FALSE} 0.4950495 0.9259259
##
  [32] {aquatic=TRUE,toothed=FALSE}
                                           {hair=FALSE} 0.1188119 0.9230769
  [33] {eggs=TRUE,catsize=TRUE}
                                           {hair=FALSE} 0.1188119 0.9230769
  [34] {aquatic=TRUE,fins=FALSE}
                                           {hair=FALSE} 0.1683168 0.8947368
##
       {aquatic=TRUE}
  [35]
                                            {hair=FALSE} 0.3168317 0.8888889
  [36]
       {airborne=TRUE,backbone=TRUE}
                                           {hair=FALSE} 0.1584158 0.8888889
  [37] {toothed=FALSE,domestic=FALSE}
                                           {hair=FALSE} 0.3168317 0.8888889
  [38] {toothed=FALSE}
                                           {hair=FALSE} 0.3465347 0.8750000
  [39] {backbone=FALSE, venomous=FALSE}
                                            {hair=FALSE} 0.1188119 0.8571429
## [40] {airborne=FALSE, catsize=FALSE}
                                           {hair=FALSE} 0.2871287 0.8055556
## [41] {domestic=FALSE,catsize=FALSE}
                                           {hair=FALSE} 0.3960396 0.8000000
## [42] {tail=TRUE,catsize=FALSE}
                                           {hair=FALSE} 0.2871287 0.7837838
  [43]
       {venomous=FALSE, catsize=FALSE}
                                        => {hair=FALSE} 0.3861386 0.7800000
## [44] {backbone=FALSE}
                                         => {hair=FALSE} 0.1386139 0.7777778
## [45] {backbone=TRUE,catsize=FALSE}
                                         => {hair=FALSE} 0.3069307 0.7750000
  [46] {catsize=FALSE}
                                            {hair=FALSE} 0.4356436 0.7719298
                                           {hair=FALSE} 0.1782178 0.7500000
## [47] {airborne=TRUE}
## [48] {tail=FALSE,domestic=FALSE}
                                           {hair=FALSE} 0.1584158 0.6956522
  [49] {predator=TRUE}
                                           {hair=FALSE} 0.3564356 0.6428571
       {venomous=FALSE,tail=FALSE}
                                            {hair=FALSE} 0.1386139 0.6363636
  [50]
                                           {hair=FALSE} 0.1584158 0.6153846
##
  [51] {tail=FALSE}
  [52] {backbone=TRUE}
                                           {hair=FALSE} 0.4356436 0.5301205
  [53] {breathes=TRUE}
                                         => {hair=FALSE} 0.3663366 0.4625000
##
   Γ54]
       {legs=TRUE}
                                         => {hair=FALSE} 0.3564356 0.4615385
                                        => {hair=FALSE} 0.2574257 0.4000000
##
   [55]
       {aquatic=FALSE}
##
        lift
## [1]
        1.7413793
##
   [2]
        1.7413793
  [3]
##
        1.7413793
##
  [4]
        1.7413793
##
   [5]
        1.7413793
   [6]
##
        1.7413793
##
  [7]
        1.7413793
## [8]
        1.7413793
## [9]
        1.7413793
```

```
## [10] 1.7413793
  [11] 1.7413793
  [12] 1.7413793
  [13] 1.7413793
  [14] 1.7413793
## [15] 1.7413793
  [16] 1.7413793
## [17] 1.7413793
  [18] 1.6999179
  [19] 1.6967286
  [20] 1.6943150
  [21] 1.6886102
  [22] 1.6833333
## [23] 1.6744032
## [24] 1.6656672
  [25] 1.6656672
   [26] 1.6622257
   [27] 1.6497278
  [28] 1.6463950
  [29] 1.6446360
  [30] 1.6169951
##
  [31] 1.6123883
## [32] 1.6074271
  [33] 1.6074271
  [34] 1.5580762
  [35] 1.5478927
  [36] 1.5478927
  [37] 1.5478927
  [38] 1.5237069
  [39] 1.4926108
  [40] 1.4027778
  [41] 1.3931034
  [42] 1.3648649
## [43] 1.3582759
   [44] 1.3544061
## [45] 1.3495690
## [46] 1.3442226
## [47] 1.3060345
  [48] 1.2113943
  [49] 1.1194581
  [50] 1.1081505
  [51] 1.0716180
   [52] 0.9231408
  [53] 0.8053879
## [54] 0.8037135
##
  [55] 0.6965517
##
       lhs
                           rhs
                                        support
                                                  confidence lift
##
  [1] {milk=TRUE}
                        => {hair=TRUE} 0.3861386 0.9512195 2.2342598
  [2] {type=mammal}
                        => {hair=TRUE} 0.3861386 0.9512195
                                                             2.2342598
   [3] {eggs=FALSE}
                        => {hair=TRUE} 0.3762376 0.9047619
                                                             2.1251384
                        => {hair=TRUE} 0.3762376 0.6229508
##
  [4] {toothed=TRUE}
                                                             1.4632101
## [5] {predator=FALSE} => {hair=TRUE} 0.2277228 0.5111111
## [6] {backbone=TRUE} => {hair=TRUE} 0.3861386 0.4698795
                                                             1.1036705
## [7] {domestic=FALSE} => {hair=TRUE} 0.3366337 0.3863636 0.9075053
```

```
##
                                     rhs
                                                  support
                                                            confidence
   [1] {eggs=TRUE,toothed=TRUE} => {hair=FALSE} 0.1980198 1
   [2] {milk=FALSE,toothed=TRUE} => {hair=FALSE} 0.2079208 1
##
       lift
##
  [1] 1.741379
   [2] 1.741379
##
##
       lhs
                                         rhs
                                                      support
                                                                confidence
## [1] {milk=FALSE,backbone=TRUE}
                                      => {hair=FALSE} 0.4158416 1.0000000
  [2] {eggs=TRUE,backbone=TRUE}
                                      => {hair=FALSE} 0.4059406 0.9761905
  [3] {toothed=FALSE,backbone=TRUE} => {hair=FALSE} 0.2079208 0.9545455
  [4] {airborne=TRUE, backbone=TRUE} => {hair=FALSE} 0.1584158 0.8888889
  [5] {backbone=TRUE,catsize=FALSE} => {hair=FALSE} 0.3069307 0.7750000
##
##
       lift
## [1] 1.741379
## [2] 1.699918
## [3] 1.662226
## [4] 1.547893
## [5] 1.349569
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,domestic=FALSE}
                                       => {hair=FALSE} 0.5148515 0.9454545
## [2] {eggs=TRUE,domestic=FALSE}
                                       => {hair=FALSE} 0.4950495 0.9259259
## [3] {toothed=FALSE,domestic=FALSE} => {hair=FALSE} 0.3168317 0.8888889
## [4] {domestic=FALSE,catsize=FALSE} => {hair=FALSE} 0.3960396 0.8000000
                                       => {hair=FALSE} 0.1584158 0.6956522
## [5] {tail=FALSE,domestic=FALSE}
##
       lift
## [1] 1.646395
## [2] 1.612388
## [3] 1.547893
## [4] 1.393103
## [5] 1.211394
## [1] "Número de reglas con consecuente negado"
##
                                         rhs
                                                         support
                                                                    confidence
## [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
                                      => {domestic=TRUE} 0.1188119 0.2000000
  [2] {aquatic=FALSE,legs=TRUE}
  [3] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
## [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
  [5] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
## [1] 1.612482
## [2] 1.553846
## [3] 1.335337
## [4] 1.294872
##
  [5] 1.238573
##
        lhs
                            rhs
                                              support
                                                        confidence lift
## [1]
        {aquatic=TRUE}
                         => {domestic=FALSE} 0.3465347 0.9722222 1.1158460
## [2]
                         => {domestic=FALSE} 0.5346535 0.9642857
        {predator=TRUE}
                                                                   1.1067370
## [3]
        {legs=FALSE}
                         => {domestic=FALSE} 0.2178218 0.9565217
                                                                   1.0978261
## [4]
        {breathes=FALSE} => {domestic=FALSE} 0.1980198 0.9523810
                                                                   1.0930736
## [5]
        {backbone=FALSE} => {domestic=FALSE} 0.1683168 0.9444444
                                                                   1.0839646
## [6]
        {fins=TRUE}
                         => {domestic=FALSE} 0.1584158 0.9411765
                                                                   1.0802139
## [7]
        {hair=FALSE}
                         => {domestic=FALSE} 0.5346535 0.9310345
                                                                   1.0685737
## [8]
        {type=fish}
                         => {domestic=FALSE} 0.1188119 0.9230769
                                                                   1.0594406
                         => {domestic=FALSE} 0.5445545 0.9166667
## [9]
        {milk=FALSE}
                                                                   1.0520833
## [10] {eggs=TRUE}
                         => {domestic=FALSE} 0.5346535 0.9152542 1.0504622
```

```
## [11] {toothed=FALSE}
                         => {domestic=FALSE} 0.3564356 0.9000000
                                                                   1.0329545
  [12] {airborne=FALSE} => {domestic=FALSE} 0.6732673 0.8831169
                                                                   1.0135773
  [13] {catsize=FALSE}
                         => {domestic=FALSE} 0.4950495 0.8771930
                                                                   1.0067783
  [14] {feathers=FALSE} => {domestic=FALSE} 0.7029703 0.8765432
                                                                   1.0060325
  [15] {catsize=TRUE}
                            {domestic=FALSE} 0.3762376 0.8636364
                                                                   0.9912190
  [16] {backbone=TRUE}
                         => {domestic=FALSE} 0.7029703 0.8554217
                                                                   0.9817908
  [17] {legs=TRUE}
                         => {domestic=FALSE} 0.6534653 0.8461538
                                                                   0.9711538
## [18] {airborne=TRUE}
                         => {domestic=FALSE} 0.1980198 0.8333333
                                                                   0.9564394
  [19] {eggs=FALSE}
                         => {domestic=FALSE} 0.3366337 0.8095238
                                                                   0.9291126
  [20] {milk=TRUE}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                   0.9237805
   [21] {type=mammal}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                   0.9237805
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
##
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
   [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
                                      => {domestic=TRUE} 0.1089109 0.1666667
  [3] {backbone=TRUE,fins=FALSE}
##
   [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
##
  [1] 1.612482
  [2] 1.335337
##
   [3] 1.294872
##
   [4] 1.238573
##
                                    rhs
                                                     support
                                                               confidence
   [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
##
       lift
  [1] 1.553846
   [2] 1.335337
##
##
       "Número de reglas con consecuente negado"
##
                                                        support
                                                                  confidence
## [1]
                                         => {fins=TRUE} 0.1287129 1.0000000
        {type=fish}
##
  [2]
        {toothed=TRUE,breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.9285714
##
   [3]
        {breathes=FALSE, tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.9285714
##
  [4]
        {backbone=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
                                         => {fins=TRUE} 0.1584158 0.8888889
##
  [5]
        {aquatic=TRUE,legs=FALSE}
   [6]
        {toothed=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1584158 0.8421053
##
   [7]
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
  [8]
        {legs=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.8333333
  [9]
        {breathes=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1287129 0.8125000
##
  [10] {venomous=FALSE,legs=FALSE}
                                           {fins=TRUE} 0.1485149 0.7894737
                                         => {fins=TRUE} 0.1683168 0.7391304
  [11] {aquatic=TRUE, toothed=TRUE}
  [12] {predator=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1188119 0.7058824
  [13] {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
## [14] {hair=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1485149 0.6521739
## [15] {aquatic=TRUE,breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6500000
## [16] {eggs=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6500000
                                         => {fins=TRUE} 0.1287129 0.6190476
## [17] {breathes=FALSE}
## [18] {milk=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.6190476
## [19] {aquatic=TRUE, tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.6153846
## [20] {feathers=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
## [21] {aquatic=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
                                         => {fins=TRUE} 0.1683168 0.5483871
## [22] {airborne=FALSE,aquatic=TRUE}
## [23] {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
## [24] {hair=FALSE,feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
## [25] {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
```

```
## [26] {hair=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3571429
                                         => {fins=TRUE} 0.1287129 0.3513514
  [27] {predator=TRUE,toothed=TRUE}
  [28] {eggs=TRUE,airborne=FALSE}
                                           {fins=TRUE} 0.1287129 0.3513514
  [29] {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
  [30] {hair=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1485149 0.3409091
  [31] {eggs=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
  [32] {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
## [33] {milk=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3250000
  Γ341
       {feathers=FALSE,milk=FALSE}
                                           {fins=TRUE} 0.1287129 0.3250000
  [35] {eggs=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [36] {milk=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
                                         => {fins=TRUE} 0.1584158 0.3076923
  [37] {toothed=TRUE,tail=TRUE}
  [38] {toothed=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.3076923
## [39] {hair=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1089109 0.3055556
                                         => {fins=TRUE} 0.1584158 0.2909091
## [40] {feathers=FALSE,tail=TRUE}
## [41] {airborne=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
                                         => {fins=TRUE} 0.1188119 0.2857143
## [42] {predator=TRUE,tail=TRUE}
  [43] {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [44] {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [45] {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
## [46] {predator=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
## [47] {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
## [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
## [49] {airborne=FALSE,predator=TRUE}
                                           {fins=TRUE} 0.1287129 0.2653061
  [50] {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
  [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
  [52] {hair=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2586207
##
  [53] {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
## [54] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [57]
       {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
  [58] {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
  [59] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [60] {feathers=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
  [61] {backbone=TRUE,domestic=FALSE}
##
                                         => {fins=TRUE} 0.1584158 0.2253521
  [62] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
  [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
       {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
##
  [64]
##
   [65] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
   [66] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
##
  Г17
        5.941176
##
   [2]
        5.516807
##
  [3]
        5.516807
  [4]
        5.516807
##
##
   [5]
        5.281046
##
   [6]
        5.003096
##
  [7]
        5.003096
##
   [8]
        4.950980
##
  [9]
        4.827206
## [10] 4.690402
## [11] 4.391304
## [12] 4.193772
```

- ## [13] 3.960784
- ## [14] 3.874680
- ## [15] 3.861765
- ## [16] 3.861765
- ## [17] 3.677871
- ## [17] 5.077071
- ## [18] 3.677871
- ## [19] 3.656109
- ## [20] 3.366667
- ## [21] 3.366667
- ## [22] 3.258065
- ## [23] 2.970588
- ## [24] 2.345201
- ## [25] 2.227941
- ## [26] 2.121849
- ## [27] 2.087440
- ## [28] 2.087440
- ## [29] 2.032508
- ## [30] 2.025401
- ## [31] 1.980392
- ## [32] 1.980392
- ## [33] 1.930882
- ## [34] 1.930882
- ## [35] 1.838936
- ## [36] 1.838936
- ... [00] 1.000000
- ## [37] 1.828054
- ## [38] 1.828054
- ## [39] 1.815359
- ## [40] 1.728342
- ## [41] 1.711864
- ## [42] 1.697479
- ## [43] 1.667699
- ## [44] 1.667699 ## [45] 1.643304
- ## [46] 1.643304
- ## [47] 1.603175
- ## [48] 1.599548
- ## [49] 1.576230
- ## [50] 1.553846
- ## [51] 1.540305
- ## [52] 1.536511
- ## [53] 1.425882
- ## [54] 1.397924
- "" [51] 1.00,02
- ## [55] 1.383562
- ## [56] 1.371041
- ## [57] 1.371041
- ## [58] 1.345172
- ## [59] 1.338857
- ## [60] 1.338857
- ## [61] 1.338857 ## [62] 1.320261
- ## [63] 1.302176
- ## [64] 1.296257
- ## [65] 1.284579
- ## [66] 1.100218

```
##
                                          support
                                                     confidence lift
## [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000 1.2023810
##
  [2]
        {type=bird}
                          => {fins=FALSE} 0.1980198 1.0000000
##
  [3]
        {feathers=TRUE}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
   [4]
        {airborne=TRUE}
                         => {fins=FALSE} 0.2376238 1.0000000
                                                                1.2023810
  [5]
                         => {fins=FALSE} 0.3960396 1.0000000
##
        {toothed=FALSE}
                                                                1.2023810
  [6]
                          => {fins=FALSE} 0.7623762 0.9871795
        {legs=TRUE}
                                                                1.1869658
## [7]
                          => {fins=FALSE} 0.4059406 0.9534884
        {hair=TRUE}
                                                                1.1464563
## [8]
        {breathes=TRUE}
                         => {fins=FALSE} 0.7524752 0.9500000
                                                                1.1422619
##
  [9]
        {domestic=TRUE}
                          => {fins=FALSE} 0.1188119 0.9230769
                                                                1.1098901
  [10] {predator=FALSE} => {fins=FALSE} 0.4059406 0.9111111
                                                                1.0955026
                         => {fins=FALSE} 0.3762376 0.9047619
  [11] {eggs=FALSE}
                                                                1.0878685
## [12] {milk=TRUE}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
## [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
## [14] {catsize=FALSE}
                         => {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
## [15]
       {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
                          => {fins=FALSE} 0.3564356 0.8181818
## [16] {catsize=TRUE}
                                                                0.9837662
## [17] {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                0.9837662
                         => {fins=FALSE} 0.6534653 0.7951807
## [18] {backbone=TRUE}
                                                                0.9561102
## [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
## [20] {tail=TRUE}
                          => {fins=FALSE} 0.5841584 0.7866667
                                                                0.9458730
                          => {fins=FALSE} 0.4554455 0.7796610
## [21] {eggs=TRUE}
                                                                0.9374496
## [22] {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                0.9369202
                         => {fins=FALSE} 0.4257426 0.7678571
## [23] {predator=TRUE}
                                                                0.9232568
## [24] {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
                                                                0.8914204
  [25] {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115
                                                                0.8672912
##
   [26] {aquatic=TRUE}
                         => {fins=FALSE} 0.1881188 0.5277778
                                                               0.6345899
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
## [1]
        {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
  [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
                                         => {fins=TRUE} 0.1584158 0.5000000
## [3]
        {aquatic=TRUE, venomous=FALSE}
##
  [4]
        {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
  [5]
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
                                         => {fins=TRUE} 0.1188119 0.2400000
##
  [6]
        {predator=TRUE, venomous=FALSE}
##
   [7]
        {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
                                         => {fins=TRUE} 0.1188119 0.2264151
##
  [8]
        {eggs=TRUE, venomous=FALSE}
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
## [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
  [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
        lift
  [1]
        4.690402
##
##
  [2]
        3.960784
   [3]
        2.970588
##
  [4]
        1.667699
  [5]
##
        1.599548
## [6]
        1.425882
##
  [7]
        1.371041
##
  [8]
        1.345172
  [9]
        1.338857
##
  [10]
       1.302176
##
  [11] 1.100218
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
## [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
```

```
## [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
## [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
## [6] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
  [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
  [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
       lift
## [1] 1.828054
##
  [2] 1.540305
## [3] 1.397924
## [4] 1.371041
  [5] 1.338857
## [6] 1.338857
## [7] 1.320261
## [8] 1.296257
##
  [9] 1.100218
##
        lhs
                                           rhs
                                                       support
                                                                  confidence
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
## [1]
  [2]
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
##
  [3]
        {aquatic=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
## [4]
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
## [5]
                                        => {fins=TRUE} 0.1287129 0.3095238
        {eggs=TRUE,backbone=TRUE}
        {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
##
  [6]
##
  [7]
        {predator=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
  [8]
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
  [9]
  [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [11] {backbone=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
##
        lift
## [1]
        5.516807
##
   [2]
        5.003096
##
  [3]
        3.366667
  [4]
##
        2.025401
   [5]
##
        1.838936
##
   [6]
        1.838936
##
  [7]
        1.643304
## [8]
        1.603175
  [9]
##
        1.553846
## [10] 1.338857
  [11] 1.284579
##
        lhs
                                                         support
                                                                   confidence
## [1]
        {feathers=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
##
  [2]
        {hair=FALSE, feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
## [3]
        {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
## [4]
        {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
##
  [5]
        {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
##
  [6]
        {feathers=FALSE, predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
  [7]
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
  [8]
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
## [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
        lift
## [1]
      3.366667
```

```
## [2]
        2.345201
##
  [3]
        1.980392
## [4]
        1.930882
  [5]
##
        1.728342
  [6]
        1.643304
  [7]
##
        1.603175
## [8]
        1.383562
## [9]
        1.338857
## [10] 1.302176
##
        lhs
                                       rhs
                                                   support
                                                              confidence
## [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
## [2]
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.8333333
## [3]
        {aquatic=TRUE, tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
## [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
## [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
## [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
## [7]
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
## [8]
        {feathers=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
        {predator=TRUE, tail=TRUE} => {fins=TRUE} 0.1188119 0.2857143
## [9]
## [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
## [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
## [12] {backbone=TRUE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
        lift
## [1]
        5.516807
## [2]
        4.950980
## [3]
        3.656109
## [4]
        2.121849
##
  [5]
        1.980392
## [6]
        1.930882
## [7]
        1.828054
## [8]
        1.728342
## [9]
        1.697479
## [10] 1.667699
## [11] 1.371041
## [12] 1.284579
##
       lhs
                                      rhs
                                                  support
                                                             confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {fins=TRUE} 0.1287129 0.6500000
## [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
## [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
## [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
  [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
  [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
       lift
## [1] 3.861765
## [2] 2.087440
## [3] 1.980392
## [4] 1.980392
## [5] 1.838936
## [6] 1.345172
## [7] 1.320261
##
        lhs
                                                         support
                                                                   confidence
## [1]
        {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
## [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
```

```
{eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
  ۲4٦
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
  [5]
        {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
  [6]
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
##
  [7]
        {airborne=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2653061
        {airborne=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2615385
  [8]
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
##
  [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
        lift
## [1]
        3.258065
## [2]
        2.227941
##
  [3]
        2.087440
## [4]
        2.032508
## [5]
        1.711864
## [6]
        1.667699
  [7]
##
        1.576230
  [8]
        1.553846
## [9]
        1.397924
  [10] 1.383562
##
  [11] 1.338857
##
                                                      support
                                                                confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
## [2] {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
## [3] {hair=FALSE,predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
## [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
## [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
## [4] 1.697479
## [5] 1.643304
## [6] 1.643304
## [7] 1.576230
## [8] 1.425882
##
                                                             confidence
       lhs
                                                   support
                                       rhs
## [1] {hair=FALSE,toothed=TRUE}
                                   => {fins=TRUE} 0.1485149 0.6521739
## [2] {hair=FALSE, feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
## [4] {hair=FALSE,tail=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3571429
## [5] {hair=FALSE,backbone=TRUE} => {fins=TRUE} 0.1485149 0.3409091
## [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
  [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
  [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
       lift
## [1] 3.874680
## [2] 2.345201
## [3] 2.227941
## [4] 2.121849
## [5] 2.025401
```

```
[6] 1.815359
   [7] 1.599548
##
   [8] 1.540305
##
        lhs
                                           rhs
                                                       support
                                                                  confidence
##
   [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
##
   [2]
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
##
   [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
##
   [4]
        {hair=FALSE,toothed=TRUE}
                                          {fins=TRUE} 0.1485149 0.6521739
##
   [5]
        {eggs=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
##
   [6]
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
   [7]
        {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
##
   [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
##
   [9]
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
   [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
   [11] {toothed=TRUE,venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
##
        lift
        5.516807
##
   [1]
   [2]
        5.003096
   [3]
##
        4.391304
##
   [4]
        3.874680
##
   [5]
        3.861765
   [6]
##
        3.677871
   [7]
##
        2.087440
##
   [8]
        1.828054
##
   [9]
        1.828054
   「10〕 1.711864
##
   [11] 1.667699
##
       lhs
                                                                 confidence
                                          rhs
                                                      support
##
  [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
                                      => {fins=TRUE} 0.1683168 0.7391304
   [2] {aquatic=TRUE, toothed=TRUE}
   [3] {aquatic=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
##
   [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
   [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
   [6] {aquatic=TRUE, backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
   [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
   [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
##
       lift
## [1] 5.281046
   [2] 4.391304
##
   [3] 3.861765
   [4] 3.656109
##
   [5] 3.366667
##
   [6] 3.366667
##
   [7] 3.258065
##
   [8] 2.970588
##
       "Número de reglas con consecuente negado"
##
        lhs
                                             rhs
                                                             support
##
   [1]
        {backbone=FALSE,breathes=TRUE}
                                            {catsize=FALSE} 0.1089109
##
   [2]
        {eggs=TRUE,tail=FALSE}
                                          => {catsize=FALSE} 0.1881188
##
   [3]
        {milk=FALSE,tail=FALSE}
                                            {catsize=FALSE} 0.1881188
##
   [4]
        {backbone=FALSE}
                                            {catsize=FALSE} 0.1683168
##
  [5]
        {hair=FALSE,tail=FALSE}
                                            {catsize=FALSE} 0.1485149
## [6]
        {predator=FALSE,tail=FALSE}
                                          =>
                                            {catsize=FALSE} 0.1089109
## [7]
        {airborne=TRUE}
                                            {catsize=FALSE} 0.2079208
```

```
{feathers=FALSE, toothed=FALSE}
                                         => {catsize=FALSE} 0.1683168
                                           {catsize=FALSE} 0.3366337
  [9]
        {feathers=FALSE,milk=FALSE}
                                            {catsize=FALSE} 0.2178218
  [10] {eggs=TRUE,predator=FALSE}
                                            {catsize=FALSE} 0.2178218
  [11] {milk=FALSE,predator=FALSE}
  [12] {milk=FALSE,aquatic=FALSE}
                                            {catsize=FALSE} 0.2475248
  [13] {milk=FALSE,fins=FALSE}
##
                                            {catsize=FALSE} 0.3861386
  [14] {eggs=TRUE,aquatic=FALSE}
                                            {catsize=FALSE} 0.2376238
  [15] {feathers=FALSE,eggs=TRUE}
                                            {catsize=FALSE} 0.3168317
   [16] {milk=FALSE,breathes=TRUE}
                                            {catsize=FALSE} 0.3168317
  [17] {hair=FALSE,predator=FALSE}
                                            {catsize=FALSE} 0.1782178
  [18] {hair=FALSE,fins=FALSE}
                                           {catsize=FALSE} 0.3465347
  [19] {milk=FALSE,toothed=TRUE}
                                           {catsize=FALSE} 0.1683168
  [20] {hair=FALSE,aquatic=FALSE}
                                            {catsize=FALSE} 0.2079208
  [21]
       {eggs=TRUE,fins=FALSE}
                                            {catsize=FALSE} 0.3663366
                                           {catsize=FALSE} 0.4752475
## [22] {milk=FALSE}
  [23]
        {eggs=TRUE,toothed=TRUE}
                                            {catsize=FALSE} 0.1584158
  [24]
                                            {catsize=FALSE} 0.3069307
       {eggs=TRUE,breathes=TRUE}
       {hair=FALSE, feathers=FALSE}
                                            {catsize=FALSE} 0.2970297
  [26] {eggs=TRUE}
                                            {catsize=FALSE} 0.4554455
   [27] {breathes=FALSE, venomous=FALSE}
                                            {catsize=FALSE} 0.1386139
##
  [28] {hair=FALSE,legs=TRUE}
                                            {catsize=FALSE} 0.2772277
  [29] {tail=FALSE}
                                            {catsize=FALSE} 0.1980198
  [30] {breathes=FALSE}
                                            {catsize=FALSE} 0.1584158
                                            {catsize=FALSE} 0.1386139
##
   [31] {aquatic=TRUE,fins=FALSE}
       {type=bird}
  [32]
                                            {catsize=FALSE} 0.1386139
  [33] {feathers=TRUE}
                                            {catsize=FALSE} 0.1386139
  [34] {legs=FALSE}
                                            {catsize=FALSE} 0.1584158
##
   [35] {aquatic=TRUE,legs=TRUE}
                                            {catsize=FALSE} 0.1188119
   [36] {predator=FALSE,domestic=FALSE} =>
                                           {catsize=FALSE} 0.2178218
  [37] {aquatic=TRUE}
                                         => {catsize=FALSE} 0.2277228
  [38]
        {fins=FALSE,domestic=FALSE}
                                           {catsize=FALSE} 0.4158416
   [39]
       {predator=TRUE}
                                         => {catsize=FALSE} 0.2772277
   [40] {airborne=FALSE}
                                         => {catsize=FALSE} 0.3564356
##
   [41] {hair=TRUE}
                                         => {catsize=FALSE} 0.1287129
        {eggs=FALSE}
   [42]
                                         => {catsize=FALSE} 0.1089109
##
##
        confidence lift
##
  [1]
        1.0000000
                  1.7719298
##
  [2]
        0.9500000
                   1.6833333
   [3]
        0.9500000
##
                   1.6833333
  [4]
##
        0.944444
                   1.6734893
  [5]
        0.9375000
                   1.6611842
   [6]
        0.9166667
##
                   1.6242690
##
   [7]
        0.8750000
                   1.5504386
##
   [8]
        0.8500000
                   1.5061404
  [9]
        0.8500000
                   1.5061404
  [10] 0.8461538
                   1.4993252
  [11] 0.8461538
                   1.4993252
  [12] 0.8333333
                   1.4766082
  [13] 0.8297872
                   1.4703247
  [14] 0.8275862
                   1.4664247
  [15] 0.8205128
                   1.4538911
## [16] 0.8205128
                   1.4538911
## [17] 0.8181818
                   1.4497608
## [18] 0.8139535
                   1.4422685
```

```
## [19] 0.8095238
                   1.4344194
  [20] 0.8076923
                   1.4311741
  [21] 0.8043478
                   1.4252479
  [22] 0.8000000
                   1.4175439
  [23] 0.8000000
                   1.4175439
  [24] 0.7948718
                   1.4084570
  [25] 0.7894737
                   1.3988920
## [26] 0.7796610
                   1.3815046
   [27] 0.7777778
                   1.3781676
  [28] 0.7777778
                   1.3781676
  [29] 0.7692308
                   1.3630229
  [30] 0.7619048
                   1.3500418
  [31] 0.7368421
                   1.3056325
  [32] 0.7000000
                   1.2403509
## [33] 0.7000000
                   1.2403509
  [34] 0.6956522
                   1.2326468
  [35] 0.6666667
                   1.1812865
   [36] 0.6470588
                   1.1465428
  [37] 0.6388889
                   1.1320663
  [38] 0.5833333
                   1.0336257
##
  [39] 0.5000000
                   0.8859649
  [40] 0.4675325
                   0.8284347
  [41] 0.3023256
                   0.5356997
   [42] 0.2619048
##
                   0.4640769
##
       lhs
                           rhs
                                          support
                                                    confidence lift
  [1] {milk=TRUE}
                       => {catsize=TRUE} 0.3168317 0.7804878
                                                               1.7915743
   [2] {type=mammal}
                       => {catsize=TRUE} 0.3168317 0.7804878
                                                                1.7915743
##
   [3] {eggs=FALSE}
                       => {catsize=TRUE} 0.3069307 0.7380952
                                                                1.6942641
  [4] {hair=TRUE}
                       => {catsize=TRUE} 0.2970297 0.6976744
                                                                1.6014799
  [5] {aquatic=FALSE} => {catsize=TRUE} 0.3069307 0.4769231
                                                                1.0947552
   [6] {aquatic=TRUE}
                       => {catsize=TRUE} 0.1287129 0.3611111
                                                                0.8289141
   [7] {hair=FALSE}
                       => {catsize=TRUE} 0.1386139 0.2413793
                                                                0.5540752
##
   [8] {milk=FALSE}
                       => {catsize=TRUE} 0.1188119 0.2000000
                                                                0.4590909
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
   [1] {milk=FALSE, aquatic=FALSE} => {catsize=FALSE} 0.2475248 0.8333333
   [2] {eggs=TRUE,aquatic=FALSE} => {catsize=FALSE} 0.2376238 0.8275862
   [3] {hair=FALSE,aquatic=FALSE} => {catsize=FALSE} 0.2079208 0.8076923
##
       lift
   [1] 1.476608
##
   [2] 1.466425
##
   [3] 1.431174
##
       lhs
                                     rhs
                                                     support
                                                                confidence
##
   [1] {aquatic=TRUE,fins=FALSE} => {catsize=FALSE} 0.1386139 0.7368421
   [2] {aquatic=TRUE,legs=TRUE} => {catsize=FALSE} 0.1188119 0.6666667
##
##
       lift
## [1] 1.305633
##
   [2] 1.181287
##
       lhs
                                       rhs
                                                        support
                                                                  confidence
  [1] {hair=FALSE,tail=FALSE}
                                    => {catsize=FALSE} 0.1485149 0.9375000
   [2] {hair=FALSE, predator=FALSE} => {catsize=FALSE} 0.1782178 0.8181818
  [3] {hair=FALSE,fins=FALSE}
                                    => {catsize=FALSE} 0.3465347 0.8139535
## [4] {hair=FALSE,aquatic=FALSE}
                                    => {catsize=FALSE} 0.2079208 0.8076923
## [5] {hair=FALSE,feathers=FALSE} => {catsize=FALSE} 0.2970297 0.7894737
## [6] {hair=FALSE,legs=TRUE}
                                    => {catsize=FALSE} 0.2772277 0.7777778
```

```
##
       lift
  Γ1] 1.661184
##
   [2] 1.449761
   [3] 1.442268
   [4] 1.431174
   [5] 1.398892
##
##
   [6] 1.378168
##
       lhs
                                       rhs
                                                        support
                                                                  confidence
##
   [1] {milk=FALSE,tail=FALSE}
                                       {catsize=FALSE} 0.1881188 0.9500000
   [2] {feathers=FALSE,milk=FALSE} =>
                                       {catsize=FALSE} 0.3366337 0.8500000
   [3] {milk=FALSE,predator=FALSE} =>
                                       {catsize=FALSE} 0.2178218 0.8461538
   [4] {milk=FALSE, aquatic=FALSE}
                                       {catsize=FALSE} 0.2475248 0.8333333
   [5] {milk=FALSE,fins=FALSE}
                                       {catsize=FALSE} 0.3861386 0.8297872
   [6] {milk=FALSE,breathes=TRUE}
                                      {catsize=FALSE} 0.3168317 0.8205128
                                    => {catsize=FALSE} 0.1683168 0.8095238
##
   [7] {milk=FALSE,toothed=TRUE}
##
       lift
##
   [1] 1.683333
   [2] 1.506140
   [3] 1.499325
   [4] 1.476608
##
   [5] 1.470325
  [6] 1.453891
   [7] 1.434419
##
   Г1]
       "Número de reglas con consecuente negado"
        lhs
##
                                            rhs
                                                             support
##
  [1]
        {type=bird}
                                            {toothed=FALSE} 0.1980198
##
   [2]
        {feathers=TRUE}
                                            {toothed=FALSE} 0.1980198
##
   [3]
        {hair=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.1782178
   [4]
##
        {eggs=TRUE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
##
   [5]
        {milk=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
##
   [6]
        {milk=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2673267
##
   [7]
        {eggs=TRUE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2574257
   [8]
        {hair=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2277228
   [9]
##
        {eggs=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
       {milk=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
   [10]
##
  [11] {hair=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3069307
  [12] {eggs=TRUE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
  [13] {milk=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   [14] {eggs=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
   [15] {milk=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
   [16] {eggs=TRUE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
   [17] {milk=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
   [18] {hair=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3465347
  [19] {hair=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1287129
  [20] {eggs=TRUE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
       {milk=FALSE, predator=FALSE}
   [21]
                                            {toothed=FALSE} 0.2079208
   [22] {tail=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1584158
  [23] {hair=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.1683168
                                            {toothed=FALSE} 0.2772277
  [24] {hair=FALSE,breathes=TRUE}
   [25] {tail=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.1584158
  [26] {aquatic=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1089109
  [27] {aquatic=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.1287129
## [28] {fins=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
## [29] {eggs=TRUE, venomous=FALSE}
                                            {toothed=FALSE} 0.3564356
```

```
## [30] {milk=FALSE, venomous=FALSE}
                                          => {toothed=FALSE} 0.3465347
   [31] {aquatic=TRUE,legs=TRUE}
                                             {toothed=FALSE} 0.1188119
   [32] {legs=TRUE,catsize=FALSE}
                                             {toothed=FALSE} 0.2673267
   [33] {tail=FALSE}
                                             {toothed=FALSE} 0.1683168
##
##
   [34]
       {milk=FALSE}
                                             {toothed=FALSE} 0.3861386
##
   [35] {aquatic=FALSE, catsize=FALSE}
                                             {toothed=FALSE} 0.2178218
       {fins=FALSE,catsize=FALSE}
                                             {toothed=FALSE} 0.3069307
   [37]
        {hair=FALSE, venomous=FALSE}
                                             {toothed=FALSE} 0.3267327
##
   [38]
        {hair=FALSE,catsize=FALSE}
                                             {toothed=FALSE} 0.2673267
   [39]
        {breathes=TRUE,catsize=FALSE}
                                             {toothed=FALSE} 0.2475248
   [40] {predator=FALSE,catsize=FALSE}
                                             {toothed=FALSE} 0.1683168
   [41]
       {catsize=FALSE}
                                             {toothed=FALSE} 0.3069307
##
   [42]
       {predator=FALSE,fins=FALSE}
                                             {toothed=FALSE} 0.2079208
       {predator=FALSE,domestic=FALSE} =>
                                             {toothed=FALSE} 0.1683168
   [44] {fins=FALSE,domestic=FALSE}
                                             {toothed=FALSE} 0.3564356
   [45]
        {predator=FALSE,legs=TRUE}
                                             {toothed=FALSE} 0.1881188
##
   [46]
       {legs=TRUE,domestic=FALSE}
                                             {toothed=FALSE} 0.3168317
        {aquatic=FALSE,domestic=FALSE}
                                             {toothed=FALSE} 0.2277228
       {breathes=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.2871287
   [48]
##
   [49]
       {predator=TRUE}
                                            {toothed=FALSE} 0.1881188
##
        confidence lift
##
  [1]
        1.0000000 2.5250000
   [2]
##
        1.0000000
                   2.5250000
   [3]
##
        1.0000000
                   2.5250000
##
   [4]
        1.0000000
                   2.5250000
   [5]
        1.0000000
                   2.5250000
   [6]
##
        0.9000000
                   2.2725000
##
   [7]
        0.8965517
                    2.2637931
   [8]
##
        0.8846154
                    2.2336538
                    2.2093750
   [9]
        0.8750000
   [10] 0.8750000
                    2.2093750
   [11] 0.8611111
                    2.1743056
   [12] 0.8500000
                    2.1462500
   [13] 0.8500000
                    2.1462500
   [14] 0.8478261
                    2.1407609
##
   [15] 0.8297872
                    2.0952128
   [16] 0.8205128
                    2.0717949
   [17] 0.8205128
                    2.0717949
   [18] 0.8139535
                    2.0552326
   [19] 0.8125000
                    2.0515625
   [20] 0.8076923
                    2.0394231
   [21] 0.8076923
                    2.0394231
   [22] 0.8000000
                    2.0200000
   [23] 0.7727273
                    1.9511364
   [24] 0.7567568
                    1.9108108
   [25] 0.6956522
                    1.7565217
##
   [26] 0.6875000
                    1.7359375
   [27] 0.6842105
                    1.7276316
   [28] 0.6800000
                    1.7170000
   [29]
       0.6792453
                    1.7150943
##
   [30] 0.6730769
                    1.6995192
   [31] 0.6666667
                    1.6833333
  [32] 0.6585366
                    1.6628049
## [33] 0.6538462
                   1.6509615
```

```
## [34] 0.6500000
                   1.6412500
   [35] 0.6470588
                   1.6338235
  [36] 0.6458333
                   1.6307292
  [37] 0.6346154
                   1.6024038
   [38] 0.6136364
                   1.5494318
  [39] 0.6097561
                   1.5396341
##
  [40] 0.5862069
                   1.4801724
  [41] 0.5438596
                   1.3732456
   [42] 0.5121951
                   1.2932927
  [43] 0.5000000
                   1.2625000
  [44] 0.5000000
                   1.2625000
  [45] 0.4871795
                   1.2301282
   [46] 0.4848485
                   1,2242424
  [47] 0.4339623
                   1.0957547
  [48] 0.4264706
                   1.0768382
##
   [49] 0.3392857
                   0.8566964
##
        lhs
                                            support
                                                       confidence lift
##
  [1]
                          => {toothed=TRUE} 0.1287129 1.0000000
        {type=fish}
  [2]
##
        {fins=TRUE}
                          => {toothed=TRUE} 0.1683168 1.0000000
                                                                  1.6557377
##
   [3]
        {eggs=FALSE}
                          => {toothed=TRUE} 0.4059406 0.9761905
                                                                  1.6163154
##
  [4]
        {legs=FALSE}
                          => {toothed=TRUE} 0.1881188 0.8260870
                                                                  1.3677833
  [5]
                          => {toothed=TRUE} 0.3465347 0.7954545
##
        {catsize=TRUE}
                                                                  1.3170641
  [6]
##
        {feathers=FALSE} => {toothed=TRUE} 0.6039604 0.7530864
                                                                  1.2469136
   [7]
                          => {toothed=TRUE} 0.5148515 0.6933333
        {tail=TRUE}
                                                                  1.1479781
##
  [8]
        {breathes=FALSE} => {toothed=TRUE} 0.1386139 0.6666667
                                                                  1.1038251
  [9]
        {predator=TRUE}
                         => {toothed=TRUE} 0.3663366 0.6607143
                                                                  1.0939696
                          => {toothed=TRUE} 0.2277228 0.6388889
  [10] {aquatic=TRUE}
                                                                  1.0578324
  [11] {domestic=FALSE} => {toothed=TRUE} 0.5148515 0.5909091
                                                                  0.9783905
                         => {toothed=TRUE} 0.4653465 0.5875000
## [12] {breathes=TRUE}
                                                                  0.9727459
  [13] {predator=FALSE} => {toothed=TRUE} 0.2376238 0.5333333
                                                                  0.8830601
  [14] {catsize=FALSE}
                         => {toothed=TRUE} 0.2574257 0.4561404
                                                                  0.7552488
   [15] {hair=FALSE}
                         => {toothed=TRUE} 0.2277228 0.3965517
                                                                  0.6565856
##
   [16] {eggs=TRUE}
                          => {toothed=TRUE} 0.1980198 0.3389831
                                                                  0.5612670
##
       lhs
                                                      support
                                                                confidence
                                     rhs
   [1] {aquatic=TRUE,fins=FALSE} => {toothed=FALSE} 0.1287129 0.6842105
   [2] {aquatic=TRUE,legs=TRUE} => {toothed=FALSE} 0.1188119 0.6666667
##
##
       lift
## [1] 1.727632
   [2] 1.683333
##
##
       lhs
                                                            support
                                           rhs
  [1] {tail=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.1584158
   [2] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
   [3] {fins=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3564356
   [4] {legs=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3168317
  [5] {aquatic=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2277228
  [6] {breathes=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2871287
##
##
       confidence lift
##
  [1] 0.6956522
                 1.756522
   [2] 0.5000000
                  1.262500
   [3] 0.5000000
                  1.262500
   [4] 0.4848485
                  1.224242
## [5] 0.4339623
                  1.095755
## [6] 0.4264706 1.076838
##
       lhs
                                          rhs
                                                           support
                                                                     confidence
```

```
## [1] {eggs=TRUE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
  [2] {milk=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
                                       => {toothed=FALSE} 0.2772277 0.7567568
  [3] {hair=FALSE, breathes=TRUE}
  [4] {breathes=TRUE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2475248 0.6097561
##
   [5] {breathes=TRUE,domestic=FALSE} => {toothed=FALSE} 0.2871287 0.4264706
##
       lift
  [1] 2.071795
##
  [2] 2.071795
   [3] 1.910811
  [4] 1.539634
  [5] 1.076838
##
       lhs
                                           rhs
                                                           support
##
  [1] {eggs=TRUE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [2] {milk=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [3] {hair=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.1683168
  [4] {predator=FALSE, catsize=FALSE}
                                        => {toothed=FALSE} 0.1683168
  [5] {predator=FALSE,fins=FALSE}
                                        => {toothed=FALSE} 0.2079208
   [6] {predator=FALSE,domestic=FALSE}
                                       => {toothed=FALSE} 0.1683168
##
   [7] {predator=FALSE,legs=TRUE}
                                        => {toothed=FALSE} 0.1881188
##
       confidence lift
##
  [1] 0.8076923 2.039423
  [2] 0.8076923
                  2.039423
  [3] 0.7727273
                  1.951136
  [4] 0.5862069
                  1.480172
  [5] 0.5121951
                  1.293293
  [6] 0.5000000
                  1.262500
##
   [7] 0.4871795
                  1.230128
##
       lhs
                                          rhs
                                                          support
                                                                    confidence
## [1] {tail=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.1584158 0.8000000
  [2] {legs=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6585366
  [3] {aquatic=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2178218 0.6470588
  [4] {fins=FALSE, catsize=FALSE}
                                       => {toothed=FALSE} 0.3069307 0.6458333
  [5] {hair=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6136364
  [6] {breathes=TRUE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2475248 0.6097561
      {predator=FALSE,catsize=FALSE} => {toothed=FALSE} 0.1683168 0.5862069
##
##
       lift
##
  [1] 2.020000
##
  [2] 1.662805
   [3] 1.633824
##
  [4] 1.630729
  [5] 1.549432
##
  [6] 1.539634
##
   [7] 1.480172
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,airborne=TRUE}
                                   => {toothed=FALSE} 0.1782178 1.0000000
  [2] {hair=FALSE,aquatic=FALSE}
                                   => {toothed=FALSE} 0.2277228 0.8846154
  [3] {hair=FALSE,legs=TRUE}
                                    => {toothed=FALSE} 0.3069307 0.8611111
  [4] {hair=FALSE,fins=FALSE}
                                   => {toothed=FALSE} 0.3465347 0.8139535
  [5] {hair=FALSE,tail=FALSE}
                                   => {toothed=FALSE} 0.1287129 0.8125000
   [6] {hair=FALSE, predator=FALSE} => {toothed=FALSE} 0.1683168 0.7727273
  [7] {hair=FALSE,breathes=TRUE}
                                   => {toothed=FALSE} 0.2772277 0.7567568
## [8] {hair=FALSE, venomous=FALSE} => {toothed=FALSE} 0.3267327 0.6346154
## [9] {hair=FALSE,catsize=FALSE} => {toothed=FALSE} 0.2673267 0.6136364
##
       lift
```

```
## [1] 2.525000
   [2] 2.233654
  [3] 2.174306
  [4] 2.055233
##
##
   [5] 2.051563
##
   [6] 1.951136
   [7] 1.910811
##
   [8] 1.602404
##
   [9] 1.549432
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
  [1] {eggs=TRUE,airborne=TRUE}
                                      {toothed=FALSE} 0.2178218 1.0000000
##
   [2] {eggs=TRUE,aquatic=FALSE}
                                   => {toothed=FALSE} 0.2574257 0.8965517
   [3] {eggs=TRUE,legs=TRUE}
                                   => {toothed=FALSE} 0.3465347 0.8750000
   [4] {eggs=TRUE,tail=FALSE}
                                   => {toothed=FALSE} 0.1683168 0.8500000
   [5] {eggs=TRUE,fins=FALSE}
                                   => {toothed=FALSE} 0.3861386 0.8478261
   [6] {eggs=TRUE,breathes=TRUE}
                                      {toothed=FALSE} 0.3168317 0.8205128
   [7] {eggs=TRUE,predator=FALSE} => {toothed=FALSE} 0.2079208 0.8076923
   [8] {eggs=TRUE,venomous=FALSE} => {toothed=FALSE} 0.3564356 0.6792453
##
       lift
##
  [1] 2.525000
##
   [2] 2.263793
  [3] 2.209375
##
  [4] 2.146250
##
   [5] 2.140761
  [6] 2.071795
##
  [7] 2.039423
##
   [8] 1.715094
##
       "Número de reglas con consecuente negado"
##
                                                          support
                                                                    confidence
   [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
##
   [2] {aquatic=FALSE,legs=TRUE}
                                      => {domestic=TRUE} 0.1188119 0.2000000
   [3] {backbone=TRUE,legs=TRUE}
                                        {domestic=TRUE} 0.1089109 0.1718750
   [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
   [5] {backbone=TRUE, breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
##
       lift
##
  [1] 1.612482
  [2] 1.553846
  [3] 1.335337
##
   [4] 1.294872
##
   [5] 1.238573
##
        lhs
                                              support
                                                         confidence lift
                          => {domestic=FALSE} 0.3465347 0.9722222
##
   [1]
        {aquatic=TRUE}
                                                                    1.1158460
##
   [2]
        {predator=TRUE}
                         => {domestic=FALSE} 0.5346535 0.9642857
                                                                    1.1067370
##
   [3]
                          => {domestic=FALSE} 0.2178218 0.9565217
        {legs=FALSE}
                                                                    1.0978261
##
  [4]
        {breathes=FALSE} => {domestic=FALSE} 0.1980198 0.9523810
                                                                    1.0930736
  [5]
##
        {backbone=FALSE} =>
                             {domestic=FALSE} 0.1683168 0.9444444
                                                                    1.0839646
##
   [6]
        {fins=TRUE}
                             {domestic=FALSE} 0.1584158 0.9411765
                                                                    1.0802139
##
  [7]
        {hair=FALSE}
                         => {domestic=FALSE} 0.5346535 0.9310345
                                                                    1.0685737
##
   [8]
        {type=fish}
                         => {domestic=FALSE} 0.1188119 0.9230769
                                                                    1.0594406
   [9]
        {milk=FALSE}
                          => {domestic=FALSE} 0.5445545 0.9166667
##
                                                                    1.0520833
##
   [10]
                             {domestic=FALSE} 0.5346535 0.9152542
       {eggs=TRUE}
                                                                    1.0504622
  [11] {toothed=FALSE}
                          => {domestic=FALSE} 0.3564356 0.9000000
                                                                    1.0329545
## [12] {airborne=FALSE} => {domestic=FALSE} 0.6732673 0.8831169
                                                                    1.0135773
## [13] {catsize=FALSE} => {domestic=FALSE} 0.4950495 0.8771930
```

```
## [14] {feathers=FALSE} => {domestic=FALSE} 0.7029703 0.8765432
                                                                   1.0060325
                         => {domestic=FALSE} 0.3762376 0.8636364
## [15] {catsize=TRUE}
                                                                   0.9912190
                         => {domestic=FALSE} 0.7029703 0.8554217
## [16] {backbone=TRUE}
                                                                   0.9817908
                         => {domestic=FALSE} 0.6534653 0.8461538
  [17] {legs=TRUE}
                                                                   0.9711538
  [18] {airborne=TRUE}
                            {domestic=FALSE} 0.1980198 0.8333333
                                                                   0.9564394
                         => {domestic=FALSE} 0.3366337 0.8095238
  [19] {eggs=FALSE}
                                                                   0.9291126
## [20] {milk=TRUE}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                   0.9237805
  [21] {type=mammal}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                   0.9237805
##
       lhs
                                         rhs
                                                         support
                                                                    confidence
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
##
   [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
   [3] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
   [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
## [1] 1.612482
   [2] 1.335337
##
  [3] 1.294872
##
   [4] 1.238573
##
       lhs
                                    rhs
                                                     support
                                                               confidence
##
   [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
##
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
       lift.
  [1] 1.553846
##
##
   [2] 1.335337
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                                         support
                                                                   confidence
##
  [1]
                                           {legs=FALSE} 0.1287129 1.0000000
        {type=fish}
##
   [2]
        {hair=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1485149 1.0000000
  [3]
##
        {eggs=TRUE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
## [4]
        {milk=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
## [5]
        {toothed=TRUE,breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
##
  [6]
        {breathes=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1386139 1.0000000
##
  [7]
        {backbone=TRUE, breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
  [8]
##
        {fins=TRUE}
                                         => {legs=FALSE} 0.1584158 0.9411765
   [9]
        {hair=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1782178 0.7826087
## [10] {breathes=FALSE}
                                         => {legs=FALSE} 0.1584158 0.7619048
## [11] {milk=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1584158 0.7619048
## [12] {eggs=TRUE,toothed=TRUE}
                                         => {legs=FALSE} 0.1485149 0.7500000
                                         => {legs=FALSE} 0.1683168 0.7391304
## [13] {aquatic=TRUE,toothed=TRUE}
## [14] {aquatic=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.6153846
## [15] {feathers=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.6000000
  [16] {airborne=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
## [17] {hair=FALSE, feathers=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5789474
## [18] {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
## [19] {hair=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1683168 0.5312500
## [20] {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
## [21] {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
## [22] {feathers=FALSE,milk=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5000000
## [23] {feathers=FALSE,eggs=TRUE}
                                         => {legs=FALSE} 0.1881188 0.4871795
## [24] {toothed=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.4615385
## [25] {hair=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4444444
## [26] {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
## [27] {hair=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4285714
## [28] {milk=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1386139 0.4117647
```

```
## [29] {hair=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4090909
  [30] {predator=TRUE, toothed=TRUE}
                                         => {legs=FALSE} 0.1485149 0.4054054
  [31] {milk=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4000000
  [32] {eggs=TRUE,predator=TRUE}
                                         => {legs=FALSE} 0.1287129 0.3939394
   [33] {hair=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.2079208 0.3888889
  [34] {eggs=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1485149 0.3846154
  [35] {milk=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1584158 0.3809524
                                         => {legs=FALSE} 0.1584158 0.3720930
   [36] {feathers=FALSE, catsize=FALSE}
   [37] {feathers=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3617021
   [38] {eggs=TRUE,backbone=TRUE}
                                         => {legs=FALSE} 0.1485149 0.3571429
  [39] {airborne=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
   [40] {toothed=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3461538
  [41] {milk=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.1881188 0.3454545
  [42] {predator=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1386139 0.3333333
                                         => {legs=FALSE} 0.1782178 0.3333333
  [43] {eggs=TRUE,domestic=FALSE}
   [44] {feathers=FALSE,tail=TRUE}
                                            {legs=FALSE} 0.1782178 0.3272727
   [45] {tail=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3243243
   [46] {airborne=FALSE,domestic=FALSE}
                                        => {legs=FALSE} 0.2178218 0.3235294
  [47] {airborne=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
   [48] {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
  [49] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
  [50] {feathers=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.2178218 0.3098592
   [51] {predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3035714
       {feathers=FALSE,backbone=TRUE}
   [52]
                                         => {legs=FALSE} 0.1881188 0.3015873
       {backbone=TRUE, catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
   [54]
       {domestic=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1485149 0.3000000
        {tail=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1683168 0.2615385
   [55]
##
   [56]
        {backbone=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.2535211
##
        lift
##
  [1]
        4.391304
##
   [2]
        4.391304
##
   [3]
        4.391304
##
   [4]
        4.391304
   [5]
##
        4.391304
   [6]
##
        4.391304
##
   [7]
        4.391304
  [8]
        4.132992
  [9]
##
        3.436673
   [10] 3.345756
##
  [11] 3.345756
  [12] 3.293478
  [13] 3.245747
  [14] 2.702341
##
  [15] 2.634783
## [16] 2.549790
## [17] 2.542334
##
  [18] 2.415217
  [19] 2.332880
  [20] 2.311213
  [21] 2.254994
##
  [22] 2.195652
## [23] 2.139353
## [24] 2.026756
## [25] 1.951691
```

```
## [26] 1.951691
   [27] 1.881988
   [28] 1.808184
   [29] 1.796443
##
   [30] 1.780259
##
   [31] 1.756522
   [32] 1.729908
   [33] 1.707729
   [34] 1.688963
   [35] 1.672878
   [36] 1.633974
   [37] 1.588344
##
   [38] 1.568323
   [39] 1.523514
   [40] 1.520067
   [41] 1.516996
   [42] 1.463768
   [43] 1.463768
   [44] 1.437154
   [45] 1.424207
##
   [46] 1.420716
   [47] 1.414149
##
   [48] 1.386728
   [49] 1.383562
   [50] 1.360686
   [51] 1.333075
   [52] 1.324362
##
   [53] 1.317391
   [54] 1.317391
   [55] 1.148495
##
   [56] 1.113288
##
        lhs
                             rhs
                                                    confidence lift
                                          support
##
   [1]
        {type=bird}
                          => {legs=TRUE} 0.1980198 1.0000000
                                                                1.2948718
   [2]
                          => {legs=TRUE} 0.1980198 1.0000000
                                                                1.2948718
        {feathers=TRUE}
##
   [3]
                          => {legs=TRUE} 0.2376238 1.0000000
        {airborne=TRUE}
                                                                1.2948718
##
   [4]
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                                1.2647585
##
   [5]
        {milk=TRUE}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
   [6]
##
        {type=mammal}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
   [7]
        {domestic=TRUE}
                             {legs=TRUE} 0.1188119 0.9230769
                                                                1.1952663
##
   [8]
        {aquatic=FALSE}
                          => {legs=TRUE} 0.5940594 0.9230769
                                                                1.1952663
   [9]
        {eggs=FALSE}
                          => {legs=TRUE} 0.3762376 0.9047619
                                                                1.1715507
                          => {legs=TRUE} 0.3564356 0.9000000
   [10]
       {toothed=FALSE}
                                                                1.1653846
   [11] {predator=FALSE}
                          => {legs=TRUE} 0.3861386 0.8666667
                                                                1.1222222
                          => {legs=TRUE} 0.3663366 0.8409091
   [12] {catsize=TRUE}
                                                                1.0888695
   [13] {tail=FALSE}
                          => {legs=TRUE} 0.2079208 0.8076923
                                                                1.0458580
   [14] {backbone=FALSE} => {legs=TRUE} 0.1386139 0.7777778
                                                                1.0071225
   [15]
       {tail=TRUE}
                          => {legs=TRUE} 0.5643564 0.7600000
                                                                0.9841026
   [16] {catsize=FALSE}
                          => {legs=TRUE} 0.4059406 0.7192982
                                                                0.9313990
   [17]
       {airborne=FALSE} => {legs=TRUE} 0.5346535 0.7012987
                                                                0.9080919
   [18]
       {toothed=TRUE}
                          => {legs=TRUE} 0.4158416 0.6885246
                                                                0.8915511
                          => {legs=TRUE} 0.3960396 0.6779661
##
   [19] {eggs=TRUE}
                                                                0.8778792
   [20] {milk=FALSE}
                          => {legs=TRUE} 0.3960396 0.6666667
                                                                0.8632479
##
  [21] {aquatic=TRUE}
                          => {legs=TRUE} 0.1782178 0.5000000
                                                                0.6474359
##
        lhs
                                        rhs
                                                     support
                                                                confidence
```

```
{breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
        {aquatic=TRUE,tail=TRUE}
##
  [2]
                                    => {legs=FALSE} 0.1584158 0.6153846
## [3]
        {hair=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1782178 0.4285714
##
  [4]
        {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
##
   [5]
        {eggs=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1485149 0.3846154
  [6]
        {predator=TRUE,tail=TRUE}
                                   => {legs=FALSE} 0.1386139 0.3333333
##
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
  [7]
        {tail=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3243243
  [8]
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
  [10] {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
##
        lift
## [1]
        4.391304
##
  [2]
        2.702341
## [3]
        1.881988
## [4]
        1.756522
## [5]
        1.688963
  [6]
##
        1.463768
##
  [7]
        1.437154
  [8]
##
        1.424207
##
  [9]
        1.386728
##
  [10] 1.148495
##
                                                        support
                                                                  confidence
                                       => {legs=FALSE} 0.1188119 0.4615385
## [1] {toothed=TRUE,catsize=FALSE}
  [2] {airborne=FALSE, catsize=FALSE} => {legs=FALSE} 0.1584158 0.4444444
  [3] {feathers=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
  [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
  [5] {backbone=TRUE, catsize=FALSE}
                                      => {legs=FALSE} 0.1188119 0.3000000
      {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
##
##
       lift
## [1] 2.026756
## [2] 1.951691
## [3] 1.633974
## [4] 1.424207
  [5] 1.317391
##
   [6] 1.317391
##
        lhs
                                            rhs
                                                          support
                                                                    confidence
## [1]
        {airborne=FALSE, aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
## [2]
        {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
## [3]
        {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
## [4]
        {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
        {airborne=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
  [5]
  [6]
        {airborne=FALSE, predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
        {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
   [7]
        {airborne=FALSE,toothed=TRUE}
  [8]
                                         => {legs=FALSE} 0.1881188 0.3220339
        {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
## [10] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
        lift
## [1]
        2.549790
## [2]
        2.415217
##
  [3]
        2.311213
  [4]
##
        2.254994
## [5]
        1.951691
## [6]
        1.523514
## [7]
        1.420716
```

```
[8]
        1.414149
##
   [9]
       1.386728
##
   [10] 1.383562
##
                                                                confidence
       lhs
                                         rhs
                                                      support
##
  [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
  [2] {hair=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1782178 0.7826087
  [3] {milk=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1584158 0.7619048
## [4] {eggs=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.7500000
  [5] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
  [6] {toothed=TRUE,catsize=FALSE}
                                      => {legs=FALSE} 0.1188119 0.4615385
  [7] {predator=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.4054054
   [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
   [9] {airborne=FALSE,toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
       lift
## [1] 4.391304
##
  [2] 3.436673
##
  [3] 3.345756
  [4] 3.293478
  [5] 3.245747
##
   [6] 2.026756
##
  [7] 1.780259
## [8] 1.520067
## [9] 1.414149
##
       lhs
                                      rhs
                                                   support
                                                             confidence
##
  [1] {eggs=TRUE,fins=TRUE}
                                  => {legs=FALSE} 0.1287129 1.0000000
  [2] {eggs=TRUE,toothed=TRUE}
                                  => {legs=FALSE} 0.1485149 0.7500000
   [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
  [4] {feathers=FALSE,eggs=TRUE}
                                  => {legs=FALSE} 0.1881188 0.4871795
   [5] {eggs=TRUE,predator=TRUE}
                                  => {legs=FALSE} 0.1287129 0.3939394
  [6] {eggs=TRUE,tail=TRUE}
                                  => {legs=FALSE} 0.1485149 0.3846154
   [7] {eggs=TRUE,backbone=TRUE}
                                  => {legs=FALSE} 0.1485149 0.3571429
##
   [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
       lift
  [1] 4.391304
##
   [2] 3.293478
##
   [3] 2.254994
  [4] 2.139353
  [5] 1.729908
##
   [6] 1.688963
##
  [7] 1.568323
  [8] 1.463768
##
       lhs
                                                    support
                                                              confidence
## [1] {milk=FALSE,fins=TRUE}
                                    => {legs=FALSE} 0.1287129 1.0000000
  [2] {milk=FALSE,toothed=TRUE}
                                    => {legs=FALSE} 0.1584158 0.7619048
## [3] {milk=FALSE,airborne=FALSE} => {legs=FALSE} 0.1980198 0.5263158
## [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
  [5] {milk=FALSE,predator=TRUE}
                                   => {legs=FALSE} 0.1386139 0.4117647
  [6] {milk=FALSE,tail=TRUE}
                                   => {legs=FALSE} 0.1584158 0.4000000
   [7] {milk=FALSE,backbone=TRUE} => {legs=FALSE} 0.1584158 0.3809524
##
   [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
       lift
## [1] 4.391304
## [2] 3.345756
## [3] 2.311213
```

```
## [4] 2.195652
  [5] 1.808184
  [6] 1.756522
  [7] 1.672878
##
   [8] 1.516996
##
       lhs
                                         rhs
                                                      support
                                                                confidence
  [1] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
  [2] {aquatic=TRUE,tail=TRUE}
                                      => {legs=FALSE} 0.1584158 0.6153846
   [3] {feathers=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.6000000
   [4] {airborne=FALSE,aquatic=TRUE}
                                     => {legs=FALSE} 0.1782178 0.5806452
   [5] {hair=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1683168 0.5312500
##
       lift
## [1] 3.245747
  [2] 2.702341
##
## [3] 2.634783
   [4] 2.549790
   [5] 2.332880
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
##
   [1]
        {type=fish}
                                           {fins=TRUE} 0.1287129 1.0000000
        {toothed=TRUE,breathes=FALSE}
##
  [2]
                                         => {fins=TRUE} 0.1287129 0.9285714
        {breathes=FALSE,tail=TRUE}
  [3]
                                         => {fins=TRUE} 0.1287129 0.9285714
  [4]
                                         => {fins=TRUE} 0.1287129 0.9285714
##
        {backbone=TRUE,breathes=FALSE}
##
   [5]
        {aquatic=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1584158 0.8888889
##
  [6]
        {toothed=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
  [7]
        {backbone=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1584158 0.8421053
  [8]
        {legs=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1485149 0.8333333
##
##
  [9]
        {breathes=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1287129 0.8125000
## [10] {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
## [11] {aquatic=TRUE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.7391304
## [12] {predator=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1188119 0.7058824
  [13]
       {breathes=FALSE, venomous=FALSE} =>
                                            {fins=TRUE} 0.1188119 0.6666667
  [14] {hair=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1485149 0.6521739
                                         => {fins=TRUE} 0.1287129 0.6500000
  [15] {aquatic=TRUE, breathes=FALSE}
  [16] {eggs=TRUE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.6500000
## [17] {breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6190476
## [18] {milk=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6190476
## [19] {aquatic=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.6153846
## [20] {feathers=FALSE,aquatic=TRUE}
                                            {fins=TRUE} 0.1683168 0.5666667
## [21] {aquatic=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
## [22] {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
  [23] {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
## [24] {hair=FALSE,feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
                                         => {fins=TRUE} 0.1485149 0.3750000
## [25] {hair=FALSE,airborne=FALSE}
## [26] {hair=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3571429
                                           {fins=TRUE} 0.1287129 0.3513514
## [27] {predator=TRUE, toothed=TRUE}
## [28] {eggs=TRUE,airborne=FALSE}
                                            {fins=TRUE} 0.1287129 0.3513514
## [29] {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
## [30] {hair=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3409091
  [31] {eggs=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.3333333
## [32] {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
## [33] {milk=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3250000
## [34] {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
## [35] {eggs=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
```

```
## [36] {milk=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [37] {toothed=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.3076923
                                         => {fins=TRUE} 0.1584158 0.3076923
  [38] {toothed=TRUE,domestic=FALSE}
  [39] {hair=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1089109 0.3055556
## [40] {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
## [41] {airborne=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
## [42] {predator=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1188119 0.2857143
## [43] {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [44] {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
  [45] {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
  [46] {predator=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
  [47] {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
## [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
## [49] {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
                                         => {fins=TRUE} 0.1683168 0.2615385
## [50] {airborne=FALSE,backbone=TRUE}
## [51]
       {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
                                         => {fins=TRUE} 0.1485149 0.2586207
  [52] {hair=FALSE}
  [53] {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
  [54] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [55] {feathers=FALSE,airborne=FALSE}
                                        => {fins=TRUE} 0.1683168 0.2328767
  [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [57] {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
  [58] {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
  [59] {airborne=FALSE, venomous=FALSE} =>
                                           {fins=TRUE} 0.1584158 0.2253521
  [60] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [61] {backbone=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2253521
   [62] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
   [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
  [64] {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
   [65] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
##
   [66] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
##
  [1]
        5.941176
   [2]
##
       5.516807
   [3]
        5.516807
##
   [4]
##
       5.516807
##
  [5]
        5.281046
  [6]
       5.003096
##
  [7]
##
        5.003096
  [8]
##
        4.950980
  [9]
        4.827206
  [10] 4.690402
  [11] 4.391304
## [12] 4.193772
## [13] 3.960784
## [14] 3.874680
## [15] 3.861765
## [16] 3.861765
## [17] 3.677871
## [18] 3.677871
## [19] 3.656109
## [20] 3.366667
## [21] 3.366667
## [22] 3.258065
```

```
## [23] 2.970588
  [24] 2.345201
   [25] 2.227941
  [26] 2.121849
   [27] 2.087440
  [28] 2.087440
##
   [29] 2.032508
## [30] 2.025401
   [31] 1.980392
   [32] 1.980392
   [33] 1.930882
   [34] 1.930882
##
   [35] 1.838936
   [36] 1.838936
   [37] 1.828054
   [38] 1.828054
   [39] 1.815359
##
   [40] 1.728342
  [41] 1.711864
  [42] 1.697479
## [43] 1.667699
  [44] 1.667699
## [45] 1.643304
   [46] 1.643304
##
  [47] 1.603175
  [48] 1.599548
  [49] 1.576230
##
   [50] 1.553846
   [51] 1.540305
   [52] 1.536511
   [53] 1.425882
##
   [54] 1.397924
   [55] 1.383562
   [56] 1.371041
   [57] 1.371041
   [58] 1.345172
##
   [59] 1.338857
  [60] 1.338857
##
   [61] 1.338857
   [62] 1.320261
##
   [63] 1.302176
   [64] 1.296257
##
   [65] 1.284579
##
   [66] 1.100218
##
        lhs
                             rhs
                                                     confidence lift
                                          support
##
  [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000
                                                                1.2023810
##
   [2]
        {type=bird}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
   [3]
##
        {feathers=TRUE}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
   [4]
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
                                                                1.2023810
##
   [5]
        {toothed=FALSE}
                          => {fins=FALSE} 0.3960396 1.0000000
                                                                1.2023810
##
   [6]
                          => {fins=FALSE} 0.7623762 0.9871795
        {legs=TRUE}
                                                                1.1869658
##
   [7]
        {hair=TRUE}
                          => {fins=FALSE} 0.4059406 0.9534884
## [8]
        {breathes=TRUE}
                         => {fins=FALSE} 0.7524752 0.9500000
                                                                1.1422619
                         => {fins=FALSE} 0.1188119 0.9230769 1.1098901
## [9]
        {domestic=TRUE}
```

```
## [10] {predator=FALSE} => {fins=FALSE} 0.4059406 0.9111111
                                                                1.0955026
                          => {fins=FALSE} 0.3762376 0.9047619
## [11] {eggs=FALSE}
                                                                1.0878685
  [12] {milk=TRUE}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
                          => {fins=FALSE} 0.3663366 0.9024390
## [13] {type=mammal}
                                                                1.0850755
## [14] {catsize=FALSE}
                         => {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
## [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
  [16] {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                0.9837662
## [17] {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                0.9837662
## [18]
       {backbone=TRUE}
                          => {fins=FALSE} 0.6534653 0.7951807
                                                                0.9561102
## [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
## [20] {tail=TRUE}
                          => {fins=FALSE} 0.5841584 0.7866667
                                                                0.9458730
                          => {fins=FALSE} 0.4554455 0.7796610
## [21] {eggs=TRUE}
                                                                0.9374496
## [22] {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                0.9369202
## [23] {predator=TRUE}
                         => {fins=FALSE} 0.4257426 0.7678571
                                                                0.9232568
                          => {fins=FALSE} 0.4257426 0.7413793
## [24] {hair=FALSE}
                                                                0.8914204
## [25]
        {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115
                                                                0.8672912
##
   [26]
        {aquatic=TRUE}
                         => {fins=FALSE} 0.1881188 0.5277778
                                                                0.6345899
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
  [1]
        {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
##
   [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
##
  [3]
        {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
  [4]
        {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
                                         => {fins=TRUE} 0.1386139 0.2692308
##
  [5]
        {hair=FALSE, venomous=FALSE}
        {predator=TRUE, venomous=FALSE}
##
   [6]
                                         => {fins=TRUE} 0.1188119 0.2400000
##
  [7]
        {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [8]
        {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
   [9]
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
        lift
## [1]
        4.690402
##
   [2]
        3.960784
##
  [3]
        2.970588
  [4]
##
        1.667699
   [5]
##
        1.599548
##
   [6]
        1.425882
##
  [7]
        1.371041
## [8]
        1.345172
  [9]
##
        1.338857
##
  [10] 1.302176
  [11] 1.100218
##
       lhs
                                                        support
                                                                  confidence
## [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
  [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
## [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
## [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
  [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
   [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
   [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
       lift
## [1] 1.828054
## [2] 1.540305
```

```
## [3] 1.397924
  [4] 1.371041
   [5] 1.338857
  [6] 1.338857
   [7] 1.320261
##
   [8] 1.296257
##
   [9] 1.100218
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
## [1]
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
   [2]
##
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
   [3]
        {aquatic=TRUE, backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
   [4]
                                         => {fins=TRUE} 0.1485149 0.3409091
##
        {hair=FALSE,backbone=TRUE}
##
   [5]
        {eggs=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [6]
##
        {milk=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [7]
                                        => {fins=TRUE} 0.1287129 0.2765957
##
        {predator=TRUE,backbone=TRUE}
##
  [8]
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
##
   [9]
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
   [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [11] {backbone=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
##
        lift
##
  [1]
        5.516807
  [2]
        5.003096
## [3]
        3.366667
   [4]
##
        2.025401
##
   [5]
        1.838936
   [6]
        1.838936
   [7]
##
        1.643304
##
   [8]
        1.603175
##
   [9]
        1.553846
  [10] 1.338857
##
   [11] 1.284579
##
        lhs
                                             rhs
                                                         support
                                                                    confidence
##
  [1]
        {feathers=FALSE, aquatic=TRUE}
                                          => {fins=TRUE} 0.1683168 0.5666667
   [2]
                                          => {fins=TRUE} 0.1485149 0.3947368
        {hair=FALSE, feathers=FALSE}
##
   [3]
        {feathers=FALSE,eggs=TRUE}
                                          => {fins=TRUE} 0.1287129 0.3333333
##
   [4]
        {feathers=FALSE,milk=FALSE}
                                          => {fins=TRUE} 0.1287129 0.3250000
  [5]
        {feathers=FALSE,tail=TRUE}
                                          => {fins=TRUE} 0.1584158 0.2909091
  [6]
        {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
##
   [7]
        {feathers=FALSE,backbone=TRUE}
                                          => {fins=TRUE} 0.1683168 0.2698413
   [8]
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
##
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [10]
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
##
        lift
##
  [1]
        3.366667
  [2]
##
        2.345201
## [3]
        1.980392
##
   [4]
        1.930882
##
   [5]
        1.728342
##
   [6]
        1.643304
##
   [7]
        1.603175
##
   [8]
        1.383562
## [9]
        1.338857
## [10] 1.302176
##
        lhs
                                       rhs
                                                    support
                                                               confidence
```

```
{breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
##
  [2]
                                    => {fins=TRUE} 0.1485149 0.8333333
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
##
  [3]
        {aquatic=TRUE,tail=TRUE}
##
  [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
        {eggs=TRUE,tail=TRUE}
##
   [5]
                                    => {fins=TRUE} 0.1287129 0.3333333
  [6]
##
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
        {toothed=TRUE.tail=TRUE}
  [7]
                                    => {fins=TRUE} 0.1584158 0.3076923
## [8]
        {feathers=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
##
  [9]
        {predator=TRUE,tail=TRUE} => {fins=TRUE} 0.1188119 0.2857143
  [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
  [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
       {backbone=TRUE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
   [12]
##
        lift
## [1]
        5.516807
## [2]
        4.950980
## [3]
        3.656109
  [4]
##
        2.121849
##
  [5]
        1.980392
  [6]
##
        1.930882
##
   [7]
        1.828054
##
  [8]
        1.728342
## [9]
        1.697479
## [10] 1.667699
## [11] 1.371041
## [12] 1.284579
       lhs
                                      rhs
                                                  support
                                                            confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {fins=TRUE} 0.1287129 0.6500000
  [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
  [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
  [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
   [6] {eggs=TRUE,venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
##
   [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
       lift
  [1] 3.861765
##
## [2] 2.087440
## [3] 1.980392
## [4] 1.980392
  [5] 1.838936
  [6] 1.345172
##
  [7] 1.320261
##
                                            rhs
                                                        support
                                                                   confidence
## [1]
        {airborne=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
##
  [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [4]
                                         => {fins=TRUE} 0.1287129 0.3421053
        {milk=FALSE,airborne=FALSE}
##
  [5]
        {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
  [6]
##
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
  [7]
        {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
##
  [8]
        {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
## [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
        lift
```

```
## [1]
        3.258065
##
   [2]
        2.227941
##
  [3]
        2.087440
  [4]
        2.032508
##
##
   [5]
        1.711864
##
   [6]
        1.667699
  [7]
        1.576230
##
  [8]
        1.553846
##
   [9]
        1.397924
##
  [10] 1.383562
  [11] 1.338857
##
       lhs
                                                       support
                                                                 confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
  [2] {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
## [3] {hair=FALSE,predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
## [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
  [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
  [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
  [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
   [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift
## [1] 4.193772
## [2] 2.087440
##
  [3] 1.815359
## [4] 1.697479
  [5] 1.643304
##
  [6] 1.643304
##
   [7] 1.576230
  [8] 1.425882
##
##
       lhs
                                       rhs
                                                    support
                                                              confidence
## [1] {hair=FALSE,toothed=TRUE}
                                    => {fins=TRUE} 0.1485149 0.6521739
   [2] {hair=FALSE,feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
  [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
## [4] {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
   [5] {hair=FALSE,backbone=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3409091
  [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
  [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
  [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
##
       lift
## [1] 3.874680
  [2] 2.345201
  [3] 2.227941
##
  [4] 2.121849
## [5] 2.025401
## [6] 1.815359
  [7] 1.599548
##
##
  [8] 1.540305
##
        lhs
                                          rhs
                                                       support
                                                                 confidence
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
## [1]
##
  [2]
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
##
  [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
## [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
## [5]
        {eggs=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
## [6]
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
```

```
{predator=TRUE,toothed=TRUE} => {fins=TRUE} 0.1287129 0.3513514
## [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
  [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
   [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
        lift.
## [1]
        5.516807
## [2]
        5.003096
##
  [3]
        4.391304
## [4]
        3.874680
  [5]
        3.861765
  [6]
##
        3.677871
##
  [7]
        2.087440
## [8]
        1.828054
## [9]
        1.828054
## [10] 1.711864
##
  [11] 1.667699
##
       lhs
                                                     support
                                                                confidence
                                      => {fins=TRUE} 0.1584158 0.8888889
## [1] {aquatic=TRUE,legs=FALSE}
## [2] {aquatic=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
## [3] {aquatic=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
## [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
## [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
## [6] {aquatic=TRUE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
  [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
## [1] 5.281046
## [2] 4.391304
## [3] 3.861765
## [4] 3.656109
  [5] 3.366667
## [6] 3.366667
## [7] 3.258065
   [8] 2.970588
##
  [1] "Número de reglas con consecuente negado"
##
                                                              support
## [1]
        {type=fish}
                                         => {feathers=FALSE} 0.1287129
## [2]
        {fins=TRUE}
                                         => {feathers=FALSE} 0.1683168
## [3]
        {backbone=FALSE}
                                         => {feathers=FALSE} 0.1782178
## [4]
        {breathes=FALSE}
                                         => {feathers=FALSE} 0.2079208
## [5]
                                         => {feathers=FALSE} 0.2277228
        {legs=FALSE}
##
  [6]
        {tail=FALSE}
                                         => {feathers=FALSE} 0.2574257
## [7]
                                         => {feathers=FALSE} 0.4158416
        {eggs=FALSE}
## [8]
        {hair=TRUE}
                                         => {feathers=FALSE} 0.4257426
## [9]
        {airborne=FALSE,catsize=FALSE}
                                         => {feathers=FALSE} 0.3465347
## [10] {airborne=FALSE,predator=FALSE} => {feathers=FALSE} 0.2673267
## [11] {airborne=FALSE}
                                         => {feathers=FALSE} 0.7227723
## [12] {catsize=TRUE}
                                         => {feathers=FALSE} 0.3762376
## [13] {predator=TRUE}
                                         => {feathers=FALSE} 0.4653465
                                         => {feathers=FALSE} 0.2970297
## [14] {aquatic=TRUE}
## [15] {aquatic=FALSE}
                                         => {feathers=FALSE} 0.5049505
## [16] {predator=FALSE}
                                         => {feathers=FALSE} 0.3366337
## [17] {catsize=FALSE}
                                         => {feathers=FALSE} 0.4257426
```

```
## [18] {breathes=TRUE}
                                         => {feathers=FALSE} 0.5940594
                                         => {feathers=FALSE} 0.5742574
  [19] {legs=TRUE}
  [20] {milk=FALSE}
                                         => {feathers=FALSE} 0.3960396
  [21] {eggs=TRUE}
                                            {feathers=FALSE} 0.3861386
   [22] {hair=FALSE}
                                            {feathers=FALSE} 0.3762376
   [23] {toothed=FALSE}
                                         => {feathers=FALSE} 0.1980198
##
##
        confidence lift
## [1]
        1.0000000 1.2469136
   [2]
        1.0000000
                   1.2469136
  [3]
##
        1.0000000
                   1.2469136
  [4]
        1.0000000
                   1.2469136
  [5]
##
        1.0000000
                   1.2469136
##
   [6]
        1.0000000
                   1.2469136
##
  [7]
        1.0000000
                   1.2469136
## [8]
        1.0000000
                   1.2469136
##
  [9]
        0.9722222
                   1.2122771
                   1.2023810
##
  [10] 0.9642857
  [11] 0.9480519
                   1.1821388
  [12] 0.8636364
                   1.0768799
  [13] 0.8392857
                   1.0465168
##
  [14] 0.8333333
                   1.0390947
  [15] 0.7846154
                   0.9783476
  [16] 0.7555556
                   0.9421125
   [17] 0.7543860
                   0.9406541
  [18] 0.7500000
                   0.9351852
  [19] 0.7435897
                   0.9271921
  [20] 0.6666667
                   0.8312757
  [21] 0.6610169
                   0.8242310
  [22] 0.6551724
                   0.8169434
##
  [23] 0.5000000 0.6234568
##
       lhs
                                            support
                                                       confidence lift
##
  [1] {type=bird}
                        => {feathers=TRUE} 0.1980198 1.0000000 5.0500000
   [2] {hair=FALSE}
                        => {feathers=TRUE} 0.1980198 0.3448276
   [3] {aquatic=FALSE} => {feathers=TRUE} 0.1386139 0.2153846
                                                                  1.0876923
   [4] {venomous=FALSE} => {feathers=TRUE} 0.1980198 0.2150538
                                                                  1.0860215
   [5] {domestic=FALSE} => {feathers=TRUE} 0.1683168 0.1931818
##
                                                                  0.9755682
##
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                                              support
        {type=fish}
##
  [1]
                                         => {feathers=FALSE} 0.1287129
##
   [2]
        {fins=TRUE}
                                         => {feathers=FALSE} 0.1683168
  [3]
        {backbone=FALSE}
                                         => {feathers=FALSE} 0.1782178
  [4]
        {breathes=FALSE}
                                         => {feathers=FALSE} 0.2079208
##
##
   [5]
        {legs=FALSE}
                                         => {feathers=FALSE} 0.2277228
##
  [6]
                                         => {feathers=FALSE} 0.2574257
        {tail=FALSE}
## [7]
        {eggs=FALSE}
                                         => {feathers=FALSE} 0.4158416
## [8]
        {hair=TRUE}
                                            {feathers=FALSE} 0.4257426
  [9]
        {airborne=FALSE, catsize=FALSE}
                                            {feathers=FALSE} 0.3465347
  [10] {airborne=FALSE,predator=FALSE} =>
                                            {feathers=FALSE} 0.2673267
## [11] {airborne=FALSE}
                                         => {feathers=FALSE} 0.7227723
## [12] {catsize=TRUE}
                                         => {feathers=FALSE} 0.3762376
## [13] {predator=TRUE}
                                         => {feathers=FALSE} 0.4653465
## [14] {aquatic=TRUE}
                                         => {feathers=FALSE} 0.2970297
## [15] {aquatic=FALSE}
                                         => {feathers=FALSE} 0.5049505
## [16] {predator=FALSE}
                                         => {feathers=FALSE} 0.3366337
```

```
## [17] {catsize=FALSE}
                                         => {feathers=FALSE} 0.4257426
                                         => {feathers=FALSE} 0.5940594
  [18] {breathes=TRUE}
  [19] {legs=TRUE}
                                            {feathers=FALSE} 0.5742574
  [20] {milk=FALSE}
                                            {feathers=FALSE} 0.3960396
   [21] {eggs=TRUE}
                                            {feathers=FALSE} 0.3861386
##
  [22] {hair=FALSE}
                                         => {feathers=FALSE} 0.3762376
                                         => {feathers=FALSE} 0.1980198
   [23] {toothed=FALSE}
##
        confidence lift
##
  [1]
        1.0000000
                   1.2469136
   [2]
##
        1.0000000
                   1.2469136
  [3]
        1.0000000
                   1.2469136
   [4]
##
        1.0000000
                   1.2469136
##
   [5]
        1.0000000
                   1.2469136
##
  [6]
        1.0000000
                   1.2469136
##
  [7]
        1.0000000
                   1.2469136
##
  [8]
        1.0000000
                   1.2469136
##
  [9]
        0.9722222
                   1.2122771
  [10] 0.9642857
                   1.2023810
  [11] 0.9480519
                   1.1821388
   [12] 0.8636364
                   1.0768799
##
  [13] 0.8392857
                   1.0465168
  [14] 0.8333333
                   1.0390947
  [15] 0.7846154
                   0.9783476
   [16] 0.7555556
                   0.9421125
  [17] 0.7543860
                   0.9406541
  Γ18 ] 0.7500000
                   0.9351852
  [19] 0.7435897
                   0.9271921
  [20] 0.6666667
                   0.8312757
  [21] 0.6610169
                   0.8242310
  [22] 0.6551724
                   0.8169434
##
  [23] 0.5000000
                   0.6234568
##
       lhs
                            rhs
                                             support
                                                       confidence lift
  [1] {type=bird}
                         => {feathers=TRUE} 0.1980198 1.0000000
                         => {feathers=TRUE} 0.1980198 0.3448276
   [2] {hair=FALSE}
                                                                  1.7413793
   [3] {aquatic=FALSE}
                        => {feathers=TRUE} 0.1386139 0.2153846
   [4] {venomous=FALSE} => {feathers=TRUE} 0.1980198 0.2150538
                                                                  1.0860215
   [5] {domestic=FALSE} => {feathers=TRUE} 0.1683168 0.1931818
##
  [1]
       "Número de reglas con consecuente negado"
##
        lhs
                             rhs
                                               support
                                                         confidence lift
##
                          => {venomous=FALSE} 0.4059406 1.0000000
  [1]
        {milk=TRUE}
                                                                    1.0860215
  [2]
                          => {venomous=FALSE} 0.4059406 1.0000000
        {type=mammal}
                                                                    1.0860215
  [3]
##
        {catsize=TRUE}
                          => {venomous=FALSE} 0.4257426 0.9772727
                                                                    1.0613392
##
   [4]
        {predator=FALSE}
                         => {venomous=FALSE} 0.4257426 0.9555556
                                                                    1.0377539
##
  [5]
                          => {venomous=FALSE} 0.4059406 0.9534884
        {hair=TRUE}
                                                                    1.0355089
  [6]
        {eggs=FALSE}
                          => {venomous=FALSE} 0.3960396 0.9523810
                                                                    1.0343062
## [7]
        {backbone=TRUE}
                             {venomous=FALSE} 0.7821782 0.9518072
                                                                    1.0336831
##
  [8]
        {legs=TRUE}
                             {venomous=FALSE} 0.7326733 0.9487179
                                                                    1.0303281
  [9]
##
        {tail=TRUE}
                          => {venomous=FALSE} 0.7029703 0.9466667
                                                                    1.0281004
  [10]
       {fins=TRUE}
                          => {venomous=FALSE} 0.1584158 0.9411765
                                                                    1.0221379
  [11]
       {aquatic=FALSE}
                          => {venomous=FALSE} 0.6039604 0.9384615
                                                                    1.0191894
  [12]
       {breathes=TRUE}
                             {venomous=FALSE} 0.7425743 0.9375000
                                                                    1.0181452
## [13] {toothed=TRUE}
                          => {venomous=FALSE} 0.5643564 0.9344262
## [14] {domestic=TRUE}
                          => {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
## [15] {type=fish}
                          => {venomous=FALSE} 0.1188119 0.9230769
```

```
## [16] {airborne=FALSE} => {venomous=FALSE} 0.7029703 0.9220779
                                                                    1.0013965
       {domestic=FALSE} => {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
  [17]
  [18] {feathers=FALSE} => {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
  [19] {toothed=FALSE}
                             {venomous=FALSE} 0.3564356 0.9000000
                         =>
                                                                    0.9774194
##
  [20]
       {eggs=TRUE}
                             {venomous=FALSE} 0.5247525 0.8983051
                                                                    0.9755786
##
  [21] {hair=FALSE}
                             {venomous=FALSE} 0.5148515 0.8965517
                                                                    0.9736745
  [22] {predator=TRUE}
                             {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
  [23]
       {catsize=FALSE}
                             {venomous=FALSE} 0.4950495 0.8771930
                                                                    0.9526504
   [24]
       {milk=FALSE}
                             {venomous=FALSE} 0.5148515 0.8666667
                                                                    0.9412186
   [25] {breathes=FALSE}
                             {venomous=FALSE} 0.1782178 0.8571429
                                                                    0.9308756
   [26] {legs=FALSE}
                          => {venomous=FALSE} 0.1881188 0.8260870
                                                                    0.8971482
   [27] {backbone=FALSE}
                         => {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
##
       "Número de reglas con consecuente negado"
##
                                              support
                                                         confidence lift
## [1]
        {milk=TRUE}
                          => {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
##
   [2]
        {type=mammal}
                             {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
   [3]
##
                          => {venomous=FALSE} 0.4257426 0.9772727
        {catsize=TRUE}
                                                                    1.0613392
##
   [4]
                             {venomous=FALSE} 0.4257426 0.9555556
        {predator=FALSE}
                                                                    1.0377539
   [5]
##
        {hair=TRUE}
                             {venomous=FALSE} 0.4059406 0.9534884
                                                                    1.0355089
##
   [6]
        {eggs=FALSE}
                             {venomous=FALSE} 0.3960396 0.9523810
                                                                    1.0343062
##
   [7]
        {backbone=TRUE}
                             {venomous=FALSE} 0.7821782 0.9518072
                                                                    1.0336831
  [8]
##
        {legs=TRUE}
                             {venomous=FALSE} 0.7326733 0.9487179
                                                                    1.0303281
  [9]
##
        {tail=TRUE}
                             {venomous=FALSE} 0.7029703 0.9466667
                                                                    1.0281004
##
   [10] {fins=TRUE}
                             {venomous=FALSE} 0.1584158 0.9411765
                                                                    1.0221379
   [11] {aquatic=FALSE}
                             {venomous=FALSE} 0.6039604 0.9384615
                                                                    1.0191894
  [12] {breathes=TRUE}
                             {venomous=FALSE} 0.7425743 0.9375000
                                                                    1.0181452
   [13]
       {toothed=TRUE}
                             {venomous=FALSE} 0.5643564 0.9344262
                                                                    1.0148070
##
   [14]
       {domestic=TRUE}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
  [15]
       {type=fish}
                          => {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
                             {venomous=FALSE} 0.7029703 0.9220779
  [16] {airborne=FALSE}
                                                                    1.0013965
   [17]
        {domestic=FALSE}
                             {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
   [18]
        {feathers=FALSE}
                             {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
   [19]
       {toothed=FALSE}
                             {venomous=FALSE} 0.3564356 0.9000000
                                                                    0.9774194
   [20]
       {eggs=TRUE}
                          => {venomous=FALSE} 0.5247525 0.8983051
                                                                    0.9755786
        {hair=FALSE}
                             {venomous=FALSE} 0.5148515 0.8965517
   [21]
                                                                    0.9736745
##
  [22] {predator=TRUE}
                         => {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
  [23] {catsize=FALSE}
                             {venomous=FALSE} 0.4950495 0.8771930
                                                                    0.9526504
                          => {venomous=FALSE} 0.5148515 0.8666667
##
  [24] {milk=FALSE}
                                                                    0.9412186
                             {venomous=FALSE} 0.1782178 0.8571429
  [25]
       {breathes=FALSE} =>
                                                                    0.9308756
   [26] {legs=FALSE}
                          => {venomous=FALSE} 0.1881188 0.8260870
                                                                    0.8971482
   [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                         support
                                                                   confidence
##
   [1]
        {type=fish}
                                            {fins=TRUE} 0.1287129 1.0000000
  [2]
##
        {toothed=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
  [3]
##
        {breathes=FALSE,tail=TRUE}
                                            {fins=TRUE} 0.1287129 0.9285714
##
   [4]
        {backbone=TRUE, breathes=FALSE}
                                            {fins=TRUE} 0.1287129 0.9285714
##
   [5]
        {aquatic=TRUE,legs=FALSE}
                                            {fins=TRUE} 0.1584158 0.8888889
   [6]
##
        {toothed=TRUE,legs=FALSE}
                                            {fins=TRUE} 0.1584158 0.8421053
##
   [7]
        {backbone=TRUE,legs=FALSE}
                                            {fins=TRUE} 0.1584158 0.8421053
##
   [8]
        {legs=FALSE,tail=TRUE}
                                            {fins=TRUE} 0.1485149 0.8333333
   [9]
        {breathes=FALSE,legs=FALSE}
                                            {fins=TRUE} 0.1287129 0.8125000
  [10] {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
## [11] {aquatic=TRUE, toothed=TRUE}
                                            {fins=TRUE} 0.1683168 0.7391304
```

```
## [12] {predator=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1188119 0.7058824
  [13] {breathes=FALSE, venomous=FALSE}
                                           {fins=TRUE} 0.1188119 0.6666667
                                           {fins=TRUE} 0.1485149 0.6521739
  [14] {hair=FALSE,toothed=TRUE}
  [15] {aquatic=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.6500000
  [16] {eggs=TRUE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.6500000
  [17] {breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6190476
##
  [18] {milk=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6190476
## [19] {aquatic=TRUE, tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.6153846
  [20] {feathers=FALSE,aquatic=TRUE}
                                           {fins=TRUE} 0.1683168 0.5666667
  [21] {aquatic=TRUE, backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
  [22] {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
                                           {fins=TRUE} 0.1584158 0.5000000
   [23] {aquatic=TRUE, venomous=FALSE}
  [24] {hair=FALSE, feathers=FALSE}
                                        => {fins=TRUE} 0.1485149 0.3947368
## [25]
       {hair=FALSE,airborne=FALSE}
                                        => {fins=TRUE} 0.1485149 0.3750000
## [26] {hair=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3571429
  [27]
        {predator=TRUE, toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.3513514
                                         => {fins=TRUE} 0.1287129 0.3513514
  [28]
       {eggs=TRUE,airborne=FALSE}
   [29] {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
                                        => {fins=TRUE} 0.1485149 0.3409091
  [30] {hair=FALSE,backbone=TRUE}
   [31] {eggs=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.3333333
##
  [32] {feathers=FALSE,eggs=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3333333
  [33] {milk=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3250000
                                         => {fins=TRUE} 0.1287129 0.3250000
## [34] {feathers=FALSE,milk=FALSE}
       {eggs=TRUE,backbone=TRUE}
  [35]
                                           {fins=TRUE} 0.1287129 0.3095238
  [36]
       {milk=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [37] {toothed=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.3076923
                                           {fins=TRUE} 0.1584158 0.3076923
  [38] {toothed=TRUE,domestic=FALSE}
  [39] {hair=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1089109 0.3055556
                                         => {fins=TRUE} 0.1584158 0.2909091
## [40] {feathers=FALSE,tail=TRUE}
## [41] {airborne=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
## [42] {predator=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1188119 0.2857143
  [43]
       {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
  [44] {airborne=FALSE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2807018
                                        => {fins=TRUE} 0.1287129 0.2765957
  [45] {feathers=FALSE,predator=TRUE}
   [46] {predator=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.2765957
  [47] {feathers=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2698413
## [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
  [49] {airborne=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2653061
  [50] {airborne=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1683168 0.2615385
##
  [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
  [52] {hair=FALSE}
                                           {fins=TRUE} 0.1485149 0.2586207
  [53] {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
  [54] {airborne=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2352941
  [55] {feathers=FALSE,airborne=FALSE}
                                        => {fins=TRUE} 0.1683168 0.2328767
## [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
        {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
  [57]
##
  [58]
       {eggs=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1188119 0.2264151
       {airborne=FALSE, venomous=FALSE}
                                           {fins=TRUE} 0.1584158 0.2253521
  [60] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [61] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
   [62]
                                         => {fins=TRUE} 0.1188119 0.2222222
##
       {eggs=TRUE,domestic=FALSE}
  [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
## [64] {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
## [65] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
```

```
## [66] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
        5.941176
## [1]
## [2]
        5.516807
## [3]
        5.516807
## [4]
        5.516807
## [5]
        5.281046
## [6]
        5.003096
## [7]
        5.003096
## [8]
        4.950980
## [9]
        4.827206
## [10] 4.690402
## [11] 4.391304
## [12] 4.193772
## [13] 3.960784
## [14] 3.874680
## [15] 3.861765
## [16] 3.861765
## [17] 3.677871
## [18] 3.677871
## [19] 3.656109
## [20] 3.366667
## [21] 3.366667
## [22] 3.258065
## [23] 2.970588
## [24] 2.345201
## [25] 2.227941
## [26] 2.121849
## [27] 2.087440
## [28] 2.087440
## [29] 2.032508
## [30] 2.025401
## [31] 1.980392
## [32] 1.980392
## [33] 1.930882
## [34] 1.930882
## [35] 1.838936
## [36] 1.838936
## [37] 1.828054
## [38] 1.828054
## [39] 1.815359
## [40] 1.728342
## [41] 1.711864
## [42] 1.697479
## [43] 1.667699
## [44] 1.667699
## [45] 1.643304
## [46] 1.643304
## [47] 1.603175
## [48] 1.599548
## [49] 1.576230
## [50] 1.553846
## [51] 1.540305
## [52] 1.536511
```

```
[53] 1.425882
   [54] 1.397924
   [55] 1.383562
   [56] 1.371041
##
##
   [57] 1.371041
##
   [58] 1.345172
   [59] 1.338857
##
   [60] 1.338857
##
   [61] 1.338857
##
   [62] 1.320261
   [63] 1.302176
##
   [64] 1.296257
##
   [65] 1.284579
##
   [66] 1.100218
##
        lhs
                             rhs
                                           support
                                                     confidence lift
##
   [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000
                                                                1.2023810
##
   [2]
        {type=bird}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
   [3]
        {feathers=TRUE}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
   [4]
##
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
                                                                1.2023810
##
   [5]
        {toothed=FALSE}
                          => {fins=FALSE} 0.3960396 1.0000000
                                                                1.2023810
##
   [6]
        {legs=TRUE}
                          => {fins=FALSE} 0.7623762 0.9871795
                                                                1.1869658
   [7]
                          => {fins=FALSE} 0.4059406 0.9534884
##
        {hair=TRUE}
                                                                1.1464563
  [8]
        {breathes=TRUE}
                          => {fins=FALSE} 0.7524752 0.9500000
                                                                1.1422619
##
                          => {fins=FALSE} 0.1188119 0.9230769
##
   [9]
        {domestic=TRUE}
                                                                1.1098901
   [10] {predator=FALSE} => {fins=FALSE} 0.4059406 0.9111111
                                                                1.0955026
   [11] {eggs=FALSE}
                          => {fins=FALSE} 0.3762376 0.9047619
                                                                1.0878685
                          => {fins=FALSE} 0.3663366 0.9024390
##
   [12] {milk=TRUE}
                                                                1.0850755
##
   [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
  [14] {catsize=FALSE}
                          => {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
  [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
   [16]
       {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                0.9837662
   [17]
        {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                0.9837662
       {backbone=TRUE}
                          => {fins=FALSE} 0.6534653 0.7951807
                                                                0.9561102
   Г187
  [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
   [20]
        {tail=TRUE}
                          => {fins=FALSE} 0.5841584 0.7866667
                                                                0.9458730
                          => {fins=FALSE} 0.4554455 0.7796610
##
  [21] {eggs=TRUE}
                                                                0.9374496
   [22] {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                0.9369202
                          => {fins=FALSE} 0.4257426 0.7678571
  [23] {predator=TRUE}
                                                                0.9232568
   [24] {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
##
                                                                0.8914204
                          => {fins=FALSE} 0.4356436 0.7213115
##
   [25] {toothed=TRUE}
                                                                0.8672912
                          => {fins=FALSE} 0.1881188 0.5277778
   [26]
       {aquatic=TRUE}
                                                                0.6345899
##
        lhs
                                             rhs
                                                         support
                                                                    confidence
##
   [1]
        {venomous=FALSE,legs=FALSE}
                                            {fins=TRUE} 0.1485149 0.7894737
##
   [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
##
   [3]
        {aquatic=TRUE, venomous=FALSE}
                                          => {fins=TRUE} 0.1584158 0.5000000
   [4]
                                          => {fins=TRUE} 0.1584158 0.2807018
##
        {toothed=TRUE, venomous=FALSE}
##
   [5]
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
   [6]
##
        {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
##
   [7]
        {milk=FALSE, venomous=FALSE}
                                          => {fins=TRUE} 0.1188119 0.2307692
##
   [8]
        {eggs=TRUE, venomous=FALSE}
                                          => {fins=TRUE} 0.1188119 0.2264151
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
   [9]
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
  [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
```

```
## [1]
        4.690402
##
   [2]
        3.960784
##
   [3]
        2.970588
   [4]
##
        1.667699
##
   [5]
        1.599548
##
   [6]
        1.425882
##
   [7]
        1.371041
##
   [8]
        1.345172
##
   [9]
        1.338857
##
   [10] 1.302176
   [11] 1.100218
##
       lhs
                                            rhs
                                                        support
                                                                  confidence
## [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
  [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
## [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
  [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
                                        => {fins=TRUE} 0.1188119 0.2222222
   [7] {eggs=TRUE,domestic=FALSE}
   [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
   [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
       lift
## [1] 1.828054
   [2] 1.540305
##
  [3] 1.397924
##
  [4] 1.371041
   [5] 1.338857
##
##
   [6] 1.338857
##
   [7] 1.320261
  [8] 1.296257
##
   [9] 1.100218
##
        lhs
                                                        support
                                                                   confidence
                                            rhs
##
  [1]
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
   [2]
##
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
##
   [3]
        {aquatic=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
##
   [4]
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
##
   [5]
        {eggs=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
   [6]
        {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
##
   [7]
        {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
##
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
##
   [8]
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
       {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [10]
##
       {backbone=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
        lift
## [1]
        5.516807
   [2]
        5.003096
##
##
   [3]
        3.366667
##
   [4]
        2.025401
##
   [5]
        1.838936
##
   [6]
        1.838936
   [7]
##
        1.643304
## [8]
        1.603175
## [9]
        1.553846
## [10] 1.338857
```

```
## [11] 1.284579
##
        lhs
                                                         support
                                                                   confidence
                                            rhs
        {feathers=FALSE, aquatic=TRUE}
## [1]
                                         => {fins=TRUE} 0.1683168 0.5666667
  [2]
        {hair=FALSE, feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
  [3]
        {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
  [4]
        {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
##
  [5]
        {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
                                         => {fins=TRUE} 0.1287129 0.2765957
## [6]
        {feathers=FALSE,predator=TRUE}
##
  [7]
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
  [8]
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
##
        lift
## [1]
        3.366667
## [2]
        2.345201
## [3]
        1.980392
##
  [4]
        1.930882
##
  [5]
        1.728342
  [6]
##
        1.643304
##
  [7]
        1.603175
##
  [8]
        1.383562
## [9]
        1.338857
## [10] 1.302176
##
        lhs
                                       rhs
                                                   support
                                                              confidence
## [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
  [2]
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.8333333
  [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
##
##
  [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
## [5]
                                    => {fins=TRUE} 0.1287129 0.3333333
        {eggs=TRUE,tail=TRUE}
## [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
## [7]
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
  [8]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
        {predator=TRUE, tail=TRUE} => {fins=TRUE} 0.1188119 0.2857143
## [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
  [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
  [12] {backbone=TRUE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
##
        lift
## [1]
        5.516807
## [2]
        4.950980
  [3]
##
        3.656109
  [4]
        2.121849
  [5]
        1.980392
##
##
   [6]
        1.930882
##
  [7]
        1.828054
## [8]
        1.728342
## [9]
        1.697479
## [10] 1.667699
## [11] 1.371041
##
  [12] 1.284579
                                                             confidence
##
       lhs
                                      rhs
                                                   support
                                   => {fins=TRUE} 0.1287129 0.6500000
## [1] {eggs=TRUE,toothed=TRUE}
## [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
## [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
```

```
## [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
## [6] {eggs=TRUE,venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
  [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
       lift
## [1] 3.861765
## [2] 2.087440
## [3] 1.980392
## [4] 1.980392
## [5] 1.838936
## [6] 1.345172
## [7] 1.320261
##
        lhs
                                                        support
                                                                   confidence
## [1]
        {airborne=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
## [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
## [5]
                                         => {fins=TRUE} 0.1683168 0.2881356
        {airborne=FALSE, toothed=TRUE}
## [6]
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
                                        => {fins=TRUE} 0.1287129 0.2653061
## [7]
       {airborne=FALSE,predator=TRUE}
## [8]
       {airborne=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2615385
## [9]
       {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
## [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
        lift
##
       3.258065
## [1]
## [2]
       2.227941
## [3]
       2.087440
##
  [4]
        2.032508
## [5]
        1.711864
## [6]
        1.667699
## [7]
        1.576230
## [8]
        1.553846
## [9]
        1.397924
## [10] 1.383562
##
  [11] 1.338857
##
       lhs
                                          rhs
                                                      support
                                                                confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
## [2] {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
## [3] {hair=FALSE,predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
## [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
  [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
## [4] 1.697479
## [5] 1.643304
## [6] 1.643304
## [7] 1.576230
## [8] 1.425882
##
       lhs
                                                   support
                                                             confidence
                                       rhs
```

```
## [1] {hair=FALSE,toothed=TRUE}
                                   => {fins=TRUE} 0.1485149 0.6521739
## [2] {hair=FALSE,feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
## [4] {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
## [5] {hair=FALSE,backbone=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3409091
## [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
## [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
## [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
       lift
## [1] 3.874680
## [2] 2.345201
## [3] 2.227941
## [4] 2.121849
## [5] 2.025401
## [6] 1.815359
## [7] 1.599548
##
  [8] 1.540305
        lhs
##
                                                      support
                                                                 confidence
## [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
  [2]
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
##
  [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
## [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
## [5]
        {eggs=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
  [6]
        {milk=FALSE,toothed=TRUE}
##
                                       => {fins=TRUE} 0.1287129 0.6190476
## [7]
        {predator=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1287129 0.3513514
  [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
  [9]
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
##
   [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
  [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
##
        lift
## [1]
       5.516807
##
  [2]
       5.003096
##
  [3]
        4.391304
  [4]
##
        3.874680
   [5]
##
        3.861765
##
  [6]
       3.677871
  [7]
        2.087440
## [8]
        1.828054
## [9]
        1.828054
## [10] 1.711864
  [11] 1.667699
##
       lhs
                                         rhs
                                                     support
                                                                confidence
## [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
  [2] {aquatic=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
## [3] {aquatic=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
                                      => {fins=TRUE} 0.1584158 0.6153846
## [4] {aquatic=TRUE,tail=TRUE}
## [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [6] {aquatic=TRUE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
   [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
## [1] 5.281046
## [2] 4.391304
## [3] 3.861765
```

```
[4] 3.656109
   [5] 3.366667
   [6] 3.366667
   [7] 3.258065
##
##
   [8]
       2.970588
##
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                        support
                                                                  confidence
## [1]
        {type=fish}
                                         => {fins=TRUE} 0.1287129 1.0000000
##
   [2]
        {toothed=TRUE,breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.9285714
##
   [3]
        {breathes=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.9285714
   [4]
        {backbone=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.9285714
   [5]
##
        {aquatic=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1584158 0.8888889
##
   [6]
        {toothed=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1584158 0.8421053
   [7]
##
        {backbone=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1584158 0.8421053
  [8]
                                         => {fins=TRUE} 0.1485149 0.8333333
##
        {legs=FALSE,tail=TRUE}
##
   [9]
        {breathes=FALSE,legs=FALSE}
                                            {fins=TRUE} 0.1287129 0.8125000
##
   [10] {venomous=FALSE,legs=FALSE}
                                           {fins=TRUE} 0.1485149 0.7894737
   [11] {aquatic=TRUE, toothed=TRUE}
                                           {fins=TRUE} 0.1683168 0.7391304
   [12] {predator=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1188119 0.7058824
   [13] {breathes=FALSE, venomous=FALSE}
                                           {fins=TRUE} 0.1188119 0.6666667
##
  [14] {hair=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1485149 0.6521739
  [15] {aquatic=TRUE,breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6500000
                                           {fins=TRUE} 0.1287129 0.6500000
  [16] {eggs=TRUE,toothed=TRUE}
   [17] {breathes=FALSE}
                                            {fins=TRUE} 0.1287129 0.6190476
  [18] {milk=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.6190476
  [19] {aquatic=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.6153846
  [20] {feathers=FALSE,aquatic=TRUE}
                                           {fins=TRUE} 0.1683168 0.5666667
  [21] {aquatic=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1683168 0.5666667
  [22] {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
  [23] {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
  [24]
        {hair=FALSE,feathers=FALSE}
                                           {fins=TRUE} 0.1485149 0.3947368
   [25]
        {hair=FALSE,airborne=FALSE}
                                           {fins=TRUE} 0.1485149 0.3750000
   [26] {hair=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1485149 0.3571429
                                         => {fins=TRUE} 0.1287129 0.3513514
   [27] {predator=TRUE, toothed=TRUE}
   [28] {eggs=TRUE,airborne=FALSE}
                                            {fins=TRUE} 0.1287129 0.3513514
##
  [29] {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
  [30] {hair=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1485149 0.3409091
  [31] {eggs=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
                                            {fins=TRUE} 0.1287129 0.3333333
##
   [32] {feathers=FALSE,eggs=TRUE}
##
  [33] {milk=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.3250000
  [34] {feathers=FALSE,milk=FALSE}
                                           {fins=TRUE} 0.1287129 0.3250000
   [35] {eggs=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.3095238
   [36] {milk=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.3095238
                                         => {fins=TRUE} 0.1584158 0.3076923
  [37] {toothed=TRUE,tail=TRUE}
## [38] {toothed=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.3076923
                                           {fins=TRUE} 0.1089109 0.3055556
  [39] {hair=FALSE,predator=TRUE}
  [40] {feathers=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.2909091
  [41] {airborne=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
  [42] {predator=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1188119 0.2857143
  [43] {toothed=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1584158 0.2807018
## [44] {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [45] {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
## [46] {predator=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
## [47] {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
```

```
## [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
  [49] {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
  [50] {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
## [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
##
  [52] {hair=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2586207
## [53] {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
  [54] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
   [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [57] {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
  [58] {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
  [59] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [60] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [61] {backbone=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2253521
  [62] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
       {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
##
   [64]
   [65] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
   [66] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
##
  [1]
       5.941176
  [2]
       5.516807
##
## [3]
       5.516807
  [4]
##
        5.516807
##
  [5]
        5.281046
  [6]
        5.003096
   [7]
##
        5.003096
##
   [8]
        4.950980
  [9]
##
        4.827206
## [10] 4.690402
## [11] 4.391304
##
  [12] 4.193772
  [13] 3.960784
## [14] 3.874680
   [15] 3.861765
## [16] 3.861765
## [17] 3.677871
## [18] 3.677871
## [19] 3.656109
## [20] 3.366667
  [21] 3.366667
  [22] 3.258065
##
  [23] 2.970588
##
  [24] 2.345201
## [25] 2.227941
## [26] 2.121849
## [27] 2.087440
## [28] 2.087440
## [29] 2.032508
## [30] 2.025401
## [31] 1.980392
## [32] 1.980392
## [33] 1.930882
## [34] 1.930882
```

```
## [35] 1.838936
   [36] 1.838936
   [37] 1.828054
  [38] 1.828054
   [39] 1.815359
##
  [40] 1.728342
  [41] 1.711864
## [42] 1.697479
   [43] 1.667699
  [44] 1.667699
  [45] 1.643304
  [46] 1.643304
##
   [47] 1.603175
  [48] 1.599548
  [49] 1.576230
   [50] 1.553846
##
   [51] 1.540305
   [52] 1.536511
  [53] 1.425882
   [54] 1.397924
##
  [55] 1.383562
  [56] 1.371041
##
  [57] 1.371041
##
   [58] 1.345172
   [59] 1.338857
   [60] 1.338857
##
   [61] 1.338857
##
   [62] 1.320261
##
   [63] 1.302176
   [64] 1.296257
##
   [65] 1.284579
##
   [66] 1.100218
##
        lhs
                                          support
                                                     confidence lift
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000
##
  [1]
                                                                1.2023810
##
   [2]
        {type=bird}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
   [3]
                          => {fins=FALSE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                                1.2023810
##
  [4]
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
                                                                1.2023810
##
  [5]
                          => {fins=FALSE} 0.3960396 1.0000000
        {toothed=FALSE}
                                                                1.2023810
##
   [6]
        {legs=TRUE}
                          => {fins=FALSE} 0.7623762 0.9871795
                                                                1.1869658
##
  [7]
                          => {fins=FALSE} 0.4059406 0.9534884
        {hair=TRUE}
                                                                1.1464563
                          => {fins=FALSE} 0.7524752 0.9500000
  [8]
        {breathes=TRUE}
                                                                1.1422619
   [9]
        {domestic=TRUE}
                          => {fins=FALSE} 0.1188119 0.9230769
                                                                1.1098901
   Γ10]
       {predator=FALSE} => {fins=FALSE} 0.4059406 0.9111111
                                                                1.0955026
                          => {fins=FALSE} 0.3762376 0.9047619
##
   [11] {eggs=FALSE}
                                                                1.0878685
  [12] {milk=TRUE}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
                          => {fins=FALSE} 0.3663366 0.9024390
  [13] {type=mammal}
                                                                1.0850755
   [14] {catsize=FALSE}
                             {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
   [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
  [16] {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                0.9837662
                                                                0.9837662
  [17] {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                          => {fins=FALSE} 0.6534653 0.7951807
  [18]
       {backbone=TRUE}
                                                                0.9561102
## [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
## [20] {tail=TRUE}
                          => {fins=FALSE} 0.5841584 0.7866667
                                                                0.9458730
## [21] {eggs=TRUE}
                          => {fins=FALSE} 0.4554455 0.7796610
                                                                0.9374496
```

```
## [22] {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208 0.9369202
  [23] {predator=TRUE}
                         => {fins=FALSE} 0.4257426 0.7678571
                                                               0.9232568
  [24] {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
                          => {fins=FALSE} 0.4356436 0.7213115
  [25] {toothed=TRUE}
                                                                0.8672912
##
   [26]
       {aquatic=TRUE}
                         => {fins=FALSE} 0.1881188 0.5277778
                                                                0.6345899
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
  Г17
        {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
##
  [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
##
  [3]
        {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
##
  [4]
        {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
  [5]
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
                                         => {fins=TRUE} 0.1188119 0.2400000
##
   [6]
        {predator=TRUE, venomous=FALSE}
##
   [7]
        {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
##
  [8]
        {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
  [9]
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
        lift
        4.690402
##
  Г17
##
   [2]
        3.960784
##
  [3]
        2.970588
  [4]
##
        1.667699
  [5]
##
        1.599548
##
   [6]
        1.425882
##
  [7]
        1.371041
  [8]
        1.345172
  [9]
##
        1.338857
##
   [10] 1.302176
##
  [11] 1.100218
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
   [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
  [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
  [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
## [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
  [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
## [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
  [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
       lift
## [1] 1.828054
## [2] 1.540305
  [3] 1.397924
## [4] 1.371041
## [5] 1.338857
## [6] 1.338857
##
  [7] 1.320261
  [8] 1.296257
   [9] 1.100218
##
##
        lhs
                                           rhs
                                                        support
                                                                  confidence
## [1]
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
## [2]
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
## [3]
        {aquatic=TRUE, backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
## [4]
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
```

```
{eggs=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
##
        {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
  [6]
  [7]
        {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
  [8]
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
##
  [9]
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
  [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [11] {backbone=TRUE.tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
        lift
## [1]
        5.516807
  [2]
##
        5.003096
  [3]
        3.366667
  [4]
        2.025401
##
##
   [5]
        1.838936
##
  [6]
        1.838936
  [7]
##
        1.643304
##
  [8]
        1.603175
  [9]
        1.553846
##
  [10] 1.338857
##
  [11] 1.284579
##
        lhs
                                                         support
                                                                   confidence
## [1]
        {feathers=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
        {hair=FALSE, feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
## [2]
## [3]
        {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
  ۲4٦
        {feathers=FALSE, milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
##
## [5]
        {feathers=FALSE, tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
  [6]
        {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
  [7]
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
##
  [8]
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
##
  [9]
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
        lift
## [1]
        3.366667
##
  [2]
        2.345201
  [3]
##
        1.980392
##
   [4]
        1.930882
##
  [5]
        1.728342
##
  [6]
        1.643304
## [7]
        1.603175
  [8]
        1.383562
##
  [9]
##
        1.338857
  [10] 1.302176
##
                                       rhs
                                                    support
                                                              confidence
## [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
##
  [2]
                                    => {fins=TRUE} 0.1485149 0.8333333
        {legs=FALSE,tail=TRUE}
## [3]
        {aquatic=TRUE, tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
## [4]
                                    => {fins=TRUE} 0.1485149 0.3571429
        {hair=FALSE,tail=TRUE}
##
  [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
  [6]
##
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
## [7]
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
##
  [8]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
                                   => {fins=TRUE} 0.1188119 0.2857143
##
  [9]
        {predator=TRUE,tail=TRUE}
## [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
## [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
## [12] {backbone=TRUE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
```

```
##
        lift
## [1]
        5.516807
##
   [2]
        4.950980
   [3]
##
        3.656109
##
   [4]
        2.121849
   [5]
##
        1.980392
   [6]
##
        1.930882
## [7]
        1.828054
##
   [8]
        1.728342
##
  [9]
        1.697479
  [10] 1.667699
##
  [11] 1.371041
##
   [12] 1.284579
                                                              confidence
##
       lhs
                                      rhs
                                                   support
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {fins=TRUE} 0.1287129 0.6500000
  [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
  [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
  [4] {feathers=FALSE.eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
## [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
   [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
##
   [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
       lift.
## [1] 3.861765
   [2] 2.087440
## [3] 1.980392
  [4] 1.980392
  [5] 1.838936
##
##
   [6] 1.345172
##
   [7] 1.320261
##
        lhs
                                            rhs
                                                         support
                                                                    confidence
## [1]
        {airborne=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
##
   [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
  [3]
        {eggs=TRUE,airborne=FALSE}
                                          => {fins=TRUE} 0.1287129 0.3513514
  [4]
                                          => {fins=TRUE} 0.1287129 0.3421053
##
        {milk=FALSE,airborne=FALSE}
##
   [5]
        {airborne=FALSE, toothed=TRUE}
                                          => {fins=TRUE} 0.1683168 0.2881356
                                         => {fins=TRUE} 0.1584158 0.2807018
##
  [6]
        {airborne=FALSE,tail=TRUE}
## [7]
        {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
## [8]
        {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [9]
  [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
   [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
        lift
## [1]
        3.258065
##
  [2]
        2.227941
## [3]
        2.087440
## [4]
        2.032508
##
   [5]
        1.711864
##
   [6]
        1.667699
##
   [7]
        1.576230
##
   [8]
        1.553846
   [9]
        1.397924
##
## [10] 1.383562
## [11] 1.338857
##
       lhs
                                           rhs
                                                       support
                                                                  confidence
```

```
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
## [2] {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
                                       => {fins=TRUE} 0.1089109 0.3055556
## [3] {hair=FALSE, predator=TRUE}
## [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE, backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
## [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
## [4] 1.697479
## [5] 1.643304
## [6] 1.643304
## [7] 1.576230
## [8] 1.425882
##
       lhs
                                                   support
                                                             confidence
## [1] {hair=FALSE,toothed=TRUE}
                                   => {fins=TRUE} 0.1485149 0.6521739
## [2] {hair=FALSE, feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
## [4] {hair=FALSE,tail=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3571429
## [5] {hair=FALSE,backbone=TRUE} => {fins=TRUE} 0.1485149 0.3409091
## [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
## [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
  [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
       lift
## [1] 3.874680
## [2] 2.345201
## [3] 2.227941
## [4] 2.121849
## [5] 2.025401
## [6] 1.815359
## [7] 1.599548
##
  [8] 1.540305
##
        lhs
                                          rhs
                                                      support
                                                                confidence
## [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
## [2]
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
## [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
## [4]
                                       => {fins=TRUE} 0.1485149 0.6521739
        {hair=FALSE,toothed=TRUE}
        {eggs=TRUE,toothed=TRUE}
## [5]
                                       => {fins=TRUE} 0.1287129 0.6500000
## [6]
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
## [7]
        {predator=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1287129 0.3513514
## [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
## [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
## [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
        lift
## [1]
       5.516807
## [2]
       5.003096
## [3]
        4.391304
## [4]
       3.874680
## [5]
       3.861765
## [6]
       3.677871
```

```
[7]
        2.087440
##
   [8]
        1.828054
  [9]
        1.828054
  [10] 1.711864
##
   [11] 1.667699
##
       lhs
                                         rhs
                                                      support
                                                                confidence
  [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
  [2] {aquatic=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
   [3] {aquatic=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
   [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
  [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
   [6] {aquatic=TRUE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
   [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
   [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
##
       lift.
##
  [1] 5.281046
   [2] 4.391304
##
  [3] 3.861765
  [4] 3.656109
   [5] 3.366667
##
  [6] 3.366667
  [7] 3.258065
  [8] 2.970588
##
   [1] "Número de reglas con consecuente negado"
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
   [2] {aquatic=FALSE,legs=TRUE}
                                      => {domestic=TRUE} 0.1188119 0.2000000
   [3] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
  [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
##
  [5] {backbone=TRUE, breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
##
  [1] 1.612482
   [2] 1.553846
  [3] 1.335337
   [4] 1.294872
##
   [5] 1.238573
##
        lhs
                                              support
                                                         confidence lift
## [1]
                         => {domestic=FALSE} 0.3465347 0.9722222
        {aquatic=TRUE}
                                                                    1.1158460
   [2]
                         => {domestic=FALSE} 0.5346535 0.9642857
##
        {predator=TRUE}
                                                                    1.1067370
  [3]
##
        {legs=FALSE}
                         => {domestic=FALSE} 0.2178218 0.9565217
                                                                    1.0978261
  [4]
        {breathes=FALSE} => {domestic=FALSE} 0.1980198 0.9523810
                                                                    1.0930736
  [5]
        {backbone=FALSE} => {domestic=FALSE} 0.1683168 0.9444444
##
                                                                    1.0839646
##
   [6]
        {fins=TRUE}
                         => {domestic=FALSE} 0.1584158 0.9411765
                                                                    1.0802139
##
  [7]
                         => {domestic=FALSE} 0.5346535 0.9310345
        {hair=FALSE}
                                                                    1.0685737
## [8]
        {type=fish}
                         => {domestic=FALSE} 0.1188119 0.9230769
                                                                    1.0594406
## [9]
        {milk=FALSE}
                         => {domestic=FALSE} 0.5445545 0.9166667
                                                                    1.0520833
##
  [10] {eggs=TRUE}
                         => {domestic=FALSE} 0.5346535 0.9152542
                                                                    1.0504622
  [11] {toothed=FALSE}
                         => {domestic=FALSE} 0.3564356 0.9000000
                                                                    1.0329545
  [12] {airborne=FALSE} => {domestic=FALSE} 0.6732673 0.8831169
                                                                    1.0135773
  [13] {catsize=FALSE}
                            {domestic=FALSE} 0.4950495 0.8771930
                                                                    1.0067783
## [14] {feathers=FALSE} => {domestic=FALSE} 0.7029703 0.8765432
                                                                    1.0060325
## [15] {catsize=TRUE}
                         => {domestic=FALSE} 0.3762376 0.8636364
                                                                    0.9912190
                         => {domestic=FALSE} 0.7029703 0.8554217
## [16] {backbone=TRUE}
                                                                    0.9817908
## [17] {legs=TRUE}
                         => {domestic=FALSE} 0.6534653 0.8461538 0.9711538
```

```
## [18] {airborne=TRUE}
                         => {domestic=FALSE} 0.1980198 0.8333333
                                                                   0.9564394
                         => {domestic=FALSE} 0.3366337 0.8095238
                                                                   0.9291126
  [19] {eggs=FALSE}
  [20] {milk=TRUE}
                         => {domestic=FALSE} 0.3267327 0.8048780
  [21] {type=mammal}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                   0.9237805
##
                                         rhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
  [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
  [3] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
##
   [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
## [1] 1.612482
  [2] 1.335337
##
##
   [3] 1.294872
   [4] 1.238573
##
##
       lhs
                                     rhs
                                                     support
                                                               confidence
   [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
##
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
       lift
  [1] 1.553846
##
   [2] 1.335337
##
   Г17
      "Número de reglas con consecuente negado"
##
                                                         support
                                                                   confidence
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
##
   [2] {aquatic=FALSE,legs=TRUE}
##
                                      => {domestic=TRUE} 0.1188119 0.2000000
  [3] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
  [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
   [5] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
## [1] 1.612482
## [2] 1.553846
## [3] 1.335337
##
  [4] 1.294872
##
  [5] 1.238573
##
        lhs
                                                        confidence lift
                            rhs
                                              support
                         => {domestic=FALSE} 0.3465347 0.9722222
##
   [1]
        {aquatic=TRUE}
        {predator=TRUE}
                         => {domestic=FALSE} 0.5346535 0.9642857
##
  [2]
                                                                   1.1067370
## [3]
        {legs=FALSE}
                         => {domestic=FALSE} 0.2178218 0.9565217
                                                                   1.0978261
## [4]
        {breathes=FALSE} => {domestic=FALSE} 0.1980198 0.9523810
                                                                   1.0930736
  [5]
        {backbone=FALSE} => {domestic=FALSE} 0.1683168 0.9444444
##
                                                                   1.0839646
                         => {domestic=FALSE} 0.1584158 0.9411765
##
  [6]
        {fins=TRUE}
                                                                   1.0802139
  [7]
        {hair=FALSE}
                         => {domestic=FALSE} 0.5346535 0.9310345
                                                                   1.0685737
  [8]
                         => {domestic=FALSE} 0.1188119 0.9230769
##
        {type=fish}
                                                                   1.0594406
##
  [9]
        {milk=FALSE}
                         => {domestic=FALSE} 0.5445545 0.9166667
                                                                   1.0520833
                         => {domestic=FALSE} 0.5346535 0.9152542
  [10] {eggs=TRUE}
                                                                   1.0504622
## [11] {toothed=FALSE}
                         => {domestic=FALSE} 0.3564356 0.9000000
                                                                   1.0329545
                         => {domestic=FALSE} 0.6732673 0.8831169
## [12] {airborne=FALSE}
                                                                   1.0135773
## [13] {catsize=FALSE}
                         => {domestic=FALSE} 0.4950495 0.8771930
                                                                   1.0067783
## [14] {feathers=FALSE} => {domestic=FALSE} 0.7029703 0.8765432
                                                                   1.0060325
## [15] {catsize=TRUE}
                         => {domestic=FALSE} 0.3762376 0.8636364
                                                                   0.9912190
## [16] {backbone=TRUE}
                         => {domestic=FALSE} 0.7029703 0.8554217
                                                                   0.9817908
## [17] {legs=TRUE}
                         => {domestic=FALSE} 0.6534653 0.8461538
                                                                   0.9711538
## [18] {airborne=TRUE}
                         => {domestic=FALSE} 0.1980198 0.8333333
                                                                   0.9564394
## [19] {eggs=FALSE}
                         => {domestic=FALSE} 0.3366337 0.8095238
                                                                   0.9291126
## [20] {milk=TRUE}
                         => {domestic=FALSE} 0.3267327 0.8048780
```

```
## [21] {type=mammal}
                         => {domestic=FALSE} 0.3267327 0.8048780 0.9237805
##
       lhs
                                                                   confidence
                                         rhs
                                                         support
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
   [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
   [3] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
   [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
##
       lift
## [1] 1.612482
   [2] 1.335337
  [3] 1.294872
   [4] 1.238573
##
       lhs
                                     rhs
                                                     support
                                                               confidence
##
   [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
##
       lift
##
   [1] 1.553846
##
   [2] 1.335337
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                            support
##
   [1]
        {type=bird}
                                           {feathers=TRUE} 0.1980198
##
   [2]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
        {hair=FALSE,airborne=TRUE}
                                         => {feathers=TRUE} 0.1584158
  [3]
  [4]
##
        {airborne=TRUE, tail=TRUE}
                                         => {feathers=TRUE} 0.1584158
##
   [5]
        {airborne=TRUE, backbone=TRUE}
                                            {feathers=TRUE} 0.1584158
##
  [6]
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [7]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
  [8]
                                           {feathers=TRUE} 0.1584158
##
        {eggs=TRUE,airborne=TRUE}
   [9]
        {milk=FALSE,airborne=TRUE}
                                           {feathers=TRUE} 0.1584158
## [10] {airborne=TRUE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1584158
## [11] {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [12] {hair=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
  [13] {toothed=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
  [14] {toothed=FALSE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [15] {hair=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [16] {hair=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
## [17] {hair=FALSE,aquatic=FALSE}
                                           {feathers=TRUE} 0.1386139
## [18] {predator=FALSE, toothed=FALSE}
                                           {feathers=TRUE} 0.1089109
## [19] {aquatic=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1386139
## [20] {eggs=TRUE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
  [21] {milk=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
  [22] {eggs=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
  [23] {eggs=TRUE,breathes=TRUE}
## [24] {milk=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1089109
## [25] {hair=FALSE,predator=FALSE}
## [26] {eggs=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [27]
       {milk=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [28]
       {milk=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
  [29] {eggs=TRUE,aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
                                         => {feathers=TRUE} 0.1980198
  [30] {hair=FALSE,tail=TRUE}
  [31] {eggs=TRUE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [32] {milk=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [33] {milk=FALSE,aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
## [34] {hair=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [35] {hair=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
```

```
[36] {eggs=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
       {milk=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [37]
   [38] {eggs=TRUE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [39] {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [40] {hair=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
  [41] {milk=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
  [42] {tail=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
  [43] {eggs=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [44]
       {hair=FALSE,eggs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [45]
        {hair=FALSE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
   [46] {legs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [47]
       {backbone=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   [48]
       {hair=FALSE}
                                            {feathers=TRUE} 0.1980198
   [49]
       {eggs=TRUE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1386139
   [50] {legs=TRUE,catsize=FALSE}
        {breathes=TRUE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [52]
##
        {fins=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [53] {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
   [54] {breathes=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [55] {backbone=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [56] {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
       {backbone=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
       {fins=FALSE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   [58]
        {backbone=TRUE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [59]
   [60]
       {aquatic=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1386139
   [61]
       {predator=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1089109
   [62] {venomous=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [63]
       {venomous=FALSE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [64]
       {breathes=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
       {backbone=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [65]
   [66]
        {venomous=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [67]
        {predator=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1089109
       {predator=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1089109
   [69] {breathes=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [70] {aguatic=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1386139
##
   [71] {breathes=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [72] {fins=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
  [73] {venomous=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
       {legs=TRUE,domestic=FALSE}
                                            {feathers=TRUE} 0.1683168
   [74]
   [75] {predator=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1089109
       {backbone=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
       {aquatic=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1386139
   [77]
##
   [78]
       {aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
##
                                         => {feathers=TRUE} 0.1980198
   [79]
       {venomous=FALSE}
##
   [80] {domestic=FALSE}
                                         => {feathers=TRUE} 0.1683168
##
        confidence lift
##
   [1]
        1.0000000
                   5.0500000
   [2]
##
        0.9090909
                   4.5909091
##
   [3]
        0.888889
                   4.4888889
##
   [4]
        0.888889
                   4.4888889
   [5]
##
        0.888889
                   4.4888889
##
   [6]
        0.8695652
                   4.3913043
##
  [7]
        0.7272727
                   3.6727273
## [8]
        0.7272727
                   3.6727273
```

```
## [9] 0.7272727
                   3.6727273
  [10] 0.7272727
                   3.6727273
  [11] 0.6060606
                   3.0606061
  [12] 0.5714286
                   2.8857143
  [13] 0.5555556
                   2.8055556
## [14] 0.555556
                   2.8055556
## [15] 0.555556
                   2.8055556
## [16] 0.5405405
                   2.7297297
   [17] 0.5384615
                   2.7192308
  [18] 0.5238095
                   2.6452381
  [19] 0.5185185
                   2.6185185
   [20] 0.5128205
                   2.5897436
  [21] 0.5128205
                   2.5897436
  [22] 0.5128205
                   2.5897436
## [23] 0.5128205
                   2.5897436
   [24] 0.5128205
                   2.5897436
   [25] 0.5000000
                   2.5250000
   [26] 0.5000000
                   2.5250000
  [27] 0.5000000
                   2.5250000
  [28] 0.5000000
                   2.5250000
## [29] 0.4827586
                   2.4379310
  [30] 0.4761905
                   2.4047619
  [31] 0.4761905
                   2.4047619
   [32] 0.4761905
##
                   2.4047619
  [33] 0.4666667
                   2.3566667
  [34] 0.4651163
                   2.3488372
   [35] 0.4545455
                   2.2954545
##
   [36] 0.4347826
                   2.1956522
  [37] 0.4255319
                   2.1489362
                   2.1365385
  [38] 0.4230769
   [39] 0.4230769
                   2.1365385
##
   [40] 0.3846154
                   1.9423077
  [41] 0.3846154
                   1.9423077
  [42] 0.3783784
                   1.9108108
   [43] 0.3773585
                   1.9056604
##
  [44] 0.3703704
                   1.8703704
  [45] 0.3571429
                   1.8035714
  [46] 0.3508772
                   1.7719298
  [47] 0.3500000
                   1.7675000
  [48] 0.3448276
                   1.7413793
  [49] 0.3448276
                   1.7413793
   [50] 0.3414634
                   1.7243902
##
   [51] 0.3414634
                   1.7243902
##
   [52] 0.3389831
                   1.7118644
  [53] 0.3333333
                   1.6833333
  [54] 0.3278689
                   1.6557377
                   1.5781250
##
   [55] 0.3125000
   [56] 0.3055556
                   1.5430556
  [57] 0.3030303
                   1.5303030
   [58] 0.2916667
                   1.4729167
##
  [59] 0.2898551
                   1.4637681
## [60] 0.2857143
                   1.4428571
## [61] 0.2820513
                   1.4243590
## [62] 0.2816901 1.4225352
```

```
[63] 0.2800000
                   1.4140000
   [64] 0.2739726
                   1.3835616
   [65] 0.2702703
                   1.3648649
  [66] 0.2702703
                   1.3648649
##
   [67] 0.2682927
                   1.3548780
##
   [68] 0.2682927
                   1.3548780
   [69] 0.2666667
                   1.3466667
  [70] 0.2641509
                   1.3339623
   [71] 0.2631579
                   1.3289474
   [72] 0.2597403
                   1.3116883
  [73] 0.2597403
                   1.3116883
   [74] 0.2575758
                   1.3007576
   [75] 0.2558140
                   1.2918605
  [76] 0.2531646
                   1.2784810
  [77] 0.2295082
                   1.1590164
   [78] 0.2153846
                   1.0876923
   [79] 0.2150538
                   1.0860215
   [80] 0.1931818
                   0.9755682
##
        lhs
                                              support
                                                         confidence lift
##
   [1]
        {type=fish}
                          => {feathers=FALSE} 0.1287129 1.0000000
##
  [2]
        {fins=TRUE}
                          => {feathers=FALSE} 0.1683168 1.0000000
                                                                    1.2469136
  [3]
        {backbone=FALSE} => {feathers=FALSE} 0.1782178 1.0000000
  [4]
##
        {breathes=FALSE} => {feathers=FALSE} 0.2079208 1.0000000
                                                                    1.2469136
                          => {feathers=FALSE} 0.2277228 1.0000000
##
  [5]
        {legs=FALSE}
                                                                    1.2469136
##
  [6]
        {tail=FALSE}
                          => {feathers=FALSE} 0.2574257 1.0000000
                                                                    1.2469136
  [7]
        {eggs=FALSE}
                          => {feathers=FALSE} 0.4158416 1.0000000
                                                                    1.2469136
   [8]
                          => {feathers=FALSE} 0.4257426 1.0000000
##
        {hair=TRUE}
                                                                    1.2469136
   [9]
        {airborne=FALSE}
                         => {feathers=FALSE} 0.7227723 0.9480519
                                                                    1.1821388
  [10] {catsize=TRUE}
                          => {feathers=FALSE} 0.3762376 0.8636364
                                                                    1.0768799
  [11] {predator=TRUE}
                         => {feathers=FALSE} 0.4653465 0.8392857
                                                                    1.0465168
  [12]
       {aquatic=TRUE}
                          => {feathers=FALSE} 0.2970297 0.8333333
                                                                    1.0390947
##
  [13]
       {aquatic=FALSE}
                          => {feathers=FALSE} 0.5049505 0.7846154
                                                                    0.9783476
  [14] {predator=FALSE}
                         => {feathers=FALSE} 0.3366337 0.7555556
                                                                    0.9421125
  [15] {catsize=FALSE}
                         => {feathers=FALSE} 0.4257426 0.7543860
                                                                    0.9406541
   [16] {breathes=TRUE}
                         => {feathers=FALSE} 0.5940594 0.7500000
                                                                    0.9351852
##
  [17] {legs=TRUE}
                          => {feathers=FALSE} 0.5742574 0.7435897
                                                                    0.9271921
  [18] {milk=FALSE}
                          => {feathers=FALSE} 0.3960396 0.6666667
                                                                    0.8312757
                          => {feathers=FALSE} 0.3861386 0.6610169
  [19] {eggs=TRUE}
                                                                    0.8242310
                          => {feathers=FALSE} 0.3762376 0.6551724
  [20] {hair=FALSE}
                                                                    0.8169434
##
  [21] {toothed=FALSE}
                         => {feathers=FALSE} 0.1980198 0.5000000
                                                                    0.6234568
##
       lhs
                                                           support
                                                                     confidence
  [1] {hair=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5384615
   [2] {aquatic=FALSE,toothed=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5185185
                                       => {feathers=TRUE} 0.1386139 0.4827586
   [3] {eggs=TRUE,aquatic=FALSE}
## [4] {milk=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
   [5] {aquatic=FALSE,tail=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2857143
   [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
   [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
##
       lift
## [1] 2.719231
##
   [2] 2.618519
## [3] 2.437931
## [4] 2.356667
## [5] 1.442857
```

```
[6] 1.333962
##
   [7] 1.159016
##
        lhs
                                                              support
##
        {predator=FALSE, toothed=FALSE}
                                          =>
   [1]
                                             {feathers=TRUE} 0.1089109
##
   [2]
        {hair=FALSE, predator=FALSE}
                                             {feathers=TRUE} 0.1089109
##
   [3]
        {eggs=TRUE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [4]
        {milk=FALSE,predator=FALSE}
                                             {feathers=TRUE} 0.1089109
##
   [5]
        {predator=FALSE,tail=TRUE}
                                             {feathers=TRUE} 0.1089109
##
   [6]
        {predator=FALSE,backbone=TRUE}
                                             {feathers=TRUE} 0.1089109
##
   [7]
        {predator=FALSE,legs=TRUE}
                                             {feathers=TRUE} 0.1089109
   [8]
        {predator=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [9]
        {predator=FALSE,fins=FALSE}
                                          => {feathers=TRUE} 0.1089109
##
       {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
        confidence lift
##
   [1]
        0.5238095
                   2.645238
##
   [2]
        0.5000000
                    2.525000
   [3]
##
                   2.136538
        0.4230769
   [4]
        0.4230769
                    2.136538
##
   [5]
        0.3333333
                   1.683333
##
   [6]
        0.3055556
                    1.543056
##
   [7]
        0.2820513
                    1.424359
   [8]
        0.2682927
                    1.354878
##
   [9]
        0.2682927
                    1.354878
##
   [10] 0.2558140
                   1.291860
##
       lhs
                                           rhs
                                                            support
                                                                      confidence
  [1] {tail=TRUE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.3783784
   [2] {backbone=TRUE, catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.3500000
   [3] {legs=TRUE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.3414634
   [4] {breathes=TRUE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.3414634
   [5] {fins=FALSE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.2916667
##
   [6] {venomous=FALSE, catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
       lift
##
   [1] 1.910811
   [2] 1.767500
   [3] 1.724390
   [4] 1.724390
##
   [5] 1.472917
##
   [6] 1.414000
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
        {hair=FALSE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [3]
        {eggs=TRUE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
##
   [4]
        {milk=FALSE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [5]
        {breathes=TRUE, catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
##
   [6]
        {breathes=TRUE, tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [7]
##
        {backbone=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [8]
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [9]
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
        {breathes=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198
##
        {breathes=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
        confidence lift
## [1]
        0.6060606 3.060606
## [2]
        0.5405405
                   2.729730
## [3]
        0.5128205 2.589744
```

```
[4]
        0.5128205
                    2.589744
##
   [5]
        0.3414634
                    1.724390
        0.3278689
   [6]
                    1.655738
   [7]
##
        0.2898551
                    1.463768
##
   [8]
        0.2739726
                    1.383562
##
   [9]
        0.2682927
                    1.354878
   Γ10 ] 0.2666667
                    1.346667
##
   [11] 0.2631579
                   1.328947
##
        lhs
                                        rhs
                                                         support
                                                                   confidence
##
   [1]
        {toothed=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5555556
        {hair=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5555556
   [3]
        {eggs=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
##
   [4]
        {milk=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
        {legs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3508772
   [6]
        {legs=TRUE,catsize=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.3414634
##
##
   [7]
        {backbone=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3125000
##
   [8]
        {predator=FALSE,legs=TRUE} => {feathers=TRUE} 0.1089109 0.2820513
        {breathes=TRUE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.2739726
   [10] {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
   [11] {fins=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2597403
##
   Γ12]
       {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
##
        lift.
  [1]
        2.805556
##
   [2]
##
        2.805556
##
   [3]
        2.525000
   [4]
        2.525000
   [5]
##
        1.771930
##
   [6]
        1.724390
   [7]
##
        1.578125
##
   [8]
        1.424359
##
   [9]
        1.383562
##
   [10] 1.364865
   [11] 1.311688
##
   [12] 1.300758
##
                                         rhs
        lhs
                                                          support
                                                                    confidence
##
  Г17
        {milk=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.7272727
        {milk=FALSE, toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
   [3]
        {milk=FALSE,breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
##
   [4]
        {milk=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
        {milk=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
   [6]
        {milk=FALSE,backbone=TRUE}
   [7]
        {milk=FALSE, aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.4666667
##
##
   [8]
        {milk=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4255319
        {milk=FALSE,predator=FALSE}
                                     => {feathers=TRUE} 0.1089109 0.4230769
##
   [9]
  [10] {milk=FALSE, venomous=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3846154
                                      => {feathers=TRUE} 0.1980198 0.3571429
        {hair=FALSE,milk=FALSE}
   [11]
##
   [12]
       {eggs=TRUE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3448276
##
        lift
##
  [1]
        3.672727
##
   [2]
        2.589744
   [3]
##
        2.589744
##
  [4]
        2.525000
## [5]
        2.525000
## [6]
        2.404762
```

```
[7]
        2.356667
##
   [8]
        2.148936
   [9]
        2.136538
   [10] 1.942308
##
   [11] 1.803571
   [12] 1.741379
##
##
        lhs
                                        rhs
                                                         support
                                                                   confidence
## [1]
        {eggs=TRUE,airborne=TRUE}
                                     => {feathers=TRUE} 0.1584158 0.7272727
##
   [2]
        {eggs=TRUE,toothed=FALSE}
                                       {feathers=TRUE} 0.1980198 0.5128205
##
   [3]
        {eggs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
   [4]
        {eggs=TRUE,breathes=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
   [5]
        {eggs=TRUE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5000000
##
##
   [6]
        {eggs=TRUE,aquatic=FALSE}
                                        {feathers=TRUE} 0.1386139 0.4827586
##
   [7]
        {eggs=TRUE,backbone=TRUE}
                                       {feathers=TRUE} 0.1980198 0.4761905
   [8]
                                       {feathers=TRUE} 0.1980198 0.4347826
##
        {eggs=TRUE,fins=FALSE}
##
   [9]
        {eggs=TRUE,predator=FALSE} =>
                                        {feathers=TRUE} 0.1089109 0.4230769
   [10] {eggs=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3773585
##
   [11] {hair=FALSE,eggs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3703704
   [12] {eggs=TRUE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3448276
##
##
        lift
##
   [1]
        3.672727
   [2]
        2.589744
   [3]
        2.589744
##
   [4]
##
        2.589744
##
   [5]
        2.525000
   [6]
        2.437931
   [7]
##
        2.404762
##
   [8]
        2.195652
   [9]
##
        2.136538
   [10] 1.905660
##
   [11] 1.870370
##
   [12] 1.741379
##
        lhs
                                                          support
                                                                    confidence
##
   [1]
        {hair=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.8888889
##
   [2]
        {hair=FALSE,toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5714286
##
   [3]
                                      => {feathers=TRUE} 0.1980198 0.5555556
        {hair=FALSE,legs=TRUE}
   [4]
        {hair=FALSE,breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5405405
   [5]
        {hair=FALSE,aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.5384615
##
   [6]
        {hair=FALSE, predator=FALSE}
                                         {feathers=TRUE} 0.1089109 0.5000000
##
                                      => {feathers=TRUE} 0.1980198 0.4761905
##
   [7]
        {hair=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4651163
   [8]
        {hair=FALSE,fins=FALSE}
   [9]
        {hair=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4545455
##
   Γ10]
       {hair=FALSE, venomous=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3846154
       {hair=FALSE,eggs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.3703704
                                      => {feathers=TRUE} 0.1980198 0.3571429
##
   [12] {hair=FALSE,milk=FALSE}
##
        lift
##
  [1]
        4.488889
   [2]
##
        2.885714
##
   [3]
        2.805556
##
   [4]
        2.729730
   [5]
        2.719231
##
##
   [6]
        2.525000
## [7]
        2.404762
## [8]
        2.348837
```

```
[9]
        2.295455
   [10] 1.942308
   [11] 1.870370
   [12] 1.803571
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {toothed=FALSE,backbone=TRUE}
                                           {feathers=TRUE} 0.1980198
   [2]
        {toothed=FALSE.tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [3]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
##
   [4]
        {toothed=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [5]
        {hair=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
   [6]
        {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [7]
##
        {toothed=FALSE, venomous=FALSE}
                                        => {feathers=TRUE} 0.1980198
##
   [8]
        {predator=FALSE, toothed=FALSE}
                                        => {feathers=TRUE} 0.1089109
                                         => {feathers=TRUE} 0.1386139
##
        {aquatic=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [10]
       {eggs=TRUE,toothed=FALSE}
        {milk=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
        confidence lift
##
   [1]
        0.9090909
                   4.590909
   [2]
##
        0.8695652
                   4.391304
##
   [3]
        0.7272727
                    3.672727
##
   [4]
        0.6060606
                   3.060606
##
   [5]
        0.5714286
                   2.885714
##
   [6]
        0.555556
                   2.805556
##
   [7]
        0.555556
                    2.805556
##
   [8]
        0.5238095
                   2.645238
   [9]
        0.5185185
                    2.618519
##
   [10] 0.5128205
                    2.589744
##
   [11] 0.5128205
                   2.589744
##
       "Número de reglas con consecuente negado"
##
                                             rhs
                                                         support
                                                                    confidence
##
   [1]
        {milk=TRUE, predator=FALSE}
                                             {hair=TRUE} 0.1881188 1.0000000
##
   [2]
        {milk=TRUE,aquatic=FALSE}
                                             {hair=TRUE} 0.3465347 1.0000000
##
   [3]
        {milk=TRUE,legs=TRUE}
                                             {hair=TRUE} 0.3762376 1.0000000
   [4]
##
        {milk=TRUE,fins=FALSE}
                                             {hair=TRUE} 0.3663366 1.0000000
        {predator=FALSE,type=mammal}
   [5]
                                             {hair=TRUE} 0.1881188 1.0000000
##
   [6]
        {aquatic=FALSE, type=mammal}
                                             {hair=TRUE} 0.3465347 1.0000000
   [7]
        {legs=TRUE, type=mammal}
                                             {hair=TRUE} 0.3762376 1.0000000
   [8]
        {fins=FALSE,type=mammal}
                                             {hair=TRUE} 0.3663366 1.0000000
##
                                             {hair=TRUE} 0.1881188 1.0000000
##
   [9]
        {eggs=FALSE,predator=FALSE}
   [10] {eggs=FALSE,legs=TRUE}
                                             {hair=TRUE} 0.3663366 0.9736842
   [11] {eggs=FALSE,aquatic=FALSE}
                                             {hair=TRUE} 0.3465347 0.9722222
                                             {hair=TRUE} 0.3861386 0.9512195
   [12] {milk=TRUE}
   [13] {type=mammal}
                                             {hair=TRUE} 0.3861386 0.9512195
   [14] {eggs=FALSE, venomous=FALSE}
                                             {hair=TRUE} 0.3762376 0.9500000
   [15] {eggs=FALSE,fins=FALSE}
                                             {hair=TRUE} 0.3564356 0.9473684
   [16] {eggs=FALSE,breathes=TRUE}
                                             {hair=TRUE} 0.3762376 0.9268293
##
   [17] {aquatic=FALSE, toothed=TRUE}
                                             {hair=TRUE} 0.3465347 0.9210526
   [18] {eggs=FALSE}
                                             {hair=TRUE} 0.3762376 0.9047619
   [19] {toothed=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3663366 0.8809524
   [20] {aquatic=FALSE, catsize=TRUE}
                                             {hair=TRUE} 0.2574257 0.8387097
  [21] {toothed=TRUE,catsize=TRUE}
                                             {hair=TRUE} 0.2871287 0.8285714
## [22] {toothed=TRUE,fins=FALSE}
                                             {hair=TRUE} 0.3564356 0.8181818
## [23] {toothed=TRUE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.8085106
## [24] {predator=FALSE,toothed=TRUE}
                                             {hair=TRUE} 0.1881188 0.7916667
```

```
[25] {feathers=FALSE,catsize=TRUE}
                                         => {hair=TRUE} 0.2970297 0.7894737
   [26] {legs=TRUE,catsize=TRUE}
                                           {hair=TRUE} 0.2871287 0.7837838
  [27] {fins=FALSE,catsize=TRUE}
                                           {hair=TRUE} 0.2772277 0.7777778
  [28] {breathes=TRUE,catsize=TRUE}
                                           {hair=TRUE} 0.2970297 0.7692308
   [29] {feathers=FALSE, aquatic=FALSE}
                                            {hair=TRUE} 0.3861386 0.7647059
  [30] {predator=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.1188119 0.7500000
  [31] {feathers=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.7241379
   [32] {airborne=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3267327 0.7173913
   [33] {feathers=FALSE, breathes=TRUE}
                                            {hair=TRUE} 0.4257426 0.7166667
   [34] {feathers=FALSE,predator=FALSE}
                                            {hair=TRUE} 0.2277228 0.6764706
   [35] {toothed=TRUE, venomous=FALSE}
                                           {hair=TRUE} 0.3762376 0.6666667
   [36] {airborne=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.3564356 0.6666667
   [37] {airborne=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3663366 0.6607143
   [38] {aquatic=FALSE,backbone=TRUE}
                                           {hair=TRUE} 0.3465347 0.6603774
   [39] {aquatic=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.3861386 0.6500000
   [40]
       {feathers=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.4059406 0.6406250
   [41]
##
       {toothed=TRUE}
                                            {hair=TRUE} 0.3762376 0.6229508
   [42] {feathers=FALSE,backbone=TRUE}
                                           {hair=TRUE} 0.3861386 0.6190476
  [43] {aquatic=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.2970297 0.6122449
   [44] {aquatic=FALSE, breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.6093750
##
  [45] {airborne=FALSE, predator=FALSE}
                                            {hair=TRUE} 0.1683168 0.6071429
  [46] {aquatic=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3663366 0.6065574
  [47] {feathers=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.6000000
       {backbone=TRUE,legs=TRUE}
##
   Г481
                                            {hair=TRUE} 0.3762376 0.5937500
   [49] {predator=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.2277228 0.5897436
   [50] {airborne=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.3465347 0.5833333
   [51] {legs=TRUE,tail=TRUE}
                                           {hair=TRUE} 0.3267327 0.5789474
##
   [52] {breathes=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.5753425
  [53] {airborne=FALSE,backbone=TRUE}
                                           {hair=TRUE} 0.3663366 0.5692308
  [54] {backbone=TRUE,breathes=TRUE}
                                           {hair=TRUE} 0.3861386 0.5652174
   [55]
       {feathers=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.4059406 0.5616438
##
   [56]
       {predator=FALSE, breathes=TRUE}
                                            {hair=TRUE} 0.2277228 0.5609756
   [57] {predator=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.2277228 0.5609756
   [58] {backbone=TRUE,fins=FALSE}
                                           {hair=TRUE} 0.3663366 0.5606061
   [59] {breathes=TRUE, venomous=FALSE}
                                            {hair=TRUE} 0.4059406 0.5466667
##
   [60] {airborne=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.3069307 0.5438596
   [61] {fins=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.3168317 0.5423729
  [62] {breathes=TRUE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.5409836
##
        {venomous=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3960396 0.5405405
##
   [63]
##
   [64]
       {breathes=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.4059406 0.5394737
   [65] {predator=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.1881188 0.5277778
   [66] {airborne=FALSE, venomous=FALSE} =>
                                            {hair=TRUE} 0.3663366 0.5211268
   [67] {predator=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.1683168 0.5151515
##
   [68] {predator=FALSE}
                                           {hair=TRUE} 0.2277228 0.5111111
  [69] {venomous=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.3861386 0.5064935
       {backbone=TRUE, venomous=FALSE}
  [70]
                                           {hair=TRUE} 0.3861386 0.4936709
   [71]
       {backbone=TRUE}
                                           {hair=TRUE} 0.3861386 0.4698795
   [72]
       {venomous=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.3267327 0.4647887
   [73]
##
       {domestic=FALSE}
                                         => {hair=TRUE} 0.3366337 0.3863636
##
        lift
        2.3488372
##
  [1]
##
  [2]
        2.3488372
## [3]
        2.3488372
## [4]
        2.3488372
```

- ## [5] 2.3488372
- ## [6] 2.3488372
- ## [7] 2.3488372
- ## [8] 2.3488372
- ## [9] 2.3488372
- ## [10] 2.2870257
- ## [11] 2.2835917
- "" [10] 0 0040500
- ## [12] 2.2342598
- ## [13] 2.2342598
- ## [14] 2.2313953
- ## [15] 2.2252142
- ## [16] 2.1769711
- ## [17] 2.1634027
- ## [18] 2.1251384
- ## [19] 2.0692137
- ## [20] 1.9699925
- ## [21] 1.9461794
- ## [22] 1.9217759
- ## [23] 1.8990599
- ## [24] 1.8594961
- ## [25] 1.8543452
- ## [26] 1.8409805
- ## [27] 1.8268734
- ## [28] 1.8067979
- ## [29] 1.7961696
- ## [30] 1.7616279
- ## [31] 1.7008821
- ## [32] 1.6850354
- ## [33] 1.6833333
- ## [34] 1.5889193
- ## [35] 1.5658915
- ## [36] 1.5658915
- ## [37] 1.5519103
- ## [38] 1.5511189
- ## [39] 1.5267442
- ## [40] 1.5047238
- ## [41] 1.4632101
- ## [42] 1.4540421
- ## [43] 1.4380636
- ## [44] 1.4313227 ## [45] 1.4260797
- ## [46] 1.4247045
- ## [47] 1.4093023
- ## [48] 1.3946221
- ## [49] 1.3852117
- ## [50] 1.3701550
- ## [51] 1.3598531
- ## [52] 1.3513858
- ## [53] 1.3370304
- ## [54] 1.3276036
- ## [55] 1.3192099
- ## [56] 1.3176404
- ## [57] 1.3176404
- ## [58] 1.3167724

```
[59] 1.2840310
##
   [60] 1.2774378
   [61] 1.2739456
   [62] 1.2706824
##
##
   [63]
       1.2696417
   [64] 1.2671359
##
   [65] 1.2396641
##
   [66] 1.2240419
##
   [67] 1.2100070
##
   [68] 1.2005168
   [69] 1.1896708
##
   [70] 1.1595525
##
   [71] 1.1036705
##
   [72] 1.0917131
   [73] 0.9075053
##
##
        lhs
                             rhs
                                                     confidence lift
                                           support
                          => {hair=FALSE} 0.1287129 1.0000000
##
   [1]
        {type=fish}
                                                                1.7413793
   [2]
        {breathes=FALSE}
                         => {hair=FALSE} 0.2079208 1.0000000
   [3]
##
        {legs=FALSE}
                          => {hair=FALSE} 0.2178218 0.9565217
                                                                1.6656672
##
   [4]
        {aquatic=TRUE}
                          => {hair=FALSE} 0.3168317 0.8888889
                                                                1.5478927
##
   [5]
        {toothed=FALSE}
                          => {hair=FALSE} 0.3465347 0.8750000
                                                                1.5237069
   [6]
##
        {backbone=FALSE}
                         => {hair=FALSE} 0.1386139 0.7777778
                                                                1.3544061
   [7]
                          => {hair=FALSE} 0.4356436 0.7719298
##
        {catsize=FALSE}
                                                                1.3442226
##
   [8]
        {airborne=TRUE}
                             {hair=FALSE} 0.1782178 0.7500000
                                                                1.3060345
##
   [9]
        {predator=TRUE}
                          => {hair=FALSE} 0.3564356 0.6428571
                                                                1.1194581
   [10] {tail=FALSE}
                          => {hair=FALSE} 0.1584158 0.6153846
                                                                1.0716180
                          => {hair=FALSE} 0.4356436 0.5301205
##
   [11] {backbone=TRUE}
                                                                0.9231408
##
   [12] {breathes=TRUE}
                          => {hair=FALSE} 0.3663366 0.4625000
                                                                0.8053879
##
   [13] {legs=TRUE}
                          => {hair=FALSE} 0.3564356 0.4615385
                                                                0.8037135
##
   [14] {aquatic=FALSE}
                          => {hair=FALSE} 0.2574257 0.4000000
                                                                0.6965517
##
       lhs
                                          rhs
                                                       support
                                                                  confidence
##
   [1] {aquatic=FALSE,backbone=TRUE}
                                      => {hair=TRUE} 0.3465347 0.6603774
   [2] {feathers=FALSE,backbone=TRUE} => {hair=TRUE} 0.3861386 0.6190476
   [3] {backbone=TRUE,legs=TRUE}
                                       => {hair=TRUE} 0.3762376 0.5937500
   [4] {airborne=FALSE,backbone=TRUE} => {hair=TRUE} 0.3663366 0.5692308
   [5] {backbone=TRUE,breathes=TRUE} => {hair=TRUE} 0.3861386 0.5652174
##
   [6] {backbone=TRUE,fins=FALSE}
                                       => {hair=TRUE} 0.3663366 0.5606061
   [7] {predator=FALSE,backbone=TRUE} => {hair=TRUE} 0.1881188 0.5277778
##
   [8] {backbone=TRUE, venomous=FALSE} => {hair=TRUE} 0.3861386 0.4936709
##
##
       lift
  [1] 1.551119
   [2] 1.454042
##
   [3] 1.394622
##
   [4] 1.337030
   [5] 1.327604
   [6] 1.316772
##
##
   [7] 1.239664
##
   [8] 1.159553
##
        lhs
                                            rhs
                                                        support
                                                                  confidence
##
   [1]
        {eggs=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3762376 0.9268293
##
   [2]
        {toothed=TRUE,breathes=TRUE}
                                        => {hair=TRUE} 0.3762376 0.8085106
##
   [3]
        {breathes=TRUE, catsize=TRUE}
                                        => {hair=TRUE} 0.2970297 0.7692308
##
  [4]
        {feathers=FALSE,breathes=TRUE} => {hair=TRUE} 0.4257426 0.7166667
## [5]
        {airborne=FALSE,breathes=TRUE} => {hair=TRUE} 0.3663366 0.6607143
```

```
{aquatic=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6093750
##
        {breathes=TRUE,legs=TRUE}
                                        => {hair=TRUE} 0.4158416 0.5753425
   [7]
   [8]
        {backbone=TRUE,breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.5652174
   [9]
        {predator=FALSE,breathes=TRUE} => {hair=TRUE} 0.2277228 0.5609756
##
   [10]
       {breathes=TRUE, venomous=FALSE} => {hair=TRUE} 0.4059406 0.5466667
   [11] {breathes=TRUE,tail=TRUE}
                                        => {hair=TRUE} 0.3267327 0.5409836
   [12] {breathes=TRUE,fins=FALSE}
                                        => {hair=TRUE} 0.4059406 0.5394737
##
        lift
##
   [1]
        2.176971
   [2]
##
        1.899060
   [3]
        1.806798
   [4]
##
        1.683333
##
   [5]
        1.551910
##
   [6]
        1.431323
   [7]
##
        1.351386
##
   [8]
        1.327604
   [9]
##
        1.317640
   [10] 1.284031
##
   [11] 1.270682
##
   [12] 1.267136
##
        lhs
                                                    support
                                                               confidence
                                       rhs
  [1]
                                    => {hair=TRUE} 0.3762376 1.0000000
##
        {milk=TRUE,legs=TRUE}
   [2]
                                    => {hair=TRUE} 0.3762376 1.0000000
##
        {legs=TRUE, type=mammal}
                                    => {hair=TRUE} 0.3663366 0.9736842
##
   [3]
        {eggs=FALSE,legs=TRUE}
##
  [4]
        {toothed=TRUE,legs=TRUE}
                                       {hair=TRUE} 0.3663366 0.8809524
   [5]
        {legs=TRUE,catsize=TRUE}
                                       {hair=TRUE} 0.2871287 0.7837838
   [6]
        {feathers=FALSE,legs=TRUE} =>
                                       {hair=TRUE} 0.4158416 0.7241379
##
##
   [7]
        {airborne=FALSE,legs=TRUE} => {hair=TRUE} 0.3564356 0.6666667
   [8]
        {aquatic=FALSE,legs=TRUE}
##
                                    => {hair=TRUE} 0.3861386 0.6500000
   [9]
        {backbone=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.3762376 0.5937500
   [10] {predator=FALSE,legs=TRUE} => {hair=TRUE} 0.2277228 0.5897436
   [11] {legs=TRUE,tail=TRUE}
                                    => {hair=TRUE} 0.3267327 0.5789474
   [12] {breathes=TRUE,legs=TRUE} => {hair=TRUE} 0.4158416 0.5753425
       {venomous=FALSE,legs=TRUE} => {hair=TRUE} 0.3960396 0.5405405
##
   [13]
##
        lift
##
   [1]
        2.348837
##
   [2]
        2.348837
##
  [3]
        2.287026
   [4]
        2.069214
##
   [5]
##
        1.840981
   [6]
        1.700882
   [7]
        1.565891
##
##
   [8]
        1.526744
##
   [9]
        1.394622
  [10] 1.385212
  [11] 1.359853
##
##
   [12] 1.351386
##
   [13] 1.269642
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
##
   [1]
        {milk=TRUE,aquatic=FALSE}
                                        => {hair=TRUE} 0.3465347 1.0000000
##
   [2]
        {aquatic=FALSE, type=mammal}
                                        => {hair=TRUE} 0.3465347 1.0000000
  [3]
        {eggs=FALSE,aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 0.9722222
## [4]
        {aquatic=FALSE, toothed=TRUE}
                                         => {hair=TRUE} 0.3465347 0.9210526
## [5]
        {aquatic=FALSE, catsize=TRUE}
                                         => {hair=TRUE} 0.2574257 0.8387097
```

```
{feathers=FALSE,aquatic=FALSE} => {hair=TRUE} 0.3861386 0.7647059
##
  [7]
        {airborne=FALSE,aquatic=FALSE} => {hair=TRUE} 0.3267327 0.7173913
        {aquatic=FALSE,backbone=TRUE} => {hair=TRUE} 0.3465347 0.6603774
  [8]
  [9]
        {aquatic=FALSE,legs=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6500000
##
##
  [10] {aquatic=FALSE,tail=TRUE}
                                        => {hair=TRUE} 0.2970297 0.6122449
  [11] {aquatic=FALSE,breathes=TRUE} => {hair=TRUE} 0.3861386 0.6093750
  [12] {aquatic=FALSE, venomous=FALSE} => {hair=TRUE} 0.3663366 0.6065574
##
        lift
## [1]
        2.348837
   [2]
##
        2.348837
  [3]
        2.283592
   [4]
##
        2.163403
##
   [5]
        1.969992
##
  [6]
        1.796170
  [7]
##
        1.685035
##
  [8]
        1.551119
  [9]
##
        1.526744
  [10] 1.438064
  [11] 1.431323
  [12] 1.424705
##
  [1] "Número de reglas con consecuente negado"
##
                                                         support
                                                                    confidence
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
##
   [2] {aquatic=FALSE,legs=TRUE}
                                      => {domestic=TRUE} 0.1188119 0.2000000
   [3] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
  [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
   [5] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
## [1] 1.612482
## [2] 1.553846
## [3] 1.335337
  [4] 1.294872
##
  [5] 1.238573
##
        lhs
                             rhs
                                              support
                                                        confidence lift
   [1]
                         => {domestic=FALSE} 0.3465347 0.9722222
##
        {aquatic=TRUE}
        {predator=TRUE}
                         => {domestic=FALSE} 0.5346535 0.9642857
##
  [2]
                                                                    1.1067370
## [3]
        {legs=FALSE}
                         => {domestic=FALSE} 0.2178218 0.9565217
                                                                    1.0978261
## [4]
        {breathes=FALSE} => {domestic=FALSE} 0.1980198 0.9523810
                                                                   1.0930736
  [5]
        {backbone=FALSE} => {domestic=FALSE} 0.1683168 0.9444444
##
                                                                    1.0839646
  [6]
##
        {fins=TRUE}
                         => {domestic=FALSE} 0.1584158 0.9411765
                                                                    1.0802139
  [7]
        {hair=FALSE}
                         => {domestic=FALSE} 0.5346535 0.9310345
                                                                    1.0685737
  [8]
                         => {domestic=FALSE} 0.1188119 0.9230769
##
        {type=fish}
                                                                    1.0594406
##
  [9]
        {milk=FALSE}
                         => {domestic=FALSE} 0.5445545 0.9166667
                                                                    1.0520833
                         => {domestic=FALSE} 0.5346535 0.9152542
  [10] {eggs=TRUE}
                                                                   1.0504622
## [11] {toothed=FALSE}
                         => {domestic=FALSE} 0.3564356 0.9000000
                                                                   1.0329545
## [12] {airborne=FALSE}
                         => {domestic=FALSE} 0.6732673 0.8831169
                                                                   1.0135773
## [13] {catsize=FALSE}
                         => {domestic=FALSE} 0.4950495 0.8771930
                                                                    1.0067783
## [14] {feathers=FALSE} => {domestic=FALSE} 0.7029703 0.8765432
                                                                    1.0060325
## [15] {catsize=TRUE}
                         => {domestic=FALSE} 0.3762376 0.8636364
                                                                    0.9912190
## [16] {backbone=TRUE}
                         => {domestic=FALSE} 0.7029703 0.8554217
                                                                    0.9817908
## [17] {legs=TRUE}
                         => {domestic=FALSE} 0.6534653 0.8461538
                                                                   0.9711538
## [18] {airborne=TRUE}
                         => {domestic=FALSE} 0.1980198 0.8333333
                                                                   0.9564394
## [19] {eggs=FALSE}
                         => {domestic=FALSE} 0.3366337 0.8095238
                                                                    0.9291126
## [20] {milk=TRUE}
                         => {domestic=FALSE} 0.3267327 0.8048780 0.9237805
```

```
## [21] {type=mammal}
                         => {domestic=FALSE} 0.3267327 0.8048780 0.9237805
##
       lhs
                                                                   confidence
                                         rhs
                                                         support
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
   [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
   [3] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
   [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
##
       lift
## [1] 1.612482
   [2] 1.335337
  [3] 1.294872
   [4] 1.238573
##
       lhs
                                     rhs
                                                     support
                                                               confidence
##
   [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
##
       lift
##
   [1] 1.553846
##
   [2] 1.335337
   [1] "Número de reglas con consecuente negado"
##
        lhs
                            rhs
                                              support
                                                        confidence lift
##
  [1]
        {milk=TRUE}
                         => {venomous=FALSE} 0.4059406 1.0000000
##
  [2]
        {type=mammal}
                         => {venomous=FALSE} 0.4059406 1.0000000
                                                                   1.0860215
  [3]
        {catsize=TRUE}
                         => {venomous=FALSE} 0.4257426 0.9772727
## [4]
        {predator=FALSE} => {venomous=FALSE} 0.4257426 0.9555556
                                                                   1.0377539
  [5]
                         => {venomous=FALSE} 0.4059406 0.9534884
##
        {hair=TRUE}
                                                                   1.0355089
##
  [6]
        {eggs=FALSE}
                         => {venomous=FALSE} 0.3960396 0.9523810
                                                                   1.0343062
  [7]
        {backbone=TRUE}
                         => {venomous=FALSE} 0.7821782 0.9518072
                                                                   1.0336831
  [8]
                         => {venomous=FALSE} 0.7326733 0.9487179
##
        {legs=TRUE}
                                                                   1.0303281
##
  [9]
        {tail=TRUE}
                         => {venomous=FALSE} 0.7029703 0.9466667
                                                                   1.0281004
                         => {venomous=FALSE} 0.1584158 0.9411765
## [10] {fins=TRUE}
                                                                   1.0221379
                         => {venomous=FALSE} 0.6039604 0.9384615
## [11] {aquatic=FALSE}
                                                                   1.0191894
## [12]
       {breathes=TRUE}
                         => {venomous=FALSE} 0.7425743 0.9375000
                                                                   1.0181452
  [13]
       {toothed=TRUE}
                         => {venomous=FALSE} 0.5643564 0.9344262
                                                                   1.0148070
## [14] {domestic=TRUE}
                         => {venomous=FALSE} 0.1188119 0.9230769
                                                                   1.0024814
## [15] {type=fish}
                         => {venomous=FALSE} 0.1188119 0.9230769
                                                                   1.0024814
  [16] {airborne=FALSE}
                         => {venomous=FALSE} 0.7029703 0.9220779
                                                                   1.0013965
                         => {venomous=FALSE} 0.8019802 0.9204545
## [17] {domestic=FALSE}
                                                                   0.9996334
## [18] {feathers=FALSE} => {venomous=FALSE} 0.7227723 0.9012346
                                                                   0.9787601
## [19] {toothed=FALSE}
                         => {venomous=FALSE} 0.3564356 0.9000000
                                                                   0.9774194
## [20] {eggs=TRUE}
                         => {venomous=FALSE} 0.5247525 0.8983051
                                                                   0.9755786
                         => {venomous=FALSE} 0.5148515 0.8965517
  [21] {hair=FALSE}
                                                                   0.9736745
                         => {venomous=FALSE} 0.4950495 0.8928571
  [22] {predator=TRUE}
                                                                   0.9696621
  [23] {catsize=FALSE}
                         => {venomous=FALSE} 0.4950495 0.8771930
                                                                   0.9526504
## [24] {milk=FALSE}
                         => {venomous=FALSE} 0.5148515 0.8666667
                                                                   0.9412186
## [25] {breathes=FALSE} => {venomous=FALSE} 0.1782178 0.8571429
                                                                   0.9308756
## [26] {legs=FALSE}
                         => {venomous=FALSE} 0.1881188 0.8260870
                                                                   0.8971482
  [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
                                                                   0.8446834
##
  [1] "Número de reglas con consecuente negado"
##
                                                         support
                                                                   confidence
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
   [2] {aquatic=FALSE,legs=TRUE}
                                      => {domestic=TRUE} 0.1188119 0.2000000
  [3] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
## [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
## [5] {backbone=TRUE, breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
```

```
[1] 1.612482
   [2] 1.553846
   [3] 1.335337
  [4] 1.294872
##
##
   [5] 1.238573
##
        lhs
                             rhs
                                               support
                                                         confidence lift
##
  [1]
        {aquatic=TRUE}
                          => {domestic=FALSE} 0.3465347 0.9722222
                                                                    1.1158460
##
  [2]
        {predator=TRUE}
                             {domestic=FALSE} 0.5346535 0.9642857
                                                                    1.1067370
##
   [3]
        {legs=FALSE}
                             {domestic=FALSE} 0.2178218 0.9565217
                                                                    1.0978261
   [4]
##
        {breathes=FALSE}
                             {domestic=FALSE} 0.1980198 0.9523810
                                                                    1.0930736
  [5]
        {backbone=FALSE} =>
                             {domestic=FALSE} 0.1683168 0.9444444
                                                                    1.0839646
   [6]
##
        {fins=TRUE}
                             {domestic=FALSE} 0.1584158 0.9411765
                                                                    1.0802139
##
   [7]
        {hair=FALSE}
                             {domestic=FALSE} 0.5346535 0.9310345
                                                                    1.0685737
##
  [8]
        {type=fish}
                          => {domestic=FALSE} 0.1188119 0.9230769
                                                                    1.0594406
  [9]
                          => {domestic=FALSE} 0.5445545 0.9166667
##
        {milk=FALSE}
                                                                    1.0520833
   [10] {eggs=TRUE}
                          => {domestic=FALSE} 0.5346535 0.9152542
                                                                    1.0504622
  [11] {toothed=FALSE}
                          => {domestic=FALSE} 0.3564356 0.9000000
                                                                    1.0329545
  [12] {airborne=FALSE}
                             {domestic=FALSE} 0.6732673 0.8831169
                                                                    1.0135773
                          => {domestic=FALSE} 0.4950495 0.8771930
  [13] {catsize=FALSE}
                                                                    1.0067783
  [14] {feathers=FALSE}
                         => {domestic=FALSE} 0.7029703 0.8765432
                                                                    1.0060325
##
  [15] {catsize=TRUE}
                          => {domestic=FALSE} 0.3762376 0.8636364
                                                                    0.9912190
                          => {domestic=FALSE} 0.7029703 0.8554217
  [16] {backbone=TRUE}
                                                                    0.9817908
  [17] {legs=TRUE}
                          => {domestic=FALSE} 0.6534653 0.8461538
                                                                    0.9711538
##
##
  [18] {airborne=TRUE}
                             {domestic=FALSE} 0.1980198 0.8333333
                                                                    0.9564394
  [19] {eggs=FALSE}
                          => {domestic=FALSE} 0.3366337 0.8095238
                                                                    0.9291126
   [20] {milk=TRUE}
                          => {domestic=FALSE} 0.3267327 0.8048780
                                                                    0.9237805
                          => {domestic=FALSE} 0.3267327 0.8048780
##
   [21] {type=mammal}
                                                                    0.9237805
##
       lhs
                                         rhs
                                                          support
                                                                     confidence
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
##
   [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
   [3] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
##
   [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
  [1] 1.612482
##
   [2] 1.335337
##
##
   [3] 1.294872
##
   [4] 1.238573
##
                                     rhs
                                                      support
                                                                confidence
   [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
##
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
##
       lift
   [1] 1.553846
##
##
   [2] 1.335337
##
       "Número de reglas con consecuente negado"
##
                                                             support
  [1]
##
        {type=bird}
                                            {toothed=FALSE} 0.1980198
##
   [2]
        {feathers=TRUE}
                                            {toothed=FALSE} 0.1980198
##
   [3]
        {hair=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.1782178
##
   [4]
        {eggs=TRUE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
##
   [5]
        {milk=FALSE,airborne=TRUE}
                                             {toothed=FALSE} 0.2178218
##
   [6]
        {milk=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2673267
##
  [7]
        {eggs=TRUE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2574257
##
  [8]
        {hair=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2277228
                                         =>
## [9]
        {eggs=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
```

```
## [10] {milk=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
                                            {toothed=FALSE} 0.3069307
  [11] {hair=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.1683168
  [12] {eggs=TRUE,tail=FALSE}
  [13] {milk=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
  [14] {eggs=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
##
  [15] {milk=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
  [16] {eggs=TRUE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
  [17] {milk=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
   [18] {hair=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3465347
   [19] {hair=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1287129
   [20] {eggs=TRUE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
   [21] {milk=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
  [22] {tail=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1584158
       {hair=FALSE,predator=FALSE}
                                           {toothed=FALSE} 0.1683168
  [23]
  [24] {hair=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.2772277
   [25]
        {tail=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.1584158
   [26]
       {aquatic=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1089109
       {aquatic=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.1287129
   [28] {fins=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   [29] {eggs=TRUE, venomous=FALSE}
                                            {toothed=FALSE} 0.3564356
##
  [30] {milk=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3465347
  [31] {aquatic=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.1188119
##
  [32] {legs=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
   [33]
       {tail=FALSE}
                                            {toothed=FALSE} 0.1683168
##
  [34] {milk=FALSE}
                                            {toothed=FALSE} 0.3861386
   [35] {aquatic=FALSE, catsize=FALSE}
                                            {toothed=FALSE} 0.2178218
   [36] {fins=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
   [37] {hair=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3267327
  [38] {hair=FALSE,catsize=FALSE}
                                           {toothed=FALSE} 0.2673267
       {breathes=TRUE, catsize=FALSE}
                                           {toothed=FALSE} 0.2475248
  [39]
   [40]
        {predator=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1683168
                                            {toothed=FALSE} 0.3069307
##
   [41]
       {catsize=FALSE}
       {predator=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.2079208
  [43] {predator=FALSE,domestic=FALSE} =>
                                            {toothed=FALSE} 0.1683168
   [44]
        {fins=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.3564356
##
  [45] {predator=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.1881188
  [46] {legs=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.3168317
  [47] {aquatic=FALSE,domestic=FALSE}
                                           {toothed=FALSE} 0.2277228
        {breathes=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.2871287
   [48]
##
   [49]
       {predator=TRUE}
                                         => {toothed=FALSE} 0.1881188
##
        confidence lift
##
   [1]
        1.0000000 2.5250000
##
   [2]
        1.0000000
                   2.5250000
##
   [3]
        1.0000000
                   2.5250000
  [4]
##
        1.0000000
                   2.5250000
   [5]
##
        1.0000000
                   2.5250000
##
   [6]
        0.9000000
                   2.2725000
##
   [7]
        0.8965517
                   2.2637931
##
   [8]
        0.8846154
                   2.2336538
##
   [9]
        0.8750000
                   2.2093750
##
   [10]
        0.8750000
                   2.2093750
## [11] 0.8611111
                   2.1743056
## [12] 0.8500000
                   2.1462500
## [13] 0.8500000
                   2.1462500
```

```
## [14] 0.8478261
                   2.1407609
                   2.0952128
   [15] 0.8297872
   [16] 0.8205128
                    2.0717949
   [17] 0.8205128
                    2.0717949
   [18] 0.8139535
                    2.0552326
   [19] 0.8125000
                   2.0515625
   [20] 0.8076923
                    2.0394231
                    2.0394231
   [21] 0.8076923
   [22] 0.8000000
                    2.0200000
   [23] 0.7727273
                    1.9511364
   [24] 0.7567568
                    1.9108108
   [25] 0.6956522
                    1.7565217
   [26] 0.6875000
                    1.7359375
   [27] 0.6842105
                    1.7276316
   [28] 0.6800000
                    1.7170000
   [29] 0.6792453
                    1.7150943
   [30] 0.6730769
                    1.6995192
   [31] 0.6666667
                    1.6833333
   [32] 0.6585366
                    1.6628049
   [33] 0.6538462
                    1.6509615
##
   [34] 0.6500000
                    1.6412500
   [35] 0.6470588
                    1.6338235
                    1.6307292
##
   [36] 0.6458333
   [37] 0.6346154
                    1.6024038
   [38] 0.6136364
                    1.5494318
   [39] 0.6097561
                    1.5396341
   [40] 0.5862069
                    1.4801724
   [41] 0.5438596
                    1.3732456
   [42] 0.5121951
                    1.2932927
   [43] 0.5000000
                    1.2625000
   [44] 0.5000000
                    1.2625000
##
   [45] 0.4871795
                    1.2301282
   [46] 0.4848485
                    1.2242424
   [47]
        0.4339623
                    1.0957547
   [48]
        0.4264706
                    1.0768382
##
   [49]
       0.3392857
                   0.8566964
##
        lhs
                             rhs
                                             support
                                                       confidence lift
## [1]
                          => {toothed=TRUE} 0.1287129 1.0000000
        {type=fish}
                                                                   1.6557377
##
   [2]
        {fins=TRUE}
                          => {toothed=TRUE} 0.1683168 1.0000000
                                                                   1.6557377
##
   [3]
                          => {toothed=TRUE} 0.4059406 0.9761905
        {eggs=FALSE}
                                                                   1.6163154
   [4]
                          => {toothed=TRUE} 0.1881188 0.8260870
        {legs=FALSE}
                                                                   1.3677833
##
   [5]
                          => {toothed=TRUE} 0.3465347 0.7954545
        {catsize=TRUE}
                                                                   1.3170641
##
   [6]
        {feathers=FALSE}
                         => {toothed=TRUE} 0.6039604 0.7530864
                                                                   1.2469136
##
   [7]
        {tail=TRUE}
                          => {toothed=TRUE} 0.5148515 0.6933333
                                                                   1.1479781
                                                                   1.1038251
  [8]
        {breathes=FALSE} => {toothed=TRUE} 0.1386139 0.6666667
        {predator=TRUE}
   [9]
                          => {toothed=TRUE} 0.3663366 0.6607143
##
                                                                   1.0939696
                                                                   1.0578324
   [10]
       {aquatic=TRUE}
                          => {toothed=TRUE} 0.2277228 0.6388889
   [11]
       {domestic=FALSE} => {toothed=TRUE} 0.5148515 0.5909091
                                                                   0.9783905
   [12]
       {breathes=TRUE}
                          => {toothed=TRUE} 0.4653465 0.5875000
                                                                   0.9727459
   [13] {predator=FALSE} => {toothed=TRUE} 0.2376238 0.5333333
                                                                   0.8830601
                          => {toothed=TRUE} 0.2574257 0.4561404
   [14] {catsize=FALSE}
                                                                   0.7552488
  [15] {hair=FALSE}
                          => {toothed=TRUE} 0.2277228 0.3965517
                                                                   0.6565856
##
  [16] {eggs=TRUE}
                          => {toothed=TRUE} 0.1980198 0.3389831
                                                                   0.5612670
##
       lhs
                                                      support
                                                                 confidence
                                     rhs
```

```
## [1] {aquatic=TRUE,fins=FALSE} => {toothed=FALSE} 0.1287129 0.6842105
   [2] {aquatic=TRUE,legs=TRUE} => {toothed=FALSE} 0.1188119 0.6666667
##
       lift
##
  [1] 1.727632
##
   [2] 1.683333
##
       lhs
                                           rhs
                                                           support
## [1] {tail=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.1584158
## [2] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
  [3] {fins=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3564356
  [4] {legs=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3168317
  [5] {aquatic=FALSE,domestic=FALSE}
                                       => {toothed=FALSE} 0.2277228
   [6] {breathes=TRUE,domestic=FALSE}
##
                                       => {toothed=FALSE} 0.2871287
##
       confidence lift
## [1] 0.6956522 1.756522
## [2] 0.5000000
                  1.262500
## [3] 0.5000000
                  1.262500
  [4] 0.4848485
                  1.224242
  [5] 0.4339623
                  1.095755
##
  [6] 0.4264706
                  1.076838
##
       lhs
                                                          support
                                                                    confidence
## [1] {eggs=TRUE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
## [2] {milk=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
## [3] {hair=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.2772277 0.7567568
## [4] {breathes=TRUE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2475248 0.6097561
  [5] {breathes=TRUE,domestic=FALSE} => {toothed=FALSE} 0.2871287 0.4264706
       lift
## [1] 2.071795
## [2] 2.071795
## [3] 1.910811
## [4] 1.539634
## [5] 1.076838
##
       lhs
                                           rhs
                                                           support
## [1] {eggs=TRUE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
## [2] {milk=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
## [3] {hair=FALSE, predator=FALSE}
                                        => {toothed=FALSE} 0.1683168
## [4] {predator=FALSE,catsize=FALSE}
                                        => {toothed=FALSE} 0.1683168
## [5] {predator=FALSE,fins=FALSE}
                                        => {toothed=FALSE} 0.2079208
## [6] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
  [7] {predator=FALSE,legs=TRUE}
                                        => {toothed=FALSE} 0.1881188
##
##
       confidence lift
## [1] 0.8076923 2.039423
## [2] 0.8076923 2.039423
## [3] 0.7727273
                  1.951136
## [4] 0.5862069
                  1.480172
## [5] 0.5121951
                  1.293293
## [6] 0.5000000
                  1.262500
##
  [7] 0.4871795 1.230128
##
       lhs
                                          rhs
                                                          support
                                                                    confidence
## [1] {tail=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.1584158 0.8000000
  [2] {legs=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6585366
## [3] {aquatic=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2178218 0.6470588
## [4] {fins=FALSE, catsize=FALSE}
                                       => {toothed=FALSE} 0.3069307 0.6458333
## [5] {hair=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6136364
## [6] {breathes=TRUE, catsize=FALSE}
                                      => {toothed=FALSE} 0.2475248 0.6097561
```

```
## [7] {predator=FALSE,catsize=FALSE} => {toothed=FALSE} 0.1683168 0.5862069
##
       lift.
## [1] 2.020000
## [2] 1.662805
  [3] 1.633824
  [4] 1.630729
##
  [5] 1.549432
## [6] 1.539634
## [7] 1.480172
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,airborne=TRUE}
                                   => {toothed=FALSE} 0.1782178 1.0000000
  [2] {hair=FALSE,aquatic=FALSE}
                                   => {toothed=FALSE} 0.2277228 0.8846154
## [3] {hair=FALSE,legs=TRUE}
                                   => {toothed=FALSE} 0.3069307 0.8611111
                                   => {toothed=FALSE} 0.3465347 0.8139535
## [4] {hair=FALSE,fins=FALSE}
## [5] {hair=FALSE,tail=FALSE}
                                   => {toothed=FALSE} 0.1287129 0.8125000
## [6] {hair=FALSE,predator=FALSE} => {toothed=FALSE} 0.1683168 0.7727273
  [7] {hair=FALSE,breathes=TRUE} => {toothed=FALSE} 0.2772277 0.7567568
  [8] {hair=FALSE, venomous=FALSE} => {toothed=FALSE} 0.3267327 0.6346154
  [9] {hair=FALSE,catsize=FALSE} => {toothed=FALSE} 0.2673267 0.6136364
##
##
       lift.
## [1] 2.525000
## [2] 2.233654
## [3] 2.174306
## [4] 2.055233
## [5] 2.051563
## [6] 1.951136
## [7] 1.910811
## [8] 1.602404
##
  [9] 1.549432
##
       lhs
                                      rhs
                                                      support
                                                                confidence
## [1] {eggs=TRUE,airborne=TRUE}
                                  => {toothed=FALSE} 0.2178218 1.0000000
  [2] {eggs=TRUE,aquatic=FALSE}
                                  => {toothed=FALSE} 0.2574257 0.8965517
  [3] {eggs=TRUE,legs=TRUE}
                                  => {toothed=FALSE} 0.3465347 0.8750000
## [4] {eggs=TRUE,tail=FALSE}
                                  => {toothed=FALSE} 0.1683168 0.8500000
  [5] {eggs=TRUE,fins=FALSE}
                                  => {toothed=FALSE} 0.3861386 0.8478261
## [6] {eggs=TRUE,breathes=TRUE} => {toothed=FALSE} 0.3168317 0.8205128
## [7] {eggs=TRUE,predator=FALSE} => {toothed=FALSE} 0.2079208 0.8076923
  [8] {eggs=TRUE,venomous=FALSE} => {toothed=FALSE} 0.3564356 0.6792453
##
##
       lift
## [1] 2.525000
  [2] 2.263793
  [3] 2.209375
## [4] 2.146250
## [5] 2.140761
## [6] 2.071795
## [7] 2.039423
  [8] 1.715094
##
   [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                                   confidence
                                                         support
##
  [1]
        {backbone=FALSE, venomous=FALSE} =>
                                           {tail=FALSE} 0.1386139 1.0000000
##
  [2]
        {backbone=FALSE}
                                         => {tail=FALSE} 0.1683168 0.9444444
## [3]
        {feathers=FALSE, toothed=FALSE}
                                        => {tail=FALSE} 0.1683168 0.8500000
                                        => {tail=FALSE} 0.1089109 0.6111111
## [4]
        {airborne=FALSE,toothed=FALSE}
## [5]
       {feathers=FALSE,eggs=TRUE}
                                         => {tail=FALSE} 0.1980198 0.5128205
```

```
{feathers=FALSE,milk=FALSE}
                                         => {tail=FALSE} 0.1980198 0.5000000
        {feathers=FALSE, catsize=FALSE}
                                           {tail=FALSE} 0.1980198 0.4651163
  [7]
                                            {tail=FALSE} 0.1980198 0.4347826
  [8]
        {eggs=TRUE,fins=FALSE}
  [9]
        {milk=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.1980198 0.4255319
##
  [10] {hair=FALSE, feathers=FALSE}
                                            {tail=FALSE} 0.1584158 0.4210526
  [11] {fins=FALSE,catsize=FALSE}
                                           {tail=FALSE} 0.1980198 0.4166667
  [12] {eggs=TRUE,legs=TRUE}
                                           {tail=FALSE} 0.1584158 0.4000000
## [13] {milk=FALSE,legs=TRUE}
                                           {tail=FALSE} 0.1584158 0.4000000
  [14] {feathers=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.2475248 0.3906250
  [15] {legs=TRUE,catsize=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3902439
  [16] {airborne=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3888889
  [17] {eggs=TRUE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3793103
  [18] {eggs=TRUE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3783784
## [19] {hair=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3720930
## [20] {milk=FALSE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3684211
## [21] {milk=FALSE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3666667
                                         => {tail=FALSE} 0.2079208 0.3620690
  [22] {feathers=FALSE,legs=TRUE}
  [23] {domestic=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1782178 0.3600000
  [24] {feathers=FALSE,predator=FALSE} =>
                                           {tail=FALSE} 0.1188119 0.3529412
  [25] {aquatic=FALSE, catsize=FALSE}
                                            {tail=FALSE} 0.1188119 0.3529412
## [26] {hair=FALSE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3500000
  [27] {hair=FALSE,legs=TRUE}
                                           {tail=FALSE} 0.1188119 0.3333333
                                            {tail=FALSE} 0.2277228 0.3239437
## [28] {feathers=FALSE,domestic=FALSE} =>
  [29] {airborne=FALSE.fins=FALSE}
                                            {tail=FALSE} 0.1881188 0.3166667
  [30] {fins=FALSE,domestic=FALSE}
                                           {tail=FALSE} 0.2178218 0.3055556
  [31] {predator=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1287129 0.3023256
  [32] {fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.2976190
  [33] {predator=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1089109 0.2820513
  [34] {airborne=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1485149 0.2777778
  [35] {legs=TRUE,domestic=FALSE}
                                         => {tail=FALSE} 0.1782178 0.2727273
  [36] {domestic=FALSE}
                                         => {tail=FALSE} 0.2277228 0.2613636
##
   [37] {predator=TRUE}
                                        => {tail=FALSE} 0.1386139 0.2500000
##
   [38] {venomous=FALSE}
                                         => {tail=FALSE} 0.2178218 0.2365591
##
        lift
##
   [1]
        3.8846154
##
   [2]
       3.6688034
  [3]
        3.3019231
##
  ۲4٦
        2.3739316
  [5]
##
        1.9921105
  [6]
##
        1.9423077
  [7]
        1.8067979
  [8]
##
        1.6889632
##
   [9]
        1.6530278
  [10] 1.6356275
## [11] 1.6185897
## [12] 1.5538462
  [13] 1.5538462
  [14] 1.5174279
  [15] 1.5159475
## [16] 1.5106838
## [17] 1.4734748
## [18] 1.4698545
## [19] 1.4454383
## [20] 1.4311741
```

```
## [21] 1.4243590
## [22] 1.4064987
## [23] 1.3984615
## [24] 1.3710407
## [25] 1.3710407
## [26] 1.3596154
## [27] 1.2948718
## [28] 1.2583965
## [29] 1.2301282
## [30] 1.1869658
## [31] 1.1744186
## [32] 1.1561355
## [33] 1.0956607
## [34] 1.0790598
## [35] 1.0594406
## [36] 1.0152972
  [37] 0.9711538
  [38] 0.9189413
##
                                                   confidence lift
        lhs
                            rhs
                                         support
## [1]
        {type=fish}
                         => {tail=TRUE} 0.1287129 1.0000000
##
  [2]
        {type=bird}
                         => {tail=TRUE} 0.1980198 1.0000000
                                                              1.3466667
## [3]
                         => {tail=TRUE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                              1.3466667
## [4]
                         => {tail=TRUE} 0.1584158 0.9411765
        {fins=TRUE}
                                                              1.2674510
## [5]
                         => {tail=TRUE} 0.3762376 0.8636364
        {catsize=TRUE}
                                                              1.1630303
        {eggs=FALSE}
## [6]
                         => {tail=TRUE} 0.3564356 0.8571429
                                                              1.1542857
## [7]
        {milk=TRUE}
                         => {tail=TRUE} 0.3465347 0.8536585
                                                              1.1495935
## [8]
                         => {tail=TRUE} 0.3465347 0.8536585
        {type=mammal}
                                                              1.1495935
## [9]
        {legs=FALSE}
                         => {tail=TRUE} 0.1782178 0.7826087
                                                               1.0539130
                         => {tail=TRUE} 0.3267327 0.7674419
## [10] {hair=TRUE}
                                                               1.0334884
## [11] {aquatic=FALSE}
                         => {tail=TRUE} 0.4851485 0.7538462
                                                              1.0151795
## [12] {airborne=TRUE}
                         => {tail=TRUE} 0.1782178 0.7500000
                                                               1.0100000
## [13] {predator=TRUE}
                         => {tail=TRUE} 0.4158416 0.7500000
                                                              1.0100000
## [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
                                                              0.9946970
## [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                                                              0.9875556
## [16] {hair=FALSE}
                         => {tail=TRUE} 0.4158416 0.7241379
                                                              0.9751724
## [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
                                                              0.9144033
## [18] {eggs=TRUE}
                         => {tail=TRUE} 0.3861386 0.6610169
## [19] {catsize=FALSE} => {tail=TRUE} 0.3663366 0.6491228
                                                              0.8741520
  [20] {toothed=FALSE}
                        => {tail=TRUE} 0.2277228 0.5750000
##
                                                              0.7743333
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
  [1] {eggs=TRUE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3793103
   [2] {milk=FALSE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3666667
   [3] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.473475
## [2] 1.424359
##
  [3] 1.371041
##
       lhs
                                      rhs
                                                   support
  [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
   [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
##
       lift
## [1] 1.174419
## [2] 1.095661
##
       lhs
                                                        support
                                                                   confidence
                                           rhs
```

```
## [1] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
## [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
                                       => {tail=FALSE} 0.2178218 0.3055556
## [3] {fins=FALSE,domestic=FALSE}
  [4] {legs=TRUE,domestic=FALSE}
                                       => {tail=FALSE} 0.1782178 0.2727273
##
       lift.
## [1] 1.398462
## [2] 1.258397
## [3] 1.186966
##
  [4] 1.059441
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
##
  [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.371041
##
       lhs
                                       rhs
                                                    support
                                                              confidence
## [1] {hair=FALSE,feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
  [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
  [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
  [4] {hair=FALSE,legs=TRUE}
                                   => {tail=FALSE} 0.1188119 0.3333333
##
       lift
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
##
                                                        support
                                                                  confidence
                                           rhs
## [1] {feathers=FALSE, toothed=FALSE}
                                       => {tail=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE}
                                        => {tail=FALSE} 0.1980198 0.5128205
## [3] {feathers=FALSE,milk=FALSE}
                                        => {tail=FALSE} 0.1980198 0.5000000
## [4] {feathers=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4651163
## [5] {hair=FALSE,feathers=FALSE}
                                        => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                       => {tail=FALSE} 0.2475248 0.3906250
## [7] {feathers=FALSE,legs=TRUE}
                                       => {tail=FALSE} 0.2079208 0.3620690
  [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
  [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
##
       lift
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
## [7] 1.406499
## [8] 1.371041
##
  [9] 1.258397
##
       lhs
                                     rhs
                                                   support
                                                             confidence
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
## [2] {eggs=TRUE,fins=FALSE}
                                  => {tail=FALSE} 0.1980198 0.4347826
## [3] {eggs=TRUE,legs=TRUE}
                                  => {tail=FALSE} 0.1584158 0.4000000
  [4] {eggs=TRUE,aquatic=FALSE} => {tail=FALSE} 0.1089109 0.3793103
##
  [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
       lift
## [1] 1.992110
## [2] 1.688963
## [3] 1.553846
## [4] 1.473475
```

```
## [5] 1.469854
##
       lhs
                                                                 confidence
                                          rhs
                                                       support
## [1] {feathers=FALSE, catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
## [2] {fins=FALSE,catsize=FALSE}
                                      => {tail=FALSE} 0.1980198 0.4166667
## [3] {legs=TRUE,catsize=FALSE}
                                       => {tail=FALSE} 0.1584158 0.3902439
## [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
## [5] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
## [6] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.806798
## [2] 1.618590
## [3] 1.515947
## [4] 1.510684
## [5] 1.398462
## [6] 1.371041
##
       lhs
                                          rhs
                                                                  confidence
                                                       support
##
  [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
   [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
       lift.
## [1] 3.301923
##
  [2] 2.373932
  [1] "Número de reglas con consecuente negado"
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
  [2] {aquatic=FALSE,legs=TRUE}
                                      => {domestic=TRUE} 0.1188119 0.2000000
  [3] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
  [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
##
   [5] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
## [1] 1.612482
## [2] 1.553846
## [3] 1.335337
## [4] 1.294872
  [5] 1.238573
##
##
        lhs
                                              support
                                                        confidence lift
## [1]
        {aquatic=TRUE}
                         => {domestic=FALSE} 0.3465347 0.9722222
                                                                  1.1158460
  [2]
        {predator=TRUE}
                         => {domestic=FALSE} 0.5346535 0.9642857
## [3]
                         => {domestic=FALSE} 0.2178218 0.9565217
        {legs=FALSE}
                                                                   1.0978261
## [4]
        {breathes=FALSE} => {domestic=FALSE} 0.1980198 0.9523810
                                                                   1.0930736
        {backbone=FALSE} \Rightarrow {domestic=FALSE} 0.1683168 0.9444444
## [5]
                                                                   1.0839646
                         => {domestic=FALSE} 0.1584158 0.9411765
## [6]
        {fins=TRUE}
                                                                   1.0802139
## [7]
        {hair=FALSE}
                         => {domestic=FALSE} 0.5346535 0.9310345
                                                                   1.0685737
##
  [8]
        {type=fish}
                         => {domestic=FALSE} 0.1188119 0.9230769
                                                                   1.0594406
## [9]
                         => {domestic=FALSE} 0.5445545 0.9166667
        {milk=FALSE}
                                                                   1.0520833
## [10] {eggs=TRUE}
                         => {domestic=FALSE} 0.5346535 0.9152542
                                                                   1.0504622
                         => {domestic=FALSE} 0.3564356 0.9000000
## [11] {toothed=FALSE}
                                                                   1.0329545
## [12] {airborne=FALSE} => {domestic=FALSE} 0.6732673 0.8831169
                                                                   1.0135773
## [13] {catsize=FALSE}
                         => {domestic=FALSE} 0.4950495 0.8771930
                                                                   1.0067783
## [14] {feathers=FALSE} => {domestic=FALSE} 0.7029703 0.8765432
                                                                   1.0060325
## [15] {catsize=TRUE}
                         => {domestic=FALSE} 0.3762376 0.8636364
                                                                   0.9912190
## [16] {backbone=TRUE}
                         => {domestic=FALSE} 0.7029703 0.8554217
                                                                   0.9817908
## [17] {legs=TRUE}
                         => {domestic=FALSE} 0.6534653 0.8461538
## [18] {airborne=TRUE}
                         => {domestic=FALSE} 0.1980198 0.8333333
                                                                   0.9564394
## [19] {eggs=FALSE}
                         => {domestic=FALSE} 0.3366337 0.8095238 0.9291126
```

```
## [20] {milk=TRUE}
                         => {domestic=FALSE} 0.3267327 0.8048780 0.9237805
                         => {domestic=FALSE} 0.3267327 0.8048780 0.9237805
##
  [21] {type=mammal}
##
                                        rhs
                                                         support
                                                                   confidence
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
##
   [2] {backbone=TRUE,legs=TRUE}
                                     => {domestic=TRUE} 0.1089109 0.1718750
   [3] {backbone=TRUE,fins=FALSE}
                                     => {domestic=TRUE} 0.1089109 0.1666667
  [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
## [1] 1.612482
##
  [2] 1.335337
  [3] 1.294872
  [4] 1.238573
##
##
       lhs
                                    rhs
                                                     support
                                                               confidence
  [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
       lift
## [1] 1.553846
  [2] 1.335337
##
  Г17
      "Número de reglas con consecuente negado"
##
                                         rhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
  [2] {aquatic=FALSE,legs=TRUE}
                                     => {domestic=TRUE} 0.1188119 0.2000000
  [3] {backbone=TRUE,legs=TRUE}
                                     => {domestic=TRUE} 0.1089109 0.1718750
  [4] {backbone=TRUE,fins=FALSE}
                                     => {domestic=TRUE} 0.1089109 0.1666667
  [5] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
## [1] 1.612482
## [2] 1.553846
## [3] 1.335337
## [4] 1.294872
## [5] 1.238573
##
        lhs
                            rhs
                                                        confidence lift
                                              support
## [1]
        {aquatic=TRUE}
                         => {domestic=FALSE} 0.3465347 0.9722222 1.1158460
                         => {domestic=FALSE} 0.5346535 0.9642857
  [2]
        {predator=TRUE}
                                                                   1.1067370
  [3]
        {legs=FALSE}
                         => {domestic=FALSE} 0.2178218 0.9565217
                                                                   1.0978261
## [4]
                         => {domestic=FALSE} 0.1980198 0.9523810
        {breathes=FALSE}
                                                                   1.0930736
## [5]
        {backbone=FALSE} => {domestic=FALSE} 0.1683168 0.9444444
## [6]
        {fins=TRUE}
                         => {domestic=FALSE} 0.1584158 0.9411765
                                                                   1.0802139
## [7]
                         => {domestic=FALSE} 0.5346535 0.9310345
        {hair=FALSE}
                                                                   1.0685737
                         => {domestic=FALSE} 0.1188119 0.9230769
## [8]
        {type=fish}
                                                                   1.0594406
                         => {domestic=FALSE} 0.5445545 0.9166667
## [9]
        {milk=FALSE}
                                                                   1.0520833
## [10] {eggs=TRUE}
                         => {domestic=FALSE} 0.5346535 0.9152542
                                                                   1.0504622
## [11] {toothed=FALSE}
                         => {domestic=FALSE} 0.3564356 0.9000000
                                                                   1.0329545
## [12] {airborne=FALSE}
                         => {domestic=FALSE} 0.6732673 0.8831169
                                                                   1.0135773
## [13] {catsize=FALSE}
                         => {domestic=FALSE} 0.4950495 0.8771930
                                                                   1.0067783
                         => {domestic=FALSE} 0.7029703 0.8765432
## [14] {feathers=FALSE}
                                                                   1.0060325
## [15] {catsize=TRUE}
                         => {domestic=FALSE} 0.3762376 0.8636364
                                                                   0.9912190
## [16] {backbone=TRUE}
                         => {domestic=FALSE} 0.7029703 0.8554217
                                                                   0.9817908
## [17] {legs=TRUE}
                         => {domestic=FALSE} 0.6534653 0.8461538
                                                                   0.9711538
## [18] {airborne=TRUE}
                         => {domestic=FALSE} 0.1980198 0.8333333
                                                                   0.9564394
                         => {domestic=FALSE} 0.3366337 0.8095238
## [19] {eggs=FALSE}
                                                                   0.9291126
## [20] {milk=TRUE}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                   0.9237805
## [21] {type=mammal}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                   0.9237805
##
       lhs
                                                         support
                                         rhs
                                                                   confidence
```

```
## [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
  [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
  [3] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
   [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift.
##
  [1] 1.612482
  [2] 1.335337
##
  [3] 1.294872
##
   [4] 1.238573
##
       lhs
                                     rhs
                                                     support
                                                               confidence
   [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
       {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
##
       lift
##
  [1] 1.553846
   [2] 1.335337
##
##
   [1] "Número de reglas con consecuente negado"
##
                                                             support
##
  [1]
        {toothed=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
   [2]
        {feathers=FALSE, toothed=FALSE}
##
                                           {backbone=FALSE} 0.1782178
   [3]
        {eggs=TRUE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
                                           {backbone=FALSE} 0.1683168
##
   [4]
        {milk=FALSE,tail=FALSE}
  [5]
        {hair=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1287129
##
                                            {backbone=FALSE} 0.1584158
##
  [6]
        {tail=FALSE,catsize=FALSE}
        {tail=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
##
   [7]
##
  [8]
        {aquatic=FALSE,tail=FALSE}
                                           {backbone=FALSE} 0.1089109
  [9]
        {fins=FALSE,tail=FALSE}
                                           {backbone=FALSE} 0.1683168
  [10] {airborne=FALSE, toothed=FALSE}
                                           {backbone=FALSE} 0.1188119
  [11] {toothed=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
## [12] {toothed=FALSE,domestic=FALSE}
                                           {backbone=FALSE} 0.1683168
## [13] {milk=FALSE,toothed=FALSE}
                                         => {backbone=FALSE} 0.1782178
## [14] {toothed=FALSE}
                                           {backbone=FALSE} 0.1782178
  [15] {feathers=FALSE,milk=FALSE}
                                            {backbone=FALSE} 0.1782178
  [16] {feathers=FALSE,eggs=TRUE}
                                           {backbone=FALSE} 0.1683168
  [17] {milk=FALSE,aquatic=FALSE}
                                           {backbone=FALSE} 0.1188119
       {feathers=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
  [19] {milk=FALSE,fins=FALSE}
##
                                           {backbone=FALSE} 0.1782178
  [20] {eggs=TRUE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1089109
## [21] {eggs=TRUE,fins=FALSE}
                                           {backbone=FALSE} 0.1683168
  [22] {hair=FALSE, feathers=FALSE}
                                            {backbone=FALSE} 0.1386139
  [23] {milk=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
  [24] {fins=FALSE,catsize=FALSE}
                                           {backbone=FALSE} 0.1683168
  [25] {aquatic=FALSE, catsize=FALSE}
                                           {backbone=FALSE} 0.1188119
## [26] {milk=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
  [27] {eggs=TRUE,catsize=FALSE}
                                           {backbone=FALSE} 0.1584158
## [28] {hair=FALSE,fins=FALSE}
                                           {backbone=FALSE} 0.1386139
  [29] {eggs=TRUE,legs=TRUE}
                                           {backbone=FALSE} 0.1287129
  [30] {domestic=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
  [31] {legs=TRUE,catsize=FALSE}
                                           {backbone=FALSE} 0.1287129
  [32] {milk=FALSE,airborne=FALSE}
                                         => {backbone=FALSE} 0.1188119
## [33] {milk=FALSE,domestic=FALSE}
                                           {backbone=FALSE} 0.1683168
## [34] {airborne=FALSE, catsize=FALSE}
                                           {backbone=FALSE} 0.1089109
## [35] {eggs=TRUE,airborne=FALSE}
                                         => {backbone=FALSE} 0.1089109
## [36] {eggs=TRUE,domestic=FALSE}
                                         => {backbone=FALSE} 0.1584158
## [37] {eggs=TRUE}
                                           {backbone=FALSE} 0.1683168
```

```
## [38] {feathers=FALSE,fins=FALSE}
                                         => {backbone=FALSE} 0.1782178
                                         => {backbone=FALSE} 0.1386139
  [39] {hair=FALSE,domestic=FALSE}
  [40] {feathers=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
## [41] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
## [42] {fins=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
## [43] {feathers=FALSE,aquatic=FALSE}
                                         => {backbone=FALSE} 0.1188119
                                         => {backbone=FALSE} 0.1089109
  [44] {aquatic=FALSE,domestic=FALSE}
  [45] {legs=TRUE,domestic=FALSE}
                                         => {backbone=FALSE} 0.1287129
##
   [46] {aquatic=FALSE}
                                         => {backbone=FALSE} 0.1188119
##
        confidence lift
  [1]
        1.0000000
                   5.611111
##
   [2]
        0.9000000
                   5.050000
##
   [3]
        0.8500000
                   4.769444
  [4]
##
        0.8500000
                   4.769444
##
  [5]
        0.8125000
                   4.559028
##
  [6]
        0.8000000
                   4.488889
  [7]
##
        0.6956522
                   3.903382
  [8]
        0.6875000
                   3.857639
  [9]
        0.6800000
                   3.815556
  [10] 0.6666667
                   3.740741
## [11] 0.5483871
                   3.077061
  [12] 0.4722222
                   2.649691
## [13] 0.4615385
                   2.589744
  [14] 0.4500000
                   2.525000
  [15] 0.4500000
                   2.525000
  [16] 0.4358974
                   2.445869
  [17] 0.4000000
                   2.244444
  [18] 0.3953488
                   2.218346
## [19] 0.3829787
                   2.148936
## [20] 0.3793103
                   2.128352
## [21] 0.3695652
                   2.073671
  [22] 0.3684211
                   2.067251
  [23] 0.3541667
                   1.987269
  [24] 0.3541667
                   1.987269
   [25] 0.3529412
                   1.980392
## [26] 0.3500000
                   1.963889
  [27] 0.3478261
                   1.951691
## [28] 0.3255814
                   1.826873
  [29] 0.3250000
                   1.823611
  [30] 0.3200000
                   1.795556
  [31] 0.3170732
                   1.779133
  [32] 0.3157895
                   1.771930
  [33] 0.3090909
                   1.734343
  [34] 0.3055556
                   1.714506
## [35] 0.2972973
                   1.668168
  [36] 0.2962963
                   1.662551
##
  [37] 0.2881356
                   1.616761
  [38] 0.2812500
                   1.578125
  [39] 0.2592593
                   1.454733
  [40] 0.2413793
                   1.354406
## [41] 0.2394366
                   1.343505
## [42] 0.2361111
                   1.324846
## [43] 0.2352941
                   1.320261
## [44] 0.2075472 1.164570
```

```
## [45] 0.1969697 1.105219
##
   [46] 0.1846154 1.035897
##
        lhs
                                             support
                                                       confidence lift
##
  [1]
                         => {backbone=TRUE} 0.1287129 1.0000000
                                                                  1.2168675
        {type=fish}
##
   [2]
        {fins=TRUE}
                         => {backbone=TRUE} 0.1683168 1.0000000
                                                                  1.2168675
   [3]
##
        {type=bird}
                         => {backbone=TRUE} 0.1980198 1.0000000
                                                                  1.2168675
  [4]
        {feathers=TRUE}
                            {backbone=TRUE} 0.1980198 1.0000000
                                                                  1.2168675
                                                                  1.2168675
## [5]
        {milk=TRUE}
                            {backbone=TRUE} 0.4059406 1.0000000
##
  [6]
        {type=mammal}
                            {backbone=TRUE} 0.4059406 1.0000000
                                                                   1.2168675
##
  [7]
        {toothed=TRUE}
                         => {backbone=TRUE} 0.6039604 1.0000000
                                                                  1.2168675
  [8]
        {tail=TRUE}
                         => {backbone=TRUE} 0.7326733 0.9866667
                                                                  1.2006426
  [9]
                         => {backbone=TRUE} 0.4257426 0.9772727
##
        {catsize=TRUE}
                                                                   1.1892114
  [10] {domestic=TRUE}
                         => {backbone=TRUE} 0.1188119 0.9230769
                                                                   1.1232623
## [11] {breathes=TRUE}
                         => {backbone=TRUE} 0.6831683 0.8625000
                                                                   1.0495482
                         => {backbone=TRUE} 0.1881188 0.8260870
## [12] {legs=FALSE}
                                                                  1.0052383
## [13] {legs=TRUE}
                         => {backbone=TRUE} 0.6336634 0.8205128
                                                                   0.9984554
                         => {backbone=TRUE} 0.5247525 0.8153846
  [14] {aquatic=FALSE}
                                                                  0.9922150
  [15] {predator=FALSE} => {backbone=TRUE} 0.3564356 0.8000000
                                                                  0.9734940
  [16] {feathers=FALSE} => {backbone=TRUE} 0.6237624 0.7777778
                                                                  0.9464525
  [17] {airborne=TRUE}
                         => {backbone=TRUE} 0.1782178 0.7500000
                                                                  0.9126506
## [18] {eggs=TRUE}
                         => {backbone=TRUE} 0.4158416 0.7118644
                                                                  0.8662446
                         => {backbone=TRUE} 0.3960396 0.7017544
  [19] {catsize=FALSE}
                                                                  0.8539421
  [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                   0.8112450
##
   [21] {toothed=FALSE} => {backbone=TRUE} 0.2178218 0.5500000
                                                                  0.6692771
##
       lhs
                                      rhs
                                                       support
                                                                  confidence
  [1] {milk=FALSE,legs=TRUE}
                                   => {backbone=FALSE} 0.1386139 0.3500000
   [2] {eggs=TRUE,legs=TRUE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
   [3] {legs=TRUE,catsize=FALSE}
                                  => {backbone=FALSE} 0.1287129 0.3170732
  [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
       lift
##
  [1] 1.963889
   [2] 1.823611
  [3] 1.779133
   [4] 1.354406
##
   [5] 1.105219
##
       lhs
                                                           support
## [1] {aquatic=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1089109
   [2] {milk=FALSE,aquatic=FALSE}
                                       => {backbone=FALSE} 0.1188119
  [3] {eggs=TRUE,aquatic=FALSE}
                                       => {backbone=FALSE} 0.1089109
  [4] {aquatic=FALSE, catsize=FALSE}
                                       => {backbone=FALSE} 0.1188119
   [5] {feathers=FALSE, aquatic=FALSE} => {backbone=FALSE} 0.1188119
   [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
##
##
       confidence lift
## [1] 0.6875000 3.857639
                  2.244444
  [2] 0.4000000
   [3] 0.3793103
                  2.128352
  [4] 0.3529412
                  1.980392
  [5] 0.2352941
                  1.320261
##
   [6] 0.2075472
                  1.164570
##
       lhs
                                           rhs
                                                             support
## [1] {feathers=FALSE,toothed=FALSE}
                                          {backbone=FALSE} 0.1782178
## [2] {feathers=FALSE,milk=FALSE}
                                        => {backbone=FALSE} 0.1782178
## [3] {feathers=FALSE,eggs=TRUE}
                                        => {backbone=FALSE} 0.1683168
```

```
## [4] {feathers=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
                                        => {backbone=FALSE} 0.1386139
## [5] {hair=FALSE,feathers=FALSE}
  [6] {feathers=FALSE,fins=FALSE}
                                        => {backbone=FALSE} 0.1782178
  [7] {feathers=FALSE,legs=TRUE}
                                        => {backbone=FALSE} 0.1386139
   [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
   [9] {feathers=FALSE, aquatic=FALSE} => {backbone=FALSE} 0.1188119
##
       confidence lift
## [1] 0.9000000 5.050000
   [2] 0.4500000
                  2.525000
  [3] 0.4358974
                  2.445869
  [4] 0.3953488
                  2.218346
  [5] 0.3684211
                  2.067251
   [6] 0.2812500
                  1.578125
  [7] 0.2413793
                  1.354406
## [8] 0.2394366
                  1.343505
##
  [9] 0.2352941
                  1.320261
##
       lhs
                                      rhs
                                                        support
                                                                  confidence
  [1] {eggs=TRUE,tail=FALSE}
                                   => {backbone=FALSE} 0.1683168 0.8500000
  [2] {feathers=FALSE,eggs=TRUE} => {backbone=FALSE} 0.1683168 0.4358974
  [3] {eggs=TRUE,aquatic=FALSE}
                                   => {backbone=FALSE} 0.1089109 0.3793103
## [4] {eggs=TRUE,fins=FALSE}
                                   => {backbone=FALSE} 0.1683168 0.3695652
                                   => {backbone=FALSE} 0.1584158 0.3478261
## [5] {eggs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
  [6] {eggs=TRUE,legs=TRUE}
   [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
##
   [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
       lift
## [1] 4.769444
##
  [2] 2.445869
  [3] 2.128352
## [4] 2.073671
## [5] 1.951691
##
  [6] 1.823611
  [7] 1.668168
  [8] 1.662551
##
##
        lhs
                                           rhs
                                                             support
## [1]
        {tail=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
  [2]
        {toothed=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
## [3]
        {feathers=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1683168
  [4]
        {milk=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
##
  [5]
        {fins=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
  [6]
        {aquatic=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1188119
  [7]
        {eggs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
##
##
   [8]
        {domestic=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
##
   [9]
        {legs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1287129
##
  [10] {airborne=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1089109
##
        confidence lift
## [1]
        0.8000000
                  4.488889
##
  [2]
        0.5483871
                   3.077061
##
  [3]
        0.3953488
                   2.218346
##
   [4]
        0.3541667
                   1.987269
   [5]
##
        0.3541667
                   1.987269
##
  [6]
        0.3529412
                   1.980392
## [7]
        0.3478261
                   1.951691
## [8]
        0.3200000 1.795556
```

```
[9]
       0.3170732
                   1.779133
##
  [10] 0.3055556
                  1.714506
##
                                                           support
  [1] {toothed=FALSE,tail=FALSE}
##
                                       => {backbone=FALSE} 0.1683168
##
   [2] {feathers=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1782178
   [3] {airborne=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1188119
   [4] {toothed=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
   [5]
       {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
##
   [6] {milk=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
##
       confidence lift
  [1] 1.0000000
                  5.611111
   [2] 0.9000000
                  5.050000
   [3] 0.6666667
                  3.740741
  [4] 0.5483871
                  3.077061
  [5] 0.4722222
                  2.649691
       0.4615385
                  2.589744
   [6]
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                           support
##
  [1]
                                           {aquatic=TRUE} 0.1287129
        {type=fish}
##
   [2]
        {fins=TRUE}
                                           {aquatic=TRUE} 0.1683168
##
   [3]
        {breathes=FALSE,tail=TRUE}
                                         => {aquatic=TRUE} 0.1386139
  [4]
        {backbone=TRUE, breathes=FALSE}
                                           {aquatic=TRUE} 0.1386139
  [5]
##
        {breathes=FALSE}
                                           {aquatic=TRUE} 0.1980198
##
   [6]
        {backbone=TRUE,legs=FALSE}
                                           {aquatic=TRUE} 0.1683168
##
  [7]
        {hair=FALSE,toothed=TRUE}
                                           {aquatic=TRUE} 0.1980198
  [8]
        {milk=FALSE,toothed=TRUE}
                                           {aquatic=TRUE} 0.1782178
        {eggs=TRUE,toothed=TRUE}
##
  [9]
                                           {aquatic=TRUE} 0.1683168
  [10] {predator=TRUE,legs=FALSE}
                                         => {aquatic=TRUE} 0.1386139
  [11] {venomous=FALSE,legs=FALSE}
                                           {aquatic=TRUE} 0.1485149
                                           {aquatic=TRUE} 0.1782178
## [12] {legs=FALSE}
  [13] {eggs=TRUE,predator=TRUE}
                                           {aquatic=TRUE} 0.2277228
       {hair=FALSE,predator=TRUE}
                                         => {aquatic=TRUE} 0.2475248
  [14]
  [15] {hair=FALSE, feathers=FALSE}
                                         => {aquatic=TRUE} 0.2574257
  [16] {milk=FALSE,predator=TRUE}
                                         => {aquatic=TRUE} 0.2277228
   [17] {eggs=TRUE,airborne=FALSE}
                                           {aguatic=TRUE} 0.2475248
## [18] {hair=FALSE,airborne=FALSE}
                                         => {aquatic=TRUE} 0.2673267
  [19] {milk=FALSE,airborne=FALSE}
                                           {aquatic=TRUE} 0.2475248
## [20] {feathers=FALSE,eggs=TRUE}
                                         => {aquatic=TRUE} 0.2376238
## [21] {predator=TRUE,catsize=FALSE}
                                           {aquatic=TRUE} 0.1683168
  [22] {feathers=FALSE,milk=FALSE}
                                           {aquatic=TRUE} 0.2376238
  [23] {hair=FALSE,backbone=TRUE}
                                           {aquatic=TRUE} 0.2574257
  [24] {predator=TRUE, toothed=FALSE}
                                           {aquatic=TRUE} 0.1089109
## [25] {hair=FALSE,domestic=FALSE}
                                         => {aquatic=TRUE} 0.3069307
## [26] {eggs=TRUE,backbone=TRUE}
                                           {aquatic=TRUE} 0.2376238
## [27] {milk=FALSE,backbone=TRUE}
                                         => {aquatic=TRUE} 0.2376238
## [28] {toothed=TRUE,catsize=FALSE}
                                           {aquatic=TRUE} 0.1386139
## [29]
       {eggs=TRUE,tail=TRUE}
                                           {aquatic=TRUE} 0.2079208
  [30] {predator=TRUE,domestic=FALSE}
                                           {aquatic=TRUE} 0.2871287
  [31] {eggs=TRUE,domestic=FALSE}
                                         => {aquatic=TRUE} 0.2871287
   [32] {airborne=FALSE, catsize=FALSE}
                                         => {aquatic=TRUE} 0.1881188
  [33] {milk=FALSE,domestic=FALSE}
                                         => {aquatic=TRUE} 0.2871287
## [34] {milk=FALSE,tail=TRUE}
                                         => {aquatic=TRUE} 0.2079208
## [35] {backbone=TRUE,catsize=FALSE}
                                         => {aquatic=TRUE} 0.1782178
## [36] {feathers=FALSE,catsize=FALSE}
                                         => {aquatic=TRUE} 0.1881188
```

```
## [37] {airborne=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2970297
   [38]
       {domestic=FALSE,catsize=FALSE}
                                         => {aquatic=TRUE} 0.2178218
   [39] {toothed=TRUE,domestic=FALSE}
                                          => {aquatic=TRUE} 0.2178218
  [40] {feathers=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2871287
  [41]
       {backbone=TRUE,domestic=FALSE}
                                         => {aquatic=TRUE} 0.2871287
  [42] {tail=TRUE,catsize=FALSE}
                                         => {aquatic=TRUE} 0.1485149
  [43] {feathers=FALSE,backbone=TRUE}
                                         => {aquatic=TRUE} 0.2376238
## [44] {backbone=TRUE}
                                         => {aquatic=TRUE} 0.2970297
   Γ451
       {tail=TRUE}
                                         => {aquatic=TRUE} 0.2574257
   [46] {venomous=FALSE}
                                         => {aquatic=TRUE} 0.3168317
   [47]
       {toothed=FALSE}
                                         => {aquatic=TRUE} 0.1287129
                                         => {aquatic=TRUE} 0.1584158
##
   [48]
       {breathes=TRUE}
##
        confidence lift
##
  [1]
        1.0000000
                   2.8055556
   [2]
        1.0000000
                   2.8055556
##
   [3]
        1.0000000
                   2.8055556
##
   [4]
        1.0000000
                   2.8055556
   [5]
        0.9523810
                   2.6719577
   [6]
##
        0.8947368
                   2.5102339
   [7]
        0.8695652
                   2.4396135
##
   [8]
        0.8571429
                   2.4047619
        0.8500000
                   2.3847222
   [9]
  [10] 0.8235294
                   2.3104575
   [11] 0.7894737
                   2.2149123
   [12] 0.7826087
                   2.1956522
   [13] 0.6969697
                   1.9553872
   [14] 0.6944444
                   1.9483025
   [15] 0.6842105
                   1.9195906
   [16] 0.6764706
                   1.8978758
  [17] 0.6756757
                   1.8956456
   [18] 0.6750000
                   1.8937500
   [19] 0.6578947
                   1.8457602
   [20] 0.6153846
                   1.7264957
   [21] 0.6071429
                   1.7033730
       0.6000000
                   1.6833333
   [22]
  [23] 0.5909091
                   1.6578283
  [24] 0.5789474
                   1.6242690
  [25] 0.5740741
                   1.6105967
   [26] 0.5714286
                   1.6031746
   [27] 0.5714286
                   1.6031746
   [28] 0.5384615
                   1.5106838
   [29] 0.5384615
                   1.5106838
   [30] 0.5370370
                   1.5066872
   [31] 0.5370370
                   1.5066872
  [32] 0.5277778
                   1.4807099
  [33] 0.5272727
                   1.4792929
   [34] 0.5250000
                   1.4729167
   [35] 0.4500000
                   1.2625000
   [36] 0.4418605
                   1.2396641
   [37]
        0.4411765
                   1.2377451
   [38]
##
       0.4400000
                   1.2344444
## [39] 0.4230769
                   1.1869658
## [40] 0.4084507
                   1.1459311
## [41] 0.4084507
                   1.1459311
```

```
## [42] 0.4054054
                   1.1373874
  [43] 0.3809524
                   1.0687831
  [44] 0.3614458
                   1.0140562
  [45] 0.3466667
                   0.9725926
   [46] 0.3440860
                   0.9653524
  [47] 0.3250000
                   0.9118056
##
##
  [48] 0.2000000
                   0.5611111
##
        lhs
                                             support
                                                        confidence lift
## [1]
        {domestic=TRUE}
                         => {aquatic=FALSE} 0.1188119 0.9230769
                                                                   1.4343195
##
  [2]
        {hair=TRUE}
                          => {aquatic=FALSE} 0.3861386 0.9069767
                                                                   1.4093023
  [3]
        {eggs=FALSE}
                          => {aquatic=FALSE} 0.3564356 0.8571429
                                                                   1.3318681
   [4]
##
        {milk=TRUE}
                          => {aquatic=FALSE} 0.3465347 0.8536585
                                                                   1.3264540
##
   [5]
        {type=mammal}
                          => {aquatic=FALSE} 0.3465347 0.8536585
                                                                   1.3264540
##
  [6]
        {predator=FALSE}
                         => {aquatic=FALSE} 0.3762376 0.8444444
                                                                   1.3121368
  [7]
##
        {fins=FALSE}
                          => {aquatic=FALSE} 0.6435644 0.7738095
                                                                   1.2023810
##
  [8]
        {toothed=FALSE}
                         => {aquatic=FALSE} 0.2673267 0.6750000
                                                                   1.0488462
##
  [9]
                          => {aquatic=FALSE} 0.3762376 0.6229508
                                                                   0.9679697
        {toothed=TRUE}
  [10] {tail=FALSE}
                          => {aguatic=FALSE} 0.1584158 0.6153846
                                                                   0.9562130
  [11] {domestic=FALSE} => {aquatic=FALSE} 0.5247525 0.6022727
                                                                   0.9358392
   [12] {catsize=FALSE}
                         => {aquatic=FALSE} 0.3366337 0.5964912
                                                                   0.9268556
##
   [13] {eggs=TRUE}
                          => {aquatic=FALSE} 0.2871287 0.4915254
                                                                   0.7637549
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
   [1] {predator=TRUE,toothed=FALSE} => {aquatic=TRUE} 0.1089109 0.5789474
##
##
       lift
##
  [1] 1.624269
       lhs
                                                         support
                                                                   confidence
  [1] {hair=FALSE,toothed=TRUE}
                                        {aquatic=TRUE} 0.1980198 0.8695652
##
   [2] {milk=FALSE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1782178 0.8571429
   [3] {eggs=TRUE, toothed=TRUE}
                                      => {aquatic=TRUE} 0.1683168 0.8500000
  [4] {toothed=TRUE,catsize=FALSE}
                                      => {aquatic=TRUE} 0.1386139 0.5384615
##
   [5] {toothed=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2178218 0.4230769
##
       lift
##
  [1] 2.439614
  [2] 2.404762
   [3] 2.384722
##
  [4] 1.510684
##
  [5] 1.186966
##
       lhs
                                           rhs
                                                           support
                                                                     confidence
  [1] {hair=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.3069307 0.5740741
   [2] {predator=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
  [3] {eggs=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
  [4] {milk=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5272727
   [5] {airborne=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2970297 0.4411765
  [6] {domestic=FALSE, catsize=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4400000
  [7] {toothed=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4230769
  [8] {feathers=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.4084507
##
   [9] {backbone=TRUE,domestic=FALSE}
                                       => {aquatic=TRUE} 0.2871287 0.4084507
##
       lift
## [1] 1.610597
  [2] 1.506687
## [3] 1.506687
## [4] 1.479293
## [5] 1.237745
## [6] 1.234444
```

```
## [7] 1.186966
## [8] 1.145931
  [9] 1.145931
##
       lhs
                                          rhs
                                                         support
                                                                   confidence
## [1] {predator=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1683168 0.6071429
  [2] {toothed=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1386139 0.5384615
## [3] {airborne=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.5277778
## [4] {backbone=TRUE, catsize=FALSE}
                                       => {aquatic=TRUE} 0.1782178 0.4500000
## [5] {feathers=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.4418605
  [6] {domestic=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.2178218 0.4400000
  [7] {tail=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1485149 0.4054054
##
       lift
## [1] 1.703373
## [2] 1.510684
## [3] 1.480710
## [4] 1.262500
## [5] 1.239664
  [6] 1.234444
##
  [7] 1.137387
##
       lhs
                                      rhs
                                                     support
                                                                confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {aquatic=TRUE} 0.1683168 0.8500000
## [2] {eggs=TRUE,predator=TRUE} => {aquatic=TRUE} 0.2277228 0.6969697
## [3] {eggs=TRUE,airborne=FALSE} => {aquatic=TRUE} 0.2475248 0.6756757
## [4] {feathers=FALSE,eggs=TRUE} => {aquatic=TRUE} 0.2376238 0.6153846
  [5] {eggs=TRUE,backbone=TRUE} => {aquatic=TRUE} 0.2376238 0.5714286
  [6] {eggs=TRUE,tail=TRUE}
                                   => {aquatic=TRUE} 0.2079208 0.5384615
   [7] {eggs=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.5370370
##
       lift
## [1] 2.384722
## [2] 1.955387
## [3] 1.895646
## [4] 1.726496
## [5] 1.603175
## [6] 1.510684
      1.506687
##
  [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                            support
## [1]
                                         => {feathers=TRUE} 0.1980198
        {type=bird}
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [2]
##
  [3]
        {hair=FALSE,airborne=TRUE}
                                         => {feathers=TRUE} 0.1584158
  [4]
        {airborne=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1584158
        {airborne=TRUE, backbone=TRUE}
                                         => {feathers=TRUE} 0.1584158
##
  [5]
##
  [6]
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [7]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
## [8]
        {eggs=TRUE,airborne=TRUE}
                                         => {feathers=TRUE} 0.1584158
                                         => {feathers=TRUE} 0.1584158
## [9]
        {milk=FALSE,airborne=TRUE}
## [10] {airborne=TRUE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1584158
## [11] {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1980198
## [12] {hair=FALSE,toothed=FALSE}
## [13] {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [14] {toothed=FALSE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [15] {hair=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [16] {hair=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [17] {hair=FALSE,aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
```

```
## [18] {predator=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1089109
   [19] {aquatic=FALSE, toothed=FALSE}
                                           {feathers=TRUE} 0.1386139
  [20] {eggs=TRUE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
  [21] {milk=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
##
  [22] {eggs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
  [23] {eggs=TRUE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
  [24] {milk=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
  [25] {hair=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [26]
       {eggs=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [27] {milk=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [28] {milk=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
   [29] {eggs=TRUE,aquatic=FALSE}
                                           {feathers=TRUE} 0.1386139
   [30] {hair=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [31] {eggs=TRUE,backbone=TRUE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
  [32] {milk=FALSE,backbone=TRUE}
   [33]
        {milk=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   [34]
       {hair=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [35] {hair=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
   [36] {eggs=TRUE,fins=FALSE}
   [37] {milk=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
  [38] {eggs=TRUE,predator=FALSE}
                                           {feathers=TRUE} 0.1089109
                                           {feathers=TRUE} 0.1089109
  [39] {milk=FALSE,predator=FALSE}
  [40] {hair=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1980198
   [41] {milk=FALSE.venomous=FALSE}
  [42] {tail=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
  [43] {eggs=TRUE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
   [44] {hair=FALSE,eggs=TRUE}
   [45] {hair=FALSE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
  [46] {legs=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
  [47] {backbone=TRUE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
##
  [48]
        {hair=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [49]
        {eggs=TRUE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
       {legs=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
   [51] {breathes=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
        {fins=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [53]
       {predator=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1089109
       {breathes=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
       {backbone=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
  [55]
        {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [56]
##
   [57]
       {backbone=TRUE,fins=FALSE}
                                           {feathers=TRUE} 0.1980198
       {fins=FALSE,catsize=FALSE}
   [58]
                                           {feathers=TRUE} 0.1386139
   [59] {backbone=TRUE, breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
##
   [60] {aquatic=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1386139
   [61] {predator=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1089109
  [62] {venomous=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [63]
        {venomous=FALSE, catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
   [64]
##
       {breathes=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [65]
       {backbone=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [66]
       {venomous=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
       {predator=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1089109
##
   [68]
       {predator=FALSE,fins=FALSE}
                                           {feathers=TRUE} 0.1089109
  [69] {breathes=TRUE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [70] {aquatic=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1386139
## [71] {breathes=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
```

```
## [72] {fins=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1980198
  [73] {venomous=FALSE,fins=FALSE}
  [74] {legs=TRUE,domestic=FALSE}
                                          => {feathers=TRUE} 0.1683168
## [75] {predator=FALSE,venomous=FALSE} => {feathers=TRUE} 0.1089109
##
   [76] {backbone=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [77] {aquatic=FALSE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1386139
                                          => {feathers=TRUE} 0.1386139
   [78] {aquatic=FALSE}
   [79]
       {venomous=FALSE}
                                          => {feathers=TRUE} 0.1980198
##
   [80]
       {domestic=FALSE}
                                         => {feathers=TRUE} 0.1683168
##
        confidence lift
   [1]
        1.0000000
                   5.0500000
   [2]
##
        0.9090909
                   4.5909091
##
   [3]
        0.8888889
                   4.4888889
##
   [4]
        0.888889
                   4.4888889
##
  [5]
        0.888889
                   4.4888889
##
   [6]
        0.8695652
                   4.3913043
   [7]
##
        0.7272727
                   3.6727273
   [8]
        0.7272727
                   3.6727273
   [9]
        0.7272727
                   3.6727273
   [10] 0.7272727
                   3.6727273
##
  [11] 0.6060606
                   3.0606061
  [12] 0.5714286
                   2.8857143
## [13] 0.555556
                   2.8055556
   [14] 0.5555556
                   2.8055556
   [15] 0.5555556
                   2.8055556
   [16] 0.5405405
                   2.7297297
   [17] 0.5384615
                   2.7192308
   [18] 0.5238095
                   2.6452381
  [19] 0.5185185
                   2.6185185
  [20] 0.5128205
                   2.5897436
   [21] 0.5128205
                   2.5897436
   [22] 0.5128205
                   2.5897436
   [23] 0.5128205
                   2.5897436
   [24] 0.5128205
                   2.5897436
   [25] 0.5000000
                   2.5250000
##
  [26] 0.5000000
                   2.5250000
  [27] 0.5000000
                   2.5250000
## [28] 0.5000000
                   2.5250000
   [29] 0.4827586
                   2.4379310
   [30] 0.4761905
                   2.4047619
   [31] 0.4761905
                   2.4047619
   [32] 0.4761905
                   2.4047619
   [33] 0.4666667
                   2.3566667
   [34] 0.4651163
                   2.3488372
  [35] 0.4545455
                   2.2954545
   [36] 0.4347826
                   2.1956522
##
   [37] 0.4255319
                   2.1489362
   [38] 0.4230769
                   2.1365385
   [39]
       0.4230769
                   2.1365385
   [40]
        0.3846154
                   1.9423077
## [41] 0.3846154
                   1.9423077
## [42] 0.3783784
                   1.9108108
## [43] 0.3773585
                   1.9056604
## [44] 0.3703704
                   1.8703704
```

```
1.8035714
## [45] 0.3571429
   [46] 0.3508772
                    1.7719298
   [47] 0.3500000
                    1.7675000
                    1.7413793
   [48] 0.3448276
   [49] 0.3448276
                    1.7413793
                    1.7243902
##
   [50] 0.3414634
   [51] 0.3414634
                    1.7243902
   [52] 0.3389831
                    1.7118644
   [53] 0.3333333
                    1.6833333
   [54] 0.3278689
                    1.6557377
   [55] 0.3125000
                    1.5781250
   [56] 0.3055556
                    1.5430556
##
   [57] 0.3030303
                    1.5303030
   [58] 0.2916667
                    1.4729167
   [59] 0.2898551
                    1.4637681
   [60] 0.2857143
                    1.4428571
##
   [61] 0.2820513
                    1.4243590
   [62] 0.2816901
                    1.4225352
   [63] 0.2800000
                    1.4140000
   [64] 0.2739726
                    1.3835616
##
   [65] 0.2702703
                    1.3648649
   [66] 0.2702703
                    1.3648649
   [67] 0.2682927
                    1.3548780
##
   [68] 0.2682927
                    1.3548780
   [69] 0.2666667
                    1.3466667
   [70] 0.2641509
                    1.3339623
   [71] 0.2631579
                    1.3289474
   [72] 0.2597403
                    1.3116883
   [73] 0.2597403
                    1.3116883
                   1.3007576
   [74] 0.2575758
   [75] 0.2558140
                    1.2918605
   [76] 0.2531646
                    1.2784810
   [77] 0.2295082
                    1.1590164
   [78] 0.2153846
                    1.0876923
   [79]
       0.2150538
                    1.0860215
   [80] 0.1931818
##
                   0.9755682
##
        lhs
                             rhs
                                               support
                                                         confidence lift
## [1]
                          => {feathers=FALSE} 0.1287129 1.0000000
        {type=fish}
                                                                     1.2469136
##
   [2]
        {fins=TRUE}
                          => {feathers=FALSE} 0.1683168 1.0000000
                                                                     1.2469136
##
   [3]
        {backbone=FALSE} => {feathers=FALSE} 0.1782178 1.0000000
                                                                     1.2469136
   [4]
        {breathes=FALSE} => {feathers=FALSE} 0.2079208 1.0000000
                                                                     1.2469136
   [5]
                          => {feathers=FALSE} 0.2277228 1.0000000
##
        {legs=FALSE}
                                                                     1.2469136
##
   [6]
        {tail=FALSE}
                          => {feathers=FALSE} 0.2574257 1.0000000
                                                                     1.2469136
##
   [7]
                          => {feathers=FALSE} 0.4158416 1.0000000
        {eggs=FALSE}
                                                                     1.2469136
  [8]
        {hair=TRUE}
                          => {feathers=FALSE} 0.4257426 1.0000000
                                                                     1.2469136
  [9]
        {airborne=FALSE} => {feathers=FALSE} 0.7227723 0.9480519
##
                                                                     1.1821388
                                                                     1.0768799
   [10]
       {catsize=TRUE}
                             {feathers=FALSE} 0.3762376 0.8636364
   [11]
       {predator=TRUE}
                          => {feathers=FALSE} 0.4653465 0.8392857
                                                                     1.0465168
   [12] {aquatic=TRUE}
                          => {feathers=FALSE} 0.2970297 0.8333333
                                                                     1.0390947
   [13] {aquatic=FALSE}
                          => {feathers=FALSE} 0.5049505 0.7846154
                                                                     0.9783476
##
   [14] {predator=FALSE}
                          => {feathers=FALSE} 0.3366337 0.7555556
                                                                     0.9421125
## [15] {catsize=FALSE}
                          => {feathers=FALSE} 0.4257426 0.7543860
                                                                     0.9406541
## [16] {breathes=TRUE}
                          => {feathers=FALSE} 0.5940594 0.7500000
                                                                     0.9351852
## [17] {legs=TRUE}
                          => {feathers=FALSE} 0.5742574 0.7435897
```

```
## [18] {milk=FALSE}
                          => {feathers=FALSE} 0.3960396 0.6666667
                                                                    0.8312757
                          => {feathers=FALSE} 0.3861386 0.6610169
  [19] {eggs=TRUE}
                                                                    0.8242310
                          => {feathers=FALSE} 0.3762376 0.6551724
  [20] {hair=FALSE}
  [21] {toothed=FALSE}
                         => {feathers=FALSE} 0.1980198 0.5000000
                                                                    0.6234568
##
                                          rhs
                                                           support
                                                                     confidence
                                       => {feathers=TRUE} 0.1386139 0.5384615
## [1] {hair=FALSE,aquatic=FALSE}
  [2] {aquatic=FALSE, toothed=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5185185
  [3] {eggs=TRUE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4827586
  [4] {milk=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
  [5] {aquatic=FALSE,tail=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2857143
  [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
   [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
##
       lift
## [1] 2.719231
## [2] 2.618519
  [3] 2.437931
  [4] 2.356667
  [5] 1.442857
  [6] 1.333962
##
   [7] 1.159016
##
        lhs
                                            rhs
                                                             support
        {predator=FALSE, toothed=FALSE}
##
  [1]
                                            {feathers=TRUE} 0.1089109
  [2]
        {hair=FALSE, predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
##
##
   [3]
        {eggs=TRUE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
  [4]
        {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
  [5]
        {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
   [6]
        {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
##
##
   [7]
        {predator=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1089109
   [8]
                                         => {feathers=TRUE} 0.1089109
##
        {predator=FALSE, breathes=TRUE}
   [9]
        {predator=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1089109
##
   [10] {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
        confidence lift
##
  [1]
        0.5238095
                   2.645238
   [2]
                   2.525000
##
        0.5000000
   [3]
        0.4230769
                   2.136538
##
   [4]
        0.4230769
                   2.136538
   [5]
        0.3333333
                   1.683333
  [6]
        0.3055556
##
                   1.543056
   [7]
##
        0.2820513
                   1.424359
##
  [8]
        0.2682927
                   1.354878
  [9]
        0.2682927
                   1.354878
   [10] 0.2558140
##
                   1.291860
##
       lhs
                                                           support
                                                                     confidence
  [1] {tail=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3783784
## [2] {backbone=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3500000
## [3] {legs=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
  [4] {breathes=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
  [5] {fins=FALSE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.2916667
##
   [6] {venomous=FALSE, catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
       lift
## [1] 1.910811
## [2] 1.767500
## [3] 1.724390
## [4] 1.724390
```

```
[5] 1.472917
   [6] 1.414000
##
##
        lhs
                                                             support
##
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [1]
##
   [2]
        {hair=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [3]
##
        {eggs=TRUE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
        {milk=FALSE.breathes=TRUE}
   [4]
                                         => {feathers=TRUE} 0.1980198
##
   [5]
        {breathes=TRUE, catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
##
   [6]
        {breathes=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [7]
        {backbone=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [8]
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [9]
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
   [10]
##
        {breathes=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1980198
##
   [11] {breathes=TRUE,fins=FALSE}
        confidence lift
##
##
   [1]
        0.6060606
                   3.060606
   [2]
##
        0.5405405
                   2.729730
   [3]
        0.5128205
                    2.589744
   [4]
##
        0.5128205
                   2.589744
##
   [5]
        0.3414634
                    1.724390
##
   [6]
        0.3278689
                    1.655738
        0.2898551
   [7]
                    1.463768
   [8]
##
        0.2739726
                    1.383562
   [9]
        0.2682927
                    1.354878
   [10] 0.2666667
                    1.346667
##
   [11]
       0.2631579
                   1.328947
##
        lhs
                                        rhs
                                                         support
                                                                    confidence
##
   [1]
        {toothed=FALSE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5555556
   [2]
                                     => {feathers=TRUE} 0.1980198 0.5555556
##
        {hair=FALSE,legs=TRUE}
##
   [3]
        {eggs=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [4]
        {milk=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
        {legs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3508772
##
   [6]
        {legs=TRUE,catsize=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.3414634
##
   [7]
        {backbone=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3125000
   [8]
        {predator=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1089109 0.2820513
##
        {breathes=TRUE,legs=TRUE}
##
   [9]
                                     => {feathers=TRUE} 0.1980198 0.2739726
   [10] {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
   [11] {fins=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2597403
##
   [12] {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
##
##
        lift
   [1]
        2.805556
##
   [2]
        2.805556
##
##
   [3]
        2.525000
##
   [4]
        2.525000
##
   [5]
        1.771930
   [6]
##
        1.724390
##
   [7]
        1.578125
##
   [8]
        1.424359
   [9]
        1.383562
##
   [10]
        1.364865
##
   [11]
       1.311688
##
   [12] 1.300758
##
        lhs
                                         rhs
                                                          support
                                                                     confidence
       {milk=FALSE,airborne=TRUE}
                                    => {feathers=TRUE} 0.1584158 0.7272727
```

```
{milk=FALSE,toothed=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
##
   [3]
                                      => {feathers=TRUE} 0.1980198 0.5128205
        {milk=FALSE,breathes=TRUE}
        {milk=FALSE,tail=TRUE}
   [4]
                                      => {feathers=TRUE} 0.1980198 0.5000000
   [5]
        {milk=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
##
   [6]
        {milk=FALSE,backbone=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.4761905
##
                                      => {feathers=TRUE} 0.1386139 0.4666667
   [7]
        {milk=FALSE, aquatic=FALSE}
   [8]
        {milk=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4255319
        {milk=FALSE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
##
   [9]
   [10] {milk=FALSE, venomous=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3846154
   [11] {hair=FALSE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3571429
                                      => {feathers=TRUE} 0.1980198 0.3448276
   [12] {eggs=TRUE,milk=FALSE}
##
        lift
##
   [1]
        3,672727
##
   [2]
        2.589744
   [3]
##
        2.589744
##
   [4]
        2.525000
   [5]
##
        2.525000
   [6]
        2.404762
   [7]
##
        2.356667
##
   [8]
        2.148936
##
   [9]
        2.136538
  [10] 1.942308
  [11] 1.803571
##
   [12] 1.741379
##
        lhs
                                        rhs
                                                        support
                                                                   confidence
  [1]
        {eggs=TRUE,airborne=TRUE}
                                    => {feathers=TRUE} 0.1584158 0.7272727
   [2]
        {eggs=TRUE,toothed=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
##
##
   [3]
        {eggs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
   [4]
                                    => {feathers=TRUE} 0.1980198 0.5128205
##
        {eggs=TRUE,breathes=TRUE}
   [5]
        {eggs=TRUE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5000000
##
##
   [6]
        {eggs=TRUE,aquatic=FALSE}
                                    => {feathers=TRUE} 0.1386139 0.4827586
##
   [7]
        {eggs=TRUE,backbone=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.4761905
   [8]
        {eggs=TRUE,fins=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.4347826
        {eggs=TRUE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
##
   [9]
   [10] {eggs=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3773585
   [11] {hair=FALSE,eggs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3703704
##
##
   [12] {eggs=TRUE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3448276
##
        lift.
   [1]
##
        3.672727
   [2]
##
        2.589744
   [3]
        2.589744
   [4]
        2.589744
##
##
   [5]
        2.525000
##
   [6]
        2.437931
##
   [7]
        2.404762
   [8]
        2.195652
##
##
   [9]
        2.136538
   [10] 1.905660
   [11] 1.870370
##
   [12]
        1.741379
##
        lhs
                                         rhs
                                                          support
                                                                    confidence
## [1]
        {hair=FALSE,airborne=TRUE}
                                     => {feathers=TRUE} 0.1584158 0.8888889
                                      => {feathers=TRUE} 0.1980198 0.5714286
## [2]
        {hair=FALSE,toothed=FALSE}
## [3]
        {hair=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5555556
```

```
[4]
        {hair=FALSE,breathes=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5405405
##
                                     => {feathers=TRUE} 0.1386139 0.5384615
   [5]
        {hair=FALSE,aquatic=FALSE}
        {hair=FALSE, predator=FALSE} => {feathers=TRUE} 0.1089109 0.5000000
   [6]
   [7]
        {hair=FALSE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.4761905
##
##
   [8]
        {hair=FALSE,fins=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.4651163
##
   [9]
        {hair=FALSE,backbone=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.4545455
   Γ107
       {hair=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
   [11] {hair=FALSE,eggs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3703704
##
   [12] {hair=FALSE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3571429
##
        lift
##
  [1]
        4.488889
   [2]
        2.885714
##
##
   [3]
        2.805556
##
   [4]
        2.729730
   [5]
##
        2.719231
##
   [6]
        2.525000
##
   [7]
        2.404762
   [8]
        2.348837
##
   [9]
        2.295455
   [10] 1.942308
##
   [11] 1.870370
##
   [12] 1.803571
##
        lhs
                                            rhs
                                                             support
##
  Г17
        {toothed=FALSE,backbone=TRUE}
                                        => {feathers=TRUE} 0.1980198
   [2]
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [3]
        {airborne=TRUE, toothed=FALSE}
                                        => {feathers=TRUE} 0.1584158
   [4]
        {toothed=FALSE,breathes=TRUE}
##
                                        => {feathers=TRUE} 0.1980198
##
   [5]
        {hair=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [6]
##
        {toothed=FALSE,legs=TRUE}
                                        => {feathers=TRUE} 0.1980198
  [7]
        {toothed=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198
##
   [8]
        {predator=FALSE,toothed=FALSE} => {feathers=TRUE} 0.1089109
##
   [9]
        {aquatic=FALSE,toothed=FALSE}
                                        => {feathers=TRUE} 0.1386139
       {eggs=TRUE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
                                        => {feathers=TRUE} 0.1980198
##
       {milk=FALSE,toothed=FALSE}
   [11]
##
        confidence lift
##
  Г17
        0.9090909
                   4.590909
   [2]
        0.8695652
                   4.391304
  [3]
##
        0.7272727
                   3.672727
   [4]
##
        0.6060606
                   3.060606
##
   [5]
        0.5714286
                   2.885714
   [6]
        0.555556
                   2.805556
   [7]
##
        0.555556
                   2.805556
##
   [8]
        0.5238095
                   2.645238
##
   [9]
        0.5185185
                   2.618519
  [10] 0.5128205
                   2.589744
   [11] 0.5128205
                   2.589744
##
   [1]
       "Número de reglas con consecuente negado"
##
                                             rhs
                                                          support
                                                                     confidence
##
  [1]
        {type=fish}
                                          => {legs=FALSE} 0.1287129 1.0000000
##
   [2]
        {hair=FALSE,fins=TRUE}
                                            {legs=FALSE} 0.1485149 1.0000000
   [3]
##
        {eggs=TRUE,fins=TRUE}
                                          => {legs=FALSE} 0.1287129 1.0000000
## [4]
        {milk=FALSE,fins=TRUE}
                                          => {legs=FALSE} 0.1287129 1.0000000
## [5]
        {toothed=TRUE,breathes=FALSE}
                                          => {legs=FALSE} 0.1386139 1.0000000
## [6]
        {breathes=FALSE,tail=TRUE}
                                            {legs=FALSE} 0.1386139 1.0000000
```

```
{backbone=TRUE, breathes=FALSE}
                                        => {legs=FALSE} 0.1386139 1.0000000
   [7]
##
   [8]
        {fins=TRUE}
                                           {legs=FALSE} 0.1584158 0.9411765
##
  [9]
        {hair=FALSE, toothed=TRUE}
                                           {legs=FALSE} 0.1782178 0.7826087
##
   [10] {breathes=FALSE}
                                           {legs=FALSE} 0.1584158 0.7619048
##
   [11] {milk=FALSE,toothed=TRUE}
                                           {legs=FALSE} 0.1584158 0.7619048
  [12] {eggs=TRUE,toothed=TRUE}
                                           {legs=FALSE} 0.1485149 0.7500000
##
  [13] {aquatic=TRUE, toothed=TRUE}
                                           {legs=FALSE} 0.1683168 0.7391304
   [14] {aquatic=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1584158 0.6153846
   [15] {feathers=FALSE,aquatic=TRUE}
                                           {legs=FALSE} 0.1782178 0.6000000
   [16] {airborne=FALSE,aquatic=TRUE}
                                           {legs=FALSE} 0.1782178 0.5806452
   [17] {hair=FALSE,feathers=FALSE}
                                           {legs=FALSE} 0.2178218 0.5789474
   [18] {hair=FALSE,airborne=FALSE}
                                           {legs=FALSE} 0.2178218 0.5500000
       {hair=FALSE,aquatic=TRUE}
                                           {legs=FALSE} 0.1683168 0.5312500
##
   [19]
       {milk=FALSE,airborne=FALSE}
                                           {legs=FALSE} 0.1980198 0.5263158
  [21]
       {eggs=TRUE,airborne=FALSE}
                                           {legs=FALSE} 0.1881188 0.5135135
       {feathers=FALSE,milk=FALSE}
                                            {legs=FALSE} 0.1980198 0.5000000
   [22]
       {feathers=FALSE,eggs=TRUE}
                                           {legs=FALSE} 0.1881188 0.4871795
   [23]
   [24] {toothed=TRUE,catsize=FALSE}
                                           {legs=FALSE} 0.1188119 0.4615385
   [25] {hair=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1584158 0.4444444
   [26] {airborne=FALSE, catsize=FALSE}
                                           {legs=FALSE} 0.1584158 0.4444444
##
       {hair=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1782178 0.4285714
  [27]
  [28] {milk=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1386139 0.4117647
  [29] {hair=FALSE,backbone=TRUE}
                                           {legs=FALSE} 0.1782178 0.4090909
##
   [30] {predator=TRUE, toothed=TRUE}
                                           {legs=FALSE} 0.1485149 0.4054054
##
   [31] {milk=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1584158 0.4000000
   [32] {eggs=TRUE,predator=TRUE}
                                           {legs=FALSE} 0.1287129 0.3939394
   [33] {hair=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.2079208 0.3888889
##
   [34] {eggs=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1485149 0.3846154
       {milk=FALSE,backbone=TRUE}
                                           {legs=FALSE} 0.1584158 0.3809524
                                           {legs=FALSE} 0.1584158 0.3720930
   [36] {feathers=FALSE, catsize=FALSE}
       {feathers=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3617021
##
   [38]
       {eggs=TRUE,backbone=TRUE}
                                           {legs=FALSE} 0.1485149 0.3571429
   [39] {airborne=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3469388
   [40] {toothed=TRUE,domestic=FALSE}
                                           {legs=FALSE} 0.1782178 0.3461538
       {milk=FALSE,domestic=FALSE}
   Γ417
                                           {legs=FALSE} 0.1881188 0.3454545
##
   [42] {predator=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1386139 0.3333333
  [43] {eggs=TRUE,domestic=FALSE}
                                           {legs=FALSE} 0.1782178 0.3333333
  [44] {feathers=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1782178 0.3272727
   [45] {tail=TRUE,catsize=FALSE}
                                           {legs=FALSE} 0.1188119 0.3243243
   [46] {airborne=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.2178218 0.3235294
##
  [47] {airborne=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
   [48] {airborne=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1782178 0.3157895
   [49] {feathers=FALSE, airborne=FALSE}
                                        => {legs=FALSE} 0.2277228 0.3150685
  [50] {feathers=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.2178218 0.3098592
  [51] {predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3035714
   [52]
        {feathers=FALSE, backbone=TRUE}
                                           {legs=FALSE} 0.1881188 0.3015873
##
   [53]
        {backbone=TRUE, catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
   [54]
       {domestic=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1485149 0.3000000
   [55] {tail=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1683168 0.2615385
##
   [56]
       {backbone=TRUE,domestic=FALSE}
                                        => {legs=FALSE} 0.1782178 0.2535211
##
        lift
## [1]
        4.391304
## [2]
        4.391304
## [3]
        4.391304
```

```
## [4]
        4.391304
## [5]
        4.391304
  [6]
        4.391304
  [7]
        4.391304
##
##
   [8]
        4.132992
## [9]
        3.436673
## [10] 3.345756
## [11] 3.345756
## [12] 3.293478
## [13] 3.245747
## [14] 2.702341
## [15] 2.634783
## [16] 2.549790
## [17] 2.542334
## [18] 2.415217
## [19] 2.332880
## [20] 2.311213
## [21] 2.254994
## [22] 2.195652
## [23] 2.139353
## [24] 2.026756
## [25] 1.951691
## [26] 1.951691
## [27] 1.881988
## [28] 1.808184
## [29] 1.796443
## [30] 1.780259
## [31] 1.756522
## [32] 1.729908
## [33] 1.707729
## [34] 1.688963
## [35] 1.672878
## [36] 1.633974
## [37] 1.588344
## [38] 1.568323
## [39] 1.523514
## [40] 1.520067
## [41] 1.516996
## [42] 1.463768
## [43] 1.463768
## [44] 1.437154
## [45] 1.424207
## [46] 1.420716
## [47] 1.414149
## [48] 1.386728
## [49] 1.383562
## [50] 1.360686
## [51] 1.333075
## [52] 1.324362
## [53] 1.317391
## [54] 1.317391
## [55] 1.148495
## [56] 1.113288
##
        lhs
                             rhs
                                          support
                                                    confidence lift
```

```
{type=bird}
  [1]
                          => {legs=TRUE} 0.1980198 1.0000000
##
                                                               1.2948718
##
                                                               1.2948718
   [2]
        {feathers=TRUE}
                          => {legs=TRUE} 0.1980198 1.0000000
        {airborne=TRUE}
##
   [3]
                          => {legs=TRUE} 0.2376238 1.0000000
                                                               1.2948718
   [4]
##
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                               1.2647585
##
   [5]
        {milk=TRUE}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                               1.2001251
##
   [6]
        {type=mammal}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                               1.2001251
##
   [7]
        {domestic=TRUE}
                          => {legs=TRUE} 0.1188119 0.9230769
                                                               1.1952663
##
   [8]
        {aquatic=FALSE}
                          => {legs=TRUE} 0.5940594 0.9230769
                                                               1.1952663
##
   [9]
        {eggs=FALSE}
                          => {legs=TRUE} 0.3762376 0.9047619
                                                               1.1715507
##
   [10] {toothed=FALSE}
                          => {legs=TRUE} 0.3564356 0.9000000
                                                               1.1653846
   [11] {predator=FALSE}
                         => {legs=TRUE} 0.3861386 0.8666667
                                                               1.122222
   [12] {catsize=TRUE}
                          => {legs=TRUE} 0.3663366 0.8409091
                                                               1.0888695
##
   [13] {tail=FALSE}
                          => {legs=TRUE} 0.2079208 0.8076923
                                                               1.0458580
   [14] {backbone=FALSE} => {legs=TRUE} 0.1386139 0.7777778
                                                               1.0071225
  [15] {tail=TRUE}
                          => {legs=TRUE} 0.5643564 0.7600000
                                                               0.9841026
        {catsize=FALSE}
                             {legs=TRUE} 0.4059406 0.7192982
   Г16Т
                                                               0.9313990
                         => {legs=TRUE} 0.5346535 0.7012987
   [17]
       {airborne=FALSE}
                                                               0.9080919
                          => {legs=TRUE} 0.4158416 0.6885246
   [18] {toothed=TRUE}
                                                               0.8915511
                          => {legs=TRUE} 0.3960396 0.6779661
   [19] {eggs=TRUE}
                                                               0.8778792
##
   [20] {milk=FALSE}
                          => {legs=TRUE} 0.3960396 0.6666667
                                                               0.8632479
##
   [21] {aquatic=TRUE}
                          => {legs=TRUE} 0.1782178 0.5000000
                                                               0.6474359
##
                                       rhs
                                                               confidence
                                                     support
##
   [1]
        {breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
##
   [2]
        {aquatic=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.6153846
##
   [3]
        {hair=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1782178 0.4285714
   [4]
        {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
   [5]
        {eggs=TRUE,tail=TRUE}
##
                                    => {legs=FALSE} 0.1485149 0.3846154
##
   [6]
        {predator=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1386139 0.3333333
   [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
##
##
   [8]
        {tail=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3243243
##
   [9]
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
##
   [10]
       {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
        lift
        4.391304
##
   [1]
##
   [2]
        2.702341
   [3]
##
        1.881988
##
   [4]
        1.756522
   [5]
##
        1.688963
   [6]
##
        1.463768
##
   [7]
        1.437154
   [8]
        1.424207
   [9]
##
        1.386728
##
   [10] 1.148495
##
       lhs
                                          rhs
                                                        support
                                                                   confidence
  [1] {toothed=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.4615385
                                          {legs=FALSE} 0.1584158 0.4444444
   [2] {airborne=FALSE, catsize=FALSE} =>
   [3] {feathers=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
   [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
   [5] {backbone=TRUE, catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3000000
##
   [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
##
       lift
## [1] 2.026756
## [2] 1.951691
## [3] 1.633974
```

```
[4] 1.424207
   [5] 1.317391
##
   [6] 1.317391
##
        lhs
                                                                    confidence
                                            rhs
                                                          support
##
   [1]
        {airborne=FALSE,aquatic=TRUE}
                                            {legs=FALSE} 0.1782178 0.5806452
   [2]
        {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
##
##
  [3]
        {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
##
  [4]
        {eggs=TRUE,airborne=FALSE}
                                            {legs=FALSE} 0.1881188 0.5135135
##
   [5]
        {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
##
   [6]
        {airborne=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
   [7]
        {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
##
   [8]
        {airborne=FALSE, toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
##
   [9]
        {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
##
   [10] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
        lift
##
   [1]
        2.549790
   [2]
##
        2.415217
   [3]
##
        2.311213
   [4]
##
        2.254994
##
   [5]
        1.951691
##
   [6]
        1.523514
##
  [7]
        1.420716
  [8]
##
        1.414149
##
   [9]
        1.386728
##
  [10] 1.383562
##
       lhs
                                                       support
                                                                 confidence
  [1] {toothed=TRUE,breathes=FALSE} =>
                                         {legs=FALSE} 0.1386139 1.0000000
##
   [2] {hair=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1782178 0.7826087
   [3] {milk=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1584158 0.7619048
  [4] {eggs=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.7500000
   [5] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
   [6] {toothed=TRUE,catsize=FALSE}
                                      => {legs=FALSE} 0.1188119 0.4615385
   [7] {predator=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.4054054
   [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
      {airborne=FALSE,toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
   [9]
##
       lift
##
  [1] 4.391304
  [2] 3.436673
##
   [3] 3.345756
##
  [4] 3.293478
  [5] 3.245747
  [6] 2.026756
##
   [7] 1.780259
##
   [8] 1.520067
##
   [9] 1.414149
##
       lhs
                                      rhs
                                                    support
                                                              confidence
## [1] {eggs=TRUE,fins=TRUE}
                                   => {legs=FALSE} 0.1287129 1.0000000
   [2] {eggs=TRUE,toothed=TRUE}
                                   => {legs=FALSE} 0.1485149 0.7500000
   [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
   [4] {feathers=FALSE,eggs=TRUE}
                                   => {legs=FALSE} 0.1881188 0.4871795
  [5] {eggs=TRUE,predator=TRUE}
                                   => {legs=FALSE} 0.1287129 0.3939394
##
  [6] {eggs=TRUE,tail=TRUE}
                                   => {legs=FALSE} 0.1485149 0.3846154
## [7] {eggs=TRUE,backbone=TRUE}
                                   => {legs=FALSE} 0.1485149 0.3571429
## [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
```

```
##
       lift
## [1] 4.391304
   [2] 3.293478
   [3] 2.254994
##
   [4] 2.139353
##
   [5] 1.729908
   [6] 1.688963
##
  [7] 1.568323
##
   [8] 1.463768
##
       lhs
                                       rhs
                                                     support
                                                               confidence
  [1] {milk=FALSE,fins=TRUE}
                                       {legs=FALSE} 0.1287129 1.0000000
##
   [2] {milk=FALSE,toothed=TRUE}
                                    => {legs=FALSE} 0.1584158 0.7619048
   [3] {milk=FALSE,airborne=FALSE} => {legs=FALSE} 0.1980198 0.5263158
  [4] {feathers=FALSE,milk=FALSE} =>
                                       {legs=FALSE} 0.1980198 0.5000000
  [5] {milk=FALSE,predator=TRUE}
                                    => {legs=FALSE} 0.1386139 0.4117647
   [6] {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
   [7] {milk=FALSE,backbone=TRUE}
                                    => {legs=FALSE} 0.1584158 0.3809524
   [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
       lift
##
  [1] 4.391304
##
  [2] 3.345756
  [3] 2.311213
  [4] 2.195652
##
##
   [5] 1.808184
##
  [6] 1.756522
  [7] 1.672878
   [8] 1.516996
##
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
  [1] {aquatic=TRUE, toothed=TRUE}
##
                                      => {legs=FALSE} 0.1683168 0.7391304
  [2] {aquatic=TRUE,tail=TRUE}
                                      => {legs=FALSE} 0.1584158 0.6153846
   [3] {feathers=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.6000000
   [4] {airborne=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1782178 0.5806452
##
   [5] {hair=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1683168 0.5312500
##
       lift
   [1] 3.245747
##
##
   [2] 2.702341
  [3] 2.634783
  [4] 2.549790
##
   [5]
       2.332880
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                              support
                                            {breathes=FALSE} 0.1287129
##
  [1]
        {type=fish}
##
   [2]
        {eggs=TRUE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
##
   [3]
        {milk=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
##
  [4]
        {hair=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
  [5]
##
        {aquatic=TRUE,legs=FALSE}
                                             {breathes=FALSE} 0.1485149
##
   [6]
        {milk=FALSE,legs=FALSE}
                                             {breathes=FALSE} 0.1584158
##
  [7]
        {eggs=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
##
  [8]
        {legs=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
   [9]
        {hair=FALSE,legs=FALSE}
                                             {breathes=FALSE} 0.1584158
       {predator=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1188119
   [10]
  [11] {milk=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
## [12] {feathers=FALSE,aquatic=TRUE}
                                         =>
                                            {breathes=FALSE} 0.1980198
## [13] {milk=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
```

```
## [14] {aquatic=TRUE,catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
   [15] {eggs=TRUE,toothed=TRUE}
                                            {breathes=FALSE} 0.1287129
  [16] {airborne=FALSE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1980198
  [17] {eggs=TRUE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1881188
##
   [18] {hair=FALSE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1980198
   [19] {aquatic=TRUE, toothed=TRUE}
##
                                             {breathes=FALSE} 0.1386139
  [20] {hair=FALSE,toothed=TRUE}
                                             {breathes=FALSE} 0.1386139
  [21] {hair=FALSE, feathers=FALSE}
                                             {breathes=FALSE} 0.2079208
   [22]
       {milk=FALSE,airborne=FALSE}
                                             {breathes=FALSE} 0.2079208
   [23]
       {eggs=TRUE,airborne=FALSE}
                                            {breathes=FALSE} 0.1980198
   [24]
       {hair=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
   [25] {feathers=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
   [26]
       {feathers=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
       {milk=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
       {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
  [28]
   [29]
        {hair=FALSE, predator=TRUE}
                                             {breathes=FALSE} 0.1683168
##
   [30]
        {airborne=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [31] {predator=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
                                            {breathes=FALSE} 0.2079208
   [32] {hair=FALSE,milk=FALSE}
   [33]
       {feathers=FALSE, catsize=FALSE}
                                             {breathes=FALSE} 0.1584158
##
  [34]
       {hair=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
       {hair=FALSE,domestic=FALSE}
                                             {breathes=FALSE} 0.1980198
  [35]
       {hair=FALSE,catsize=FALSE}
                                             {breathes=FALSE} 0.1584158
##
   [36]
        {milk=FALSE,domestic=FALSE}
##
   [37]
                                             {breathes=FALSE} 0.1980198
   [38]
       {feathers=FALSE, predator=TRUE}
                                             {breathes=FALSE} 0.1683168
   [39]
       {eggs=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1881188
   [40] {airborne=FALSE,predator=TRUE}
                                         =>
                                            {breathes=FALSE} 0.1683168
   [41] {domestic=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
       {airborne=FALSE,domestic=FALSE}
  [42]
                                            {breathes=FALSE} 0.1980198
  [43] {feathers=FALSE,airborne=FALSE} =>
                                            {breathes=FALSE} 0.2079208
   [44]
        {feathers=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
##
   [45]
        {toothed=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1287129
##
   [46]
       {tail=TRUE}
                                            {breathes=FALSE} 0.1386139
##
        confidence lift
##
   [1]
        1.0000000
                   4.8095238
##
   [2]
        1.0000000
                   4.8095238
##
   [3]
        1.0000000
                   4.8095238
##
  [4]
        0.8666667
                   4.1682540
   [5]
##
        0.8333333
                   4.0079365
##
   [6]
        0.8000000
                   3.8476190
   [7]
        0.7894737
                   3.7969925
   [8]
##
        0.7500000
                   3.6071429
##
   [9]
        0.7272727
                   3.4978355
##
   [10] 0.7058824
                   3.3949580
  [11] 0.6666667
                   3.2063492
   [12] 0.6666667
                   3.2063492
##
   [13] 0.6666667
                   3.2063492
   [14] 0.6521739
                   3.1366460
                   3.1261905
   [15] 0.6500000
   [16] 0.6451613
                   3.1029186
##
       0.6333333
                   3.0460317
   Γ17]
## [18] 0.6250000
                   3.0059524
## [19] 0.6086957
                   2.9275362
## [20] 0.6086957
                   2.9275362
```

```
## [21] 0.5526316
                   2.6578947
   [22] 0.5526316
                   2.6578947
   [23] 0.5405405
                    2.5997426
   [24] 0.5250000
                    2.5250000
   [25] 0.5250000
                    2.5250000
##
   [26] 0.5128205
                    2.4664225
   [27] 0.5000000
                    2.4047619
   [28] 0.4848485
                    2.3318903
   [29] 0.4722222
                    2.2711640
   [30] 0.444444
                    2.1375661
   [31] 0.4285714
                    2.0612245
   [32] 0.3750000
                    1.8035714
##
   [33] 0.3720930
                    1.7895903
   [34] 0.3703704
                    1.7813051
   [35] 0.3703704
                    1.7813051
   [36] 0.3636364
                    1.7489177
##
   [37] 0.3636364
                    1.7489177
                    1.7396150
   [38] 0.3617021
   [39] 0.3518519
                    1.6922399
   [40] 0.3469388
                    1.6686103
   [41] 0.3000000
##
                    1.4428571
   [42] 0.2941176
                    1.4145658
##
   [43] 0.2876712
                    1.3835616
   [44] 0.2816901
                    1.3547954
   [45] 0.2500000
                    1.2023810
   Γ46]
       0.1866667
                   0.8977778
##
                                                        confidence lift
        lhs
                                              support
        {type=bird}
##
   [1]
                             {breathes=TRUE} 0.1980198 1.0000000
                                                                   1.2625000
##
   [2]
        {feathers=TRUE}
                             {breathes=TRUE} 0.1980198 1.0000000
                                                                    1.2625000
                                                                    1.2625000
##
   [3]
        {airborne=TRUE}
                             {breathes=TRUE} 0.2376238 1.0000000
##
   [4]
        {milk=TRUE}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                    1.2625000
##
   [5]
        {type=mammal}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                    1.2625000
##
   [6]
        {hair=TRUE}
                             {breathes=TRUE} 0.4257426 1.0000000
                                                                    1.2625000
   [7]
                             {breathes=TRUE} 0.6336634 0.9846154
##
        {aquatic=FALSE}
                                                                    1.2430769
   [8]
        {eggs=FALSE}
                             {breathes=TRUE} 0.4059406 0.9761905
##
                                                                    1.2324405
##
   [9]
        {legs=TRUE}
                             {breathes=TRUE} 0.7227723 0.9358974
                                                                    1.1815705
       {domestic=TRUE}
                             {breathes=TRUE} 0.1188119 0.9230769
                                                                    1.1653846
                             {breathes=TRUE} 0.4059406 0.9111111
   [11]
       {predator=FALSE} =>
                                                                    1.1502778
                             {breathes=TRUE} 0.3861386 0.8863636
   [12]
       {catsize=TRUE}
                                                                    1.1190341
##
   [13] {toothed=FALSE}
                             {breathes=TRUE} 0.3267327 0.8250000
                                                                    1.0415625
   [14] {tail=TRUE}
                             {breathes=TRUE} 0.6039604 0.8133333
                                                                    1.0268333
                             {breathes=TRUE} 0.6732673 0.7727273
   [15] {domestic=FALSE}
                                                                    0.9755682
   [16] {tail=FALSE}
                             {breathes=TRUE} 0.1881188 0.7307692
                                                                    0.9225962
   [17] {airborne=FALSE}
                             {breathes=TRUE} 0.5544554 0.7272727
                                                                    0.9181818
   [18] {catsize=FALSE}
                             {breathes=TRUE} 0.4059406 0.7192982
                                                                    0.9081140
                             {breathes=TRUE} 0.3861386 0.6964286
   [19]
       {predator=TRUE}
                                                                    0.8792411
##
   [20] {eggs=TRUE}
                             {breathes=TRUE} 0.3861386 0.6610169
                                                                    0.8345339
   [21] {milk=FALSE}
                          => {breathes=TRUE} 0.3861386 0.6500000
                                                                    0.8206250
##
   [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
                                                                    0.7715278
##
       lhs
                                            rhs
                                                              support
##
   [1] {hair=FALSE,domestic=FALSE}
                                           {breathes=FALSE} 0.1980198
   [2] {milk=FALSE,domestic=FALSE}
                                         => {breathes=FALSE} 0.1980198
   [3] {eggs=TRUE,domestic=FALSE}
                                         => {breathes=FALSE} 0.1881188
## [4] {domestic=FALSE, catsize=FALSE}
                                        => {breathes=FALSE} 0.1485149
```

```
## [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [7] {toothed=TRUE,domestic=FALSE}
                                      => {breathes=FALSE} 0.1287129
##
       confidence lift
##
  [1] 0.3703704 1.781305
##
  [2] 0.3636364
                 1.748918
  [3] 0.3518519
                  1.692240
## [4] 0.3000000
                  1.442857
   [5] 0.2941176
                  1.414566
  [6] 0.2816901
                  1.354795
  [7] 0.2500000
                  1.202381
##
       lhs
                                           rhs
                                                            support
## [1] {airborne=FALSE,aquatic=TRUE}
                                       => {breathes=FALSE} 0.1980198
  [2] {milk=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
## [3] {eggs=TRUE,airborne=FALSE}
                                       => {breathes=FALSE} 0.1980198
## [4] {hair=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
  [5] {airborne=FALSE, catsize=FALSE}
                                       => {breathes=FALSE} 0.1584158
  [6] {airborne=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
  [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
##
       confidence lift
## [1] 0.6451613 3.102919
## [2] 0.5526316
                  2.657895
  [3] 0.5405405
                  2.599743
## [4] 0.5250000
                  2.525000
  [5] 0.444444
                  2.137566
  [6] 0.3469388
                  1.668610
   [7] 0.2941176
                  1.414566
   [8] 0.2876712
##
                 1.383562
##
       lhs
                                         rhs
                                                           support
## [1] {legs=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
   [2] {aquatic=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1485149
  [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
  [4] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
   [5] {feathers=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
  [6] {hair=FALSE,catsize=FALSE}
##
                                      => {breathes=FALSE} 0.1584158
   [7] {domestic=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1485149
##
       confidence lift
  [1] 0.7500000
                  3.607143
##
  [2] 0.6521739
                  3.136646
  [3] 0.444444
                  2.137566
  [4] 0.4285714
                  2.061224
   [5] 0.3720930
                  1.789590
  [6] 0.3636364
##
                  1.748918
##
  [7] 0.3000000
                  1.442857
##
       lhs
                                         rhs
                                                           support
## [1] {predator=TRUE,legs=FALSE}
                                      => {breathes=FALSE} 0.1188119
   [2] {milk=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
  [3] {eggs=TRUE,predator=TRUE}
                                      => {breathes=FALSE} 0.1584158
   [4] {hair=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
  [5] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
## [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
## [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
##
       confidence lift
```

```
[1] 0.7058824
                  3.394958
   [2] 0.5000000
                  2.404762
  [3] 0.4848485
                  2.331890
  [4] 0.4722222
                  2.271164
   [5] 0.4285714
                  2.061224
   [6] 0.3617021
##
                  1.739615
##
  [7] 0.3469388
                  1.668610
##
       lhs
                                      rhs
                                                       support
                                                                  confidence
##
  [1] {eggs=TRUE,fins=TRUE}
                                   => {breathes=FALSE} 0.1287129 1.0000000
   [2] {eggs=TRUE,legs=FALSE}
                                   => {breathes=FALSE} 0.1485149 0.7894737
  [3] {eggs=TRUE,toothed=TRUE}
                                   => {breathes=FALSE} 0.1287129 0.6500000
   [4] {eggs=TRUE,aquatic=TRUE}
                                   => {breathes=FALSE} 0.1881188 0.6333333
   [5] {eggs=TRUE,airborne=FALSE} => {breathes=FALSE} 0.1980198 0.5405405
   [6] {feathers=FALSE,eggs=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.5128205
  [7] {eggs=TRUE,predator=TRUE}
                                   => {breathes=FALSE} 0.1584158 0.4848485
   [8] {hair=FALSE,eggs=TRUE}
                                   => {breathes=FALSE} 0.1980198 0.3703704
##
   [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
       lift
  [1] 4.809524
##
   [2] 3.796992
##
   [3] 3.126190
  [4] 3.046032
##
  [5] 2.599743
##
   [6] 2.466422
  [7] 2.331890
  [8] 1.781305
   [9] 1.692240
##
##
       lhs
                                                                   confidence
                                                         support
##
  [1] {milk=FALSE,fins=TRUE}
                                      {breathes=FALSE} 0.1287129 1.0000000
  [2] {milk=FALSE,legs=FALSE}
                                    => {breathes=FALSE} 0.1584158 0.8000000
   [3] {milk=FALSE,aquatic=TRUE}
                                    => {breathes=FALSE} 0.1980198 0.6666667
  [4] {milk=FALSE,toothed=TRUE}
                                       {breathes=FALSE} 0.1386139 0.6666667
  [5] {milk=FALSE,airborne=FALSE} =>
                                       {breathes=FALSE} 0.2079208 0.5526316
  [6] {feathers=FALSE,milk=FALSE} => {breathes=FALSE} 0.2079208 0.5250000
   [7] {milk=FALSE,predator=TRUE}
                                    => {breathes=FALSE} 0.1683168 0.5000000
   [8] {hair=FALSE,milk=FALSE}
##
                                    => {breathes=FALSE} 0.2079208 0.3750000
##
   [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
       lift
  [1] 4.809524
##
##
  [2] 3.847619
  [3] 3.206349
   [4] 3.206349
   [5] 2.657895
##
   [6] 2.525000
  [7] 2.404762
  [8] 1.803571
##
##
   [9] 1.748918
##
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {aquatic=TRUE, catsize=TRUE}
                                            {predator=TRUE} 0.1188119
##
   [2]
        {breathes=FALSE,domestic=FALSE} => {predator=TRUE} 0.1683168
##
  [3]
        {aquatic=TRUE,fins=FALSE}
                                         => {predator=TRUE} 0.1584158
##
  [4]
        {airborne=FALSE,aquatic=TRUE}
                                         => {predator=TRUE} 0.2574257
## [5]
        {aquatic=TRUE,legs=TRUE}
                                            {predator=TRUE} 0.1485149
```

```
{feathers=FALSE, aquatic=TRUE}
                                         => {predator=TRUE} 0.2475248
##
   [7]
        {fins=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.1287129
        {aquatic=TRUE, breathes=TRUE}
                                            {predator=TRUE} 0.1287129
  [8]
  [9]
        {breathes=FALSE}
                                            {predator=TRUE} 0.1683168
##
   [10] {aquatic=TRUE}
##
                                            {predator=TRUE} 0.2871287
  [11] {backbone=TRUE,legs=FALSE}
                                            {predator=TRUE} 0.1485149
##
  [12] {hair=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1782178
  [13] {legs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.1683168
   [14] {fins=TRUE}
                                            {predator=TRUE} 0.1287129
  [15] {milk=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1584158
  [16] {eggs=TRUE,toothed=TRUE}
                                            {predator=TRUE} 0.1485149
   [17] {hair=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2871287
  [18] {hair=FALSE, feathers=FALSE}
                                            {predator=TRUE} 0.2673267
## [19] {milk=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2673267
## [20] {eggs=TRUE,airborne=FALSE}
                                            {predator=TRUE} 0.2574257
       {airborne=FALSE,domestic=FALSE} =>
                                            {predator=TRUE} 0.4653465
  [22]
       {domestic=FALSE,catsize=TRUE}
                                            {predator=TRUE} 0.2574257
       {toothed=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.3465347
  [24] {airborne=FALSE,toothed=FALSE}
                                           {predator=TRUE} 0.1188119
   [25] {hair=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.3564356
##
  [26] {catsize=TRUE}
                                            {predator=TRUE} 0.2772277
  [27] {feathers=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.4455446
  [28] {backbone=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4455446
       {tail=TRUE.domestic=FALSE}
  Г291
                                            {predator=TRUE} 0.4059406
  [30] {feathers=FALSE,milk=FALSE}
                                            {predator=TRUE} 0.2475248
  [31] {eggs=FALSE,domestic=FALSE}
                                           {predator=TRUE} 0.2079208
   [32] {feathers=FALSE,eggs=TRUE}
                                            {predator=TRUE} 0.2376238
  [33] {feathers=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.3762376
  [34] {milk=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.2376238
## [35] {feathers=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.3267327
       {eggs=TRUE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
   [37]
        {milk=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
       {eggs=TRUE,tail=TRUE}
                                            {predator=TRUE} 0.2277228
   [39] {backbone=TRUE}
                                            {predator=TRUE} 0.4653465
   [40] {eggs=FALSE}
                                            {predator=TRUE} 0.2277228
##
  [41] {venomous=FALSE,tail=FALSE}
                                            {predator=TRUE} 0.1188119
  [42] {legs=TRUE}
                                            {predator=TRUE} 0.3861386
  [43] {hair=TRUE}
                                         => {predator=TRUE} 0.1980198
##
   [44] {aquatic=FALSE}
                                         => {predator=TRUE} 0.2673267
##
##
        confidence lift
  [1]
        0.9230769
                   1.6648352
   [2]
        0.8500000
##
                   1.5330357
##
   [3]
        0.8421053
                   1.5187970
##
   [4]
        0.8387097
                   1.5126728
##
  [5]
        0.8333333
                   1.5029762
  [6]
##
        0.8333333
                   1.5029762
##
   [7]
        0.8125000
                   1.4654018
##
   [8]
        0.8125000
                   1.4654018
  [9]
        0.8095238
                   1.4600340
   [10]
        0.8055556
                   1.4528770
                   1.4238722
  [11] 0.7894737
## [12] 0.7826087
                   1.4114907
## [13] 0.7727273
                   1.3936688
## [14] 0.7647059
                   1.3792017
```

```
## [15] 0.7619048
                   1.3741497
   [16] 0.7500000
                   1.3526786
  [17] 0.7250000
                   1.3075893
  [18] 0.7105263
                   1.2814850
  [19] 0.7105263
                   1.2814850
  [20] 0.7027027
                   1.2673745
  [21] 0.6911765
                   1.2465861
## [22] 0.6842105
                   1.2340226
  [23] 0.6730769
                   1.2139423
  [24] 0.6666667
                   1.2023810
  [25] 0.6666667
                   1.2023810
  [26] 0.6363636
                   1.1477273
  [27] 0.6338028
                   1.1431087
                   1.1431087
  [28] 0.6338028
  [29] 0.6307692
                   1.1376374
  [30] 0.6250000
                   1.1272321
  [31] 0.6176471
                   1.1139706
                   1.1098901
   [32] 0.6153846
  [33] 0.6031746
                   1.0878685
  [34] 0.6000000
                   1.0821429
  [35] 0.6000000
                   1.0821429
  [36] 0.5952381
                   1.0735544
                   1.0735544
  [37] 0.5952381
   [38] 0.5897436
                   1.0636447
                   1.0212995
  [39] 0.5662651
  [40] 0.5476190
                   0.9876701
  [41] 0.5454545
                   0.9837662
   [42] 0.5000000
                   0.9017857
  [43] 0.4651163
                   0.8388704
##
   [44] 0.4153846
                   0.7491758
##
        lhs
                                               support
                                                         confidence lift
##
  [1]
        {domestic=TRUE}
                          => {predator=FALSE} 0.1089109 0.8461538
                                                                    1.8991453
##
   [2]
        {airborne=TRUE}
                          => {predator=FALSE} 0.1683168 0.7083333
                                                                    1.5898148
  [3]
##
        {type=bird}
                          => {predator=FALSE} 0.1089109 0.5500000
                                                                    1.2344444
   [4]
        {feathers=TRUE}
                          => {predator=FALSE} 0.1089109 0.5500000
                                                                    1.2344444
##
                          => {predator=FALSE} 0.2079208 0.5250000
   [5]
        {toothed=FALSE}
                                                                    1.1783333
  [6]
        {catsize=FALSE}
                          => {predator=FALSE} 0.2871287 0.5087719
##
  [7]
        {milk=TRUE}
                          => {predator=FALSE} 0.1881188 0.4634146
                                                                    1.0401084
        {type=mammal}
  [8]
                          => {predator=FALSE} 0.1881188 0.4634146
                                                                    1.0401084
  [9]
                          => {predator=FALSE} 0.1188119 0.4615385
##
        {tail=FALSE}
                                                                    1.0358974
                          => {predator=FALSE} 0.1881188 0.4523810
  [10] {eggs=FALSE}
                                                                    1.0153439
  [11] {eggs=TRUE}
                          => {predator=FALSE} 0.2574257 0.4406780
                                                                    0.9890772
   [12] {milk=FALSE}
                          => {predator=FALSE} 0.2574257 0.4333333
                                                                    0.9725926
  [13] {domestic=FALSE} => {predator=FALSE} 0.3366337 0.3863636
                                                                    0.8671717
  [14] {hair=FALSE}
                          => {predator=FALSE} 0.2178218 0.3793103
                                                                    0.8513410
  [15] {catsize=TRUE}
                          => {predator=FALSE} 0.1584158 0.3636364
##
                                                                    0.8161616
##
                                          rhs
                                                           support
                                                                      confidence
   [1] {airborne=FALSE,toothed=FALSE} => {predator=TRUE} 0.1188119 0.6666667
##
##
       lift
##
   [1] 1.202381
##
                                       rhs
                                                        support
                                                                  confidence
##
   [1] {venomous=FALSE,tail=FALSE} => {predator=TRUE} 0.1188119 0.5454545
##
       lift
## [1] 0.9837662
```

```
##
                                       rhs
                                                       support
                                                                  confidence
   [1] {eggs=FALSE,domestic=FALSE} => {predator=TRUE} 0.2079208 0.6176471
##
##
       lift
##
  [1] 1.113971
##
                                      rhs
                                                      support
                                                                 confidence
                                   => {predator=TRUE} 0.1485149 0.7500000
## [1] {eggs=TRUE,toothed=TRUE}
## [2] {eggs=TRUE,airborne=FALSE} => {predator=TRUE} 0.2574257 0.7027027
  [3] {feathers=FALSE,eggs=TRUE} => {predator=TRUE} 0.2376238 0.6153846
  [4] {eggs=TRUE,backbone=TRUE}
                                  => {predator=TRUE} 0.2475248 0.5952381
  [5] {eggs=TRUE,tail=TRUE}
                                   => {predator=TRUE} 0.2277228 0.5897436
##
       lift
## [1] 1.352679
## [2] 1.267375
## [3] 1.109890
## [4] 1.073554
## [5] 1.063645
##
       lhs
                                       rhs
                                                                  confidence
                                                       support
## [1] {milk=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1584158 0.7619048
## [2] {milk=FALSE,airborne=FALSE} => {predator=TRUE} 0.2673267 0.7105263
## [3] {feathers=FALSE,milk=FALSE} => {predator=TRUE} 0.2475248 0.6250000
## [4] {milk=FALSE,tail=TRUE}
                                    => {predator=TRUE} 0.2376238 0.6000000
  [5] {milk=FALSE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
##
       lift
## [1] 1.374150
## [2] 1.281485
## [3] 1.127232
## [4] 1.082143
##
   [5] 1.073554
##
        lhs
                                            rhs
                                                             support
## [1]
        {breathes=FALSE,domestic=FALSE} => {predator=TRUE} 0.1683168
## [2]
        {fins=TRUE,domestic=FALSE}
                                           {predator=TRUE} 0.1287129
## [3]
        {legs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.1683168
## [4]
        {airborne=FALSE,domestic=FALSE} => {predator=TRUE} 0.4653465
        {domestic=FALSE,catsize=TRUE}
## [5]
                                         => {predator=TRUE} 0.2574257
  [6]
        {toothed=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.3465347
        {hair=FALSE,domestic=FALSE}
## [7]
                                         => {predator=TRUE} 0.3564356
## [8]
        {feathers=FALSE,domestic=FALSE} => {predator=TRUE} 0.4455446
## [9]
        {backbone=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4455446
## [10] {tail=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4059406
                                         => {predator=TRUE} 0.2079208
##
  [11] {eggs=FALSE,domestic=FALSE}
        confidence lift
       0.8500000 1.533036
## [1]
  [2]
       0.8125000 1.465402
##
  [3]
                   1.393669
       0.7727273
## [4]
        0.6911765
                   1.246586
## [5]
        0.6842105
                   1.234023
##
  [6]
        0.6730769
                   1.213942
  [7]
        0.6666667
                   1.202381
  [8]
        0.6338028
                   1.143109
  [9]
        0.6338028
                   1.143109
## [10] 0.6307692
                   1.137637
## [11] 0.6176471
                   1.113971
##
       lhs
                                       rhs
                                                                  confidence
                                                       support
## [1] {hair=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1782178 0.7826087
```

```
## [2] {hair=FALSE,airborne=FALSE} => {predator=TRUE} 0.2871287 0.7250000
   [3] {hair=FALSE,feathers=FALSE} => {predator=TRUE} 0.2673267 0.7105263
   [4] {hair=FALSE,domestic=FALSE} => {predator=TRUE} 0.3564356 0.6666667
##
       lift
##
   [1] 1.411491
   [2] 1.307589
##
  [3] 1.281485
## [4] 1.202381
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
   [1] {aquatic=TRUE, catsize=TRUE}
                                      => {predator=TRUE} 0.1188119 0.9230769
   [2] {domestic=FALSE,catsize=TRUE} => {predator=TRUE} 0.2574257 0.6842105
##
       lift
##
  [1] 1.664835
   [2] 1.234023
##
   [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                            support
##
        {aquatic=TRUE, catsize=TRUE}
  [1]
                                         => {predator=TRUE} 0.1188119
        {breathes=FALSE,domestic=FALSE}
                                           {predator=TRUE} 0.1683168
        {aquatic=TRUE,fins=FALSE}
##
   [3]
                                         => {predator=TRUE} 0.1584158
   [4]
        {airborne=FALSE, aquatic=TRUE}
                                           {predator=TRUE} 0.2574257
##
   [5]
        {aquatic=TRUE,legs=TRUE}
                                         => {predator=TRUE} 0.1485149
        {feathers=FALSE, aquatic=TRUE}
##
  [6]
                                           {predator=TRUE} 0.2475248
  [7]
        {fins=TRUE,domestic=FALSE}
                                           {predator=TRUE} 0.1287129
##
##
  [8]
        {aquatic=TRUE, breathes=TRUE}
                                            {predator=TRUE} 0.1287129
##
  [9]
        {breathes=FALSE}
                                            {predator=TRUE} 0.1683168
  [10] {aquatic=TRUE}
                                           {predator=TRUE} 0.2871287
  [11] {backbone=TRUE,legs=FALSE}
                                           {predator=TRUE} 0.1485149
  [12] {hair=FALSE,toothed=TRUE}
                                         => {predator=TRUE} 0.1782178
## [13] {legs=FALSE,domestic=FALSE}
                                           {predator=TRUE} 0.1683168
                                           {predator=TRUE} 0.1287129
## [14] {fins=TRUE}
## [15] {milk=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1584158
  [16] {eggs=TRUE,toothed=TRUE}
                                           {predator=TRUE} 0.1485149
  [17] {hair=FALSE,airborne=FALSE}
                                           {predator=TRUE} 0.2871287
  [18] {hair=FALSE,feathers=FALSE}
                                           {predator=TRUE} 0.2673267
  [19] {milk=FALSE,airborne=FALSE}
                                           {predator=TRUE} 0.2673267
## [20] {eggs=TRUE,airborne=FALSE}
                                         => {predator=TRUE} 0.2574257
  [21] {airborne=FALSE,domestic=FALSE}
                                           {predator=TRUE} 0.4653465
## [22] {domestic=FALSE,catsize=TRUE}
                                         => {predator=TRUE} 0.2574257
## [23] {toothed=TRUE,domestic=FALSE}
                                           {predator=TRUE} 0.3465347
## [24] {airborne=FALSE,toothed=FALSE}
                                         => {predator=TRUE} 0.1188119
  [25] {hair=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.3564356
  [26] {catsize=TRUE}
                                           {predator=TRUE} 0.2772277
## [27] {feathers=FALSE,domestic=FALSE}
                                        => {predator=TRUE} 0.4455446
## [28] {backbone=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4455446
## [29] {tail=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4059406
## [30] {feathers=FALSE,milk=FALSE}
                                           {predator=TRUE} 0.2475248
  [31] {eggs=FALSE,domestic=FALSE}
                                           {predator=TRUE} 0.2079208
  [32] {feathers=FALSE,eggs=TRUE}
                                           {predator=TRUE} 0.2376238
  [33] {feathers=FALSE,backbone=TRUE}
                                         => {predator=TRUE} 0.3762376
  [34] {milk=FALSE,tail=TRUE}
                                           {predator=TRUE} 0.2376238
## [35] {feathers=FALSE,tail=TRUE}
                                         => {predator=TRUE} 0.3267327
## [36] {eggs=TRUE,backbone=TRUE}
                                         => {predator=TRUE} 0.2475248
## [37] {milk=FALSE,backbone=TRUE}
                                         => {predator=TRUE} 0.2475248
## [38] {eggs=TRUE,tail=TRUE}
                                         => {predator=TRUE} 0.2277228
```

```
## [39] {backbone=TRUE}
                                         => {predator=TRUE} 0.4653465
                                         => {predator=TRUE} 0.2277228
## [40] {eggs=FALSE}
## [41] {venomous=FALSE,tail=FALSE}
                                         => {predator=TRUE} 0.1188119
## [42] {legs=TRUE}
                                         => {predator=TRUE} 0.3861386
  [43] {hair=TRUE}
                                         => {predator=TRUE} 0.1980198
  [44] {aquatic=FALSE}
                                         => {predator=TRUE} 0.2673267
##
        confidence lift
## [1]
        0.9230769 1.6648352
  [2]
        0.8500000
                   1.5330357
  [3]
        0.8421053
                   1.5187970
  [4]
        0.8387097
                   1.5126728
  [5]
##
        0.8333333
                   1.5029762
  [6]
        0.8333333
                   1.5029762
        0.8125000
## [7]
                   1.4654018
## [8]
        0.8125000
                   1.4654018
## [9]
        0.8095238
                   1.4600340
## [10] 0.8055556
                   1.4528770
## [11] 0.7894737
                   1.4238722
## [12] 0.7826087
                   1.4114907
## [13] 0.7727273
                   1.3936688
## [14] 0.7647059
                   1.3792017
## [15] 0.7619048
                   1.3741497
## [16] 0.7500000
                   1.3526786
## [17] 0.7250000
                   1.3075893
## [18] 0.7105263
                   1.2814850
## [19] 0.7105263
                   1.2814850
## [20] 0.7027027
                   1.2673745
## [21] 0.6911765
                   1.2465861
## [22] 0.6842105
                   1.2340226
## [23] 0.6730769
                   1.2139423
## [24] 0.6666667
                   1.2023810
## [25] 0.6666667
                   1.2023810
## [26] 0.6363636
                   1.1477273
## [27] 0.6338028
                   1.1431087
## [28] 0.6338028
                   1.1431087
## [29] 0.6307692
                   1.1376374
## [30] 0.6250000
## [31] 0.6176471
                   1.1139706
## [32] 0.6153846
                   1.1098901
## [33] 0.6031746
                   1.0878685
  [34] 0.6000000
                   1.0821429
## [35] 0.6000000
                   1.0821429
## [36] 0.5952381
                   1.0735544
## [37] 0.5952381
                   1.0735544
## [38] 0.5897436
                   1.0636447
## [39] 0.5662651
                   1.0212995
## [40] 0.5476190
                   0.9876701
## [41] 0.5454545
                   0.9837662
## [42] 0.5000000
                   0.9017857
## [43] 0.4651163
                   0.8388704
##
  [44]
       0.4153846
                   0.7491758
##
                                              support
                                                         confidence lift
## [1]
        {domestic=TRUE} => {predator=FALSE} 0.1089109 0.8461538 1.8991453
## [2]
        {airborne=TRUE} => {predator=FALSE} 0.1683168 0.7083333 1.5898148
```

```
## [3]
       {type=bird}
                         => {predator=FALSE} 0.1089109 0.5500000 1.2344444
  ۲4٦
                         => {predator=FALSE} 0.1089109 0.5500000
        {feathers=TRUE}
                                                                   1.2344444
## [5]
        {toothed=FALSE}
                         => {predator=FALSE} 0.2079208 0.5250000
## [6]
                         => {predator=FALSE} 0.2871287 0.5087719
        {catsize=FALSE}
                                                                   1.1419103
  [7]
        {milk=TRUE}
                         => {predator=FALSE} 0.1881188 0.4634146
                                                                   1.0401084
## [8]
                         => {predator=FALSE} 0.1881188 0.4634146 1.0401084
        {type=mammal}
                         => {predator=FALSE} 0.1188119 0.4615385 1.0358974
## [9]
        {tail=FALSE}
## [10] {eggs=FALSE}
                         => {predator=FALSE} 0.1881188 0.4523810 1.0153439
                         => {predator=FALSE} 0.2574257 0.4406780 0.9890772
## [11] {eggs=TRUE}
## [12] {milk=FALSE}
                         => {predator=FALSE} 0.2574257 0.4333333
                                                                   0.9725926
## [13] {domestic=FALSE} => {predator=FALSE} 0.3366337 0.3863636
                                                                   0.8671717
## [14] {hair=FALSE}
                         => {predator=FALSE} 0.2178218 0.3793103
                                                                   0.8513410
   [15] {catsize=TRUE}
                         => {predator=FALSE} 0.1584158 0.3636364
                                                                   0.8161616
##
                                          rhs
                                                          support
  [1] {airborne=FALSE,toothed=FALSE} => {predator=TRUE} 0.1188119 0.6666667
##
##
       lift
##
  [1] 1.202381
##
       lhs
                                                       support
                                                                 confidence
   [1] {venomous=FALSE,tail=FALSE} => {predator=TRUE} 0.1188119 0.5454545
##
##
   [1] 0.9837662
##
       lhs
                                                       support
                                                                 confidence
   [1] {eggs=FALSE,domestic=FALSE} => {predator=TRUE} 0.2079208 0.6176471
##
##
       lift
## [1] 1.113971
       lhs
                                     rhs
                                                      support
                                                                confidence
  [1] {eggs=TRUE,toothed=TRUE}
                                  => {predator=TRUE} 0.1485149 0.7500000
##
  [2] {eggs=TRUE,airborne=FALSE} => {predator=TRUE} 0.2574257 0.7027027
  [3] {feathers=FALSE,eggs=TRUE} => {predator=TRUE} 0.2376238 0.6153846
## [4] {eggs=TRUE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
## [5] {eggs=TRUE,tail=TRUE}
                                  => {predator=TRUE} 0.2277228 0.5897436
##
       lift
## [1] 1.352679
## [2] 1.267375
## [3] 1.109890
## [4] 1.073554
## [5] 1.063645
##
       lhs
                                                       support
                                      rhs
                                                                 confidence
## [1] {milk=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1584158 0.7619048
  [2] {milk=FALSE,airborne=FALSE} => {predator=TRUE} 0.2673267 0.7105263
  [3] {feathers=FALSE,milk=FALSE} => {predator=TRUE} 0.2475248 0.6250000
  [4] {milk=FALSE,tail=TRUE}
                                   => {predator=TRUE} 0.2376238 0.6000000
   [5] {milk=FALSE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
##
       lift
## [1] 1.374150
## [2] 1.281485
## [3] 1.127232
## [4] 1.082143
##
  [5] 1.073554
##
        lhs
                                            rhs
                                                            support
## [1]
        {breathes=FALSE,domestic=FALSE} => {predator=TRUE} 0.1683168
## [2]
        {fins=TRUE,domestic=FALSE}
                                        => {predator=TRUE} 0.1287129
## [3]
        {legs=FALSE,domestic=FALSE}
                                        => {predator=TRUE} 0.1683168
## [4]
       {airborne=FALSE,domestic=FALSE} => {predator=TRUE} 0.4653465
```

```
{domestic=FALSE, catsize=TRUE}
                                         => {predator=TRUE} 0.2574257
  [6]
        {toothed=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.3465347
                                         => {predator=TRUE} 0.3564356
  [7]
        {hair=FALSE,domestic=FALSE}
  [8]
        {feathers=FALSE,domestic=FALSE} => {predator=TRUE} 0.4455446
##
  [9]
        {backbone=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4455446
  [10] {tail=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4059406
  [11] {eggs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.2079208
##
        confidence lift
## [1]
        0.8500000
                  1.533036
##
  [2]
        0.8125000
                   1.465402
  [3]
        0.7727273
                   1.393669
  [4]
##
        0.6911765
                   1.246586
                   1.234023
##
   [5]
        0.6842105
##
  [6]
        0.6730769
                   1.213942
## [7]
        0.6666667
                   1.202381
## [8]
        0.6338028
                   1.143109
  [9]
        0.6338028
                   1.143109
  [10] 0.6307692
                   1.137637
                   1.113971
##
  [11] 0.6176471
##
       lhs
                                                        support
                                                                  confidence
## [1] {hair=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1782178 0.7826087
## [2] {hair=FALSE,airborne=FALSE} => {predator=TRUE} 0.2871287 0.7250000
## [3] {hair=FALSE,feathers=FALSE} => {predator=TRUE} 0.2673267 0.7105263
  [4] {hair=FALSE,domestic=FALSE} => {predator=TRUE} 0.3564356 0.6666667
##
##
       lift
## [1] 1.411491
  [2] 1.307589
  [3] 1.281485
##
  [4] 1.202381
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
   [1] {aquatic=TRUE,catsize=TRUE}
                                      => {predator=TRUE} 0.1188119 0.9230769
   [2] {domestic=FALSE,catsize=TRUE} => {predator=TRUE} 0.2574257 0.6842105
##
       lift
## [1] 1.664835
   [2] 1.234023
##
   [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                             support
## [1]
                                         => {feathers=TRUE} 0.1980198
        {type=bird}
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [2]
##
  [3]
        {hair=FALSE,airborne=TRUE}
                                         => {feathers=TRUE} 0.1584158
  [4]
        {airborne=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1584158
        {airborne=TRUE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1584158
  [5]
   [6]
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [7]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
## [8]
        {eggs=TRUE,airborne=TRUE}
                                         => {feathers=TRUE} 0.1584158
        {milk=FALSE,airborne=TRUE}
                                         => {feathers=TRUE} 0.1584158
## [9]
## [10] {airborne=TRUE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1584158
## [11] {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [12] {hair=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [13] {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [14] {toothed=FALSE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [15] {hair=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [16] {hair=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [17] {hair=FALSE,aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
```

```
## [18] {predator=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1089109
  [19] {aquatic=FALSE,toothed=FALSE}
                                           {feathers=TRUE} 0.1386139
  [20] {eggs=TRUE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
  [21] {milk=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
##
  [22] {eggs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
  [23] {eggs=TRUE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
  [24] {milk=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
  [25] {hair=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [26]
       {eggs=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [27] {milk=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [28] {milk=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
   [29] {eggs=TRUE,aquatic=FALSE}
                                           {feathers=TRUE} 0.1386139
   [30] {hair=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
                                           {feathers=TRUE} 0.1980198
   [31] {eggs=TRUE,backbone=TRUE}
                                           {feathers=TRUE} 0.1980198
  [32] {milk=FALSE,backbone=TRUE}
   [33]
        {milk=FALSE, aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   [34]
       {hair=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [35] {hair=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
   [36] {eggs=TRUE,fins=FALSE}
   [37] {milk=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
  [38] {eggs=TRUE,predator=FALSE}
                                           {feathers=TRUE} 0.1089109
                                           {feathers=TRUE} 0.1089109
  [39] {milk=FALSE,predator=FALSE}
  [40] {hair=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1980198
   [41] {milk=FALSE.venomous=FALSE}
  [42] {tail=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
  [43] {eggs=TRUE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
   [44] {hair=FALSE,eggs=TRUE}
                                           {feathers=TRUE} 0.1980198
   [45] {hair=FALSE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
  [46] {legs=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
  [47] {backbone=TRUE, catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
##
  [48]
        {hair=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [49]
        {eggs=TRUE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
       {legs=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
   [51] {breathes=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
        {fins=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [53]
       {predator=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1089109
       {breathes=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
       {backbone=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
  [55]
        {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [56]
##
   [57]
       {backbone=TRUE,fins=FALSE}
                                           {feathers=TRUE} 0.1980198
       {fins=FALSE,catsize=FALSE}
   [58]
                                           {feathers=TRUE} 0.1386139
   [59] {backbone=TRUE, breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
##
   [60] {aquatic=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1386139
   [61] {predator=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1089109
  [62] {venomous=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [63]
        {venomous=FALSE, catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
   [64]
##
       {breathes=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [65]
       {backbone=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [66] {venomous=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
       {predator=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1089109
##
   [68]
       {predator=FALSE,fins=FALSE}
                                           {feathers=TRUE} 0.1089109
  [69] {breathes=TRUE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [70] {aquatic=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1386139
## [71] {breathes=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
```

```
## [72] {fins=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1980198
  [73] {venomous=FALSE,fins=FALSE}
  [74] {legs=TRUE,domestic=FALSE}
                                            {feathers=TRUE} 0.1683168
## [75] {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
   [76] {backbone=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [77] {aquatic=FALSE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1386139
                                          => {feathers=TRUE} 0.1386139
   [78] {aquatic=FALSE}
   [79]
       {venomous=FALSE}
                                          => {feathers=TRUE} 0.1980198
##
   [80]
       {domestic=FALSE}
                                         => {feathers=TRUE} 0.1683168
##
        confidence lift
   [1]
        1.0000000
                   5.0500000
   [2]
##
        0.9090909
                   4.5909091
##
   [3]
        0.8888889
                   4.4888889
##
   [4]
        0.888889
                    4.4888889
##
  [5]
        0.888889
                    4.4888889
##
   [6]
        0.8695652
                    4.3913043
   [7]
##
        0.7272727
                    3.6727273
   [8]
        0.7272727
                    3.6727273
   [9]
        0.7272727
                    3.6727273
   [10] 0.7272727
                    3.6727273
##
  [11] 0.6060606
                    3.0606061
  [12] 0.5714286
                    2.8857143
## [13] 0.555556
                    2.8055556
   [14] 0.5555556
                    2.8055556
   [15] 0.5555556
                    2.8055556
   [16] 0.5405405
                    2.7297297
   [17] 0.5384615
                    2.7192308
   [18] 0.5238095
                    2.6452381
  [19] 0.5185185
                    2.6185185
  [20] 0.5128205
                    2.5897436
   [21] 0.5128205
                    2.5897436
   [22] 0.5128205
                    2.5897436
   [23] 0.5128205
                    2.5897436
   [24] 0.5128205
                    2.5897436
   [25] 0.5000000
                    2.5250000
##
  [26] 0.5000000
                   2.5250000
  [27] 0.5000000
                    2.5250000
## [28] 0.5000000
                    2.5250000
   [29] 0.4827586
                    2.4379310
   [30] 0.4761905
                    2.4047619
   [31] 0.4761905
                    2.4047619
   [32] 0.4761905
                   2.4047619
   [33] 0.4666667
                    2.3566667
   [34] 0.4651163
                    2.3488372
  [35] 0.4545455
                    2.2954545
  [36] 0.4347826
                    2.1956522
##
   [37] 0.4255319
                    2.1489362
   [38] 0.4230769
                    2.1365385
   [39]
       0.4230769
                    2.1365385
   [40]
        0.3846154
                    1.9423077
## [41] 0.3846154
                    1.9423077
## [42] 0.3783784
                    1.9108108
## [43] 0.3773585
                    1.9056604
## [44] 0.3703704
                   1.8703704
```

```
1.8035714
## [45] 0.3571429
   [46] 0.3508772
                    1.7719298
   [47] 0.3500000
                    1.7675000
   [48] 0.3448276
                    1.7413793
   [49] 0.3448276
                    1.7413793
                    1.7243902
##
   [50] 0.3414634
   [51] 0.3414634
                    1.7243902
   [52] 0.3389831
                    1.7118644
   [53] 0.3333333
                    1.6833333
   [54] 0.3278689
                    1.6557377
   [55] 0.3125000
                    1.5781250
   [56] 0.3055556
                    1.5430556
##
   [57] 0.3030303
                    1.5303030
   [58] 0.2916667
                    1.4729167
   [59] 0.2898551
                    1.4637681
   [60] 0.2857143
                    1.4428571
##
   [61] 0.2820513
                    1.4243590
   [62] 0.2816901
                    1.4225352
   [63] 0.2800000
                    1.4140000
   [64] 0.2739726
                    1.3835616
##
   [65] 0.2702703
                    1.3648649
   [66] 0.2702703
                    1.3648649
   [67] 0.2682927
                    1.3548780
##
   [68] 0.2682927
                    1.3548780
   [69] 0.2666667
                    1.3466667
   [70] 0.2641509
                    1.3339623
   [71] 0.2631579
                    1.3289474
   [72] 0.2597403
                    1.3116883
   [73] 0.2597403
                    1.3116883
                   1.3007576
   [74] 0.2575758
   [75] 0.2558140
                    1.2918605
   [76] 0.2531646
                    1.2784810
   [77] 0.2295082
                    1.1590164
   [78] 0.2153846
                    1.0876923
   [79]
       0.2150538
                    1.0860215
   [80] 0.1931818
##
                   0.9755682
##
        lhs
                             rhs
                                               support
                                                         confidence lift
## [1]
                          => {feathers=FALSE} 0.1287129 1.0000000
        {type=fish}
                                                                     1.2469136
##
   [2]
        {fins=TRUE}
                          => {feathers=FALSE} 0.1683168 1.0000000
                                                                     1.2469136
##
   [3]
        {backbone=FALSE} => {feathers=FALSE} 0.1782178 1.0000000
                                                                     1.2469136
   [4]
        {breathes=FALSE} => {feathers=FALSE} 0.2079208 1.0000000
                                                                     1.2469136
   [5]
                          => {feathers=FALSE} 0.2277228 1.0000000
##
        {legs=FALSE}
                                                                     1.2469136
##
   [6]
        {tail=FALSE}
                          => {feathers=FALSE} 0.2574257 1.0000000
                                                                     1.2469136
##
   [7]
                          => {feathers=FALSE} 0.4158416 1.0000000
        {eggs=FALSE}
                                                                     1.2469136
  [8]
        {hair=TRUE}
                          => {feathers=FALSE} 0.4257426 1.0000000
                                                                     1.2469136
## [9]
        {airborne=FALSE} => {feathers=FALSE} 0.7227723 0.9480519
                                                                     1.1821388
   [10]
                                                                     1.0768799
       {catsize=TRUE}
                          => {feathers=FALSE} 0.3762376 0.8636364
   [11]
       {predator=TRUE}
                          => {feathers=FALSE} 0.4653465 0.8392857
                                                                     1.0465168
   [12] {aquatic=TRUE}
                          => {feathers=FALSE} 0.2970297 0.8333333
                                                                     1.0390947
   [13] {aquatic=FALSE}
                          => {feathers=FALSE} 0.5049505 0.7846154
                                                                     0.9783476
##
   [14] {predator=FALSE}
                          => {feathers=FALSE} 0.3366337 0.7555556
                                                                     0.9421125
## [15] {catsize=FALSE}
                          => {feathers=FALSE} 0.4257426 0.7543860
                                                                     0.9406541
## [16] {breathes=TRUE}
                          => {feathers=FALSE} 0.5940594 0.7500000
                                                                     0.9351852
## [17] {legs=TRUE}
                          => {feathers=FALSE} 0.5742574 0.7435897
```

```
## [18] {milk=FALSE}
                          => {feathers=FALSE} 0.3960396 0.6666667
                                                                    0.8312757
                          => {feathers=FALSE} 0.3861386 0.6610169
  [19] {eggs=TRUE}
                                                                    0.8242310
  [20] {hair=FALSE}
                          => {feathers=FALSE} 0.3762376 0.6551724
  [21] {toothed=FALSE}
                         => {feathers=FALSE} 0.1980198 0.5000000
                                                                    0.6234568
##
                                          rhs
                                                           support
                                                                     confidence
                                       => {feathers=TRUE} 0.1386139 0.5384615
## [1] {hair=FALSE,aquatic=FALSE}
  [2] {aquatic=FALSE, toothed=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5185185
  [3] {eggs=TRUE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4827586
  [4] {milk=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
  [5] {aquatic=FALSE,tail=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2857143
  [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
   [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
##
       lift
## [1] 2.719231
## [2] 2.618519
  [3] 2.437931
  [4] 2.356667
  [5] 1.442857
  [6] 1.333962
##
   [7] 1.159016
##
        lhs
                                            rhs
                                                             support
        {predator=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1089109
##
  [1]
##
  [2]
        {hair=FALSE, predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
                                            {feathers=TRUE} 0.1089109
##
  [3]
        {eggs=TRUE,predator=FALSE}
##
  [4]
        {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
  [5]
        {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
   [6]
        {predator=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1089109
##
##
   [7]
        {predator=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1089109
   [8]
        {predator=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1089109
##
   [9]
        {predator=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1089109
##
   [10] {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
        confidence lift
##
  [1]
        0.5238095
                   2.645238
   [2]
                   2.525000
##
        0.5000000
   [3]
        0.4230769
                   2.136538
   [4]
##
        0.4230769
                   2.136538
   [5]
        0.3333333
                   1.683333
  [6]
        0.3055556
##
                   1.543056
   [7]
##
        0.2820513
                   1.424359
##
  [8]
        0.2682927
                   1.354878
  [9]
        0.2682927
                   1.354878
   [10] 0.2558140
##
                   1.291860
##
       lhs
                                                           support
                                                                     confidence
  [1] {tail=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3783784
## [2] {backbone=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3500000
## [3] {legs=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
  [4] {breathes=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
  [5] {fins=FALSE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.2916667
##
   [6] {venomous=FALSE, catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
       lift
## [1] 1.910811
## [2] 1.767500
## [3] 1.724390
## [4] 1.724390
```

```
[5] 1.472917
   [6] 1.414000
##
##
        lhs
                                                             support
##
   [1]
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [2]
        {hair=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [3]
##
        {eggs=TRUE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
        {milk=FALSE.breathes=TRUE}
   [4]
                                         => {feathers=TRUE} 0.1980198
##
   [5]
        {breathes=TRUE, catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
##
   [6]
        {breathes=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [7]
        {backbone=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [8]
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [9]
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
   [10]
##
        {breathes=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1980198
##
   [11] {breathes=TRUE,fins=FALSE}
        confidence lift
##
##
   [1]
        0.6060606
                   3.060606
   [2]
##
        0.5405405
                   2.729730
   [3]
        0.5128205
                    2.589744
   [4]
##
        0.5128205
                   2.589744
##
   [5]
        0.3414634
                    1.724390
##
   [6]
        0.3278689
                    1.655738
        0.2898551
   [7]
                    1.463768
   [8]
##
        0.2739726
                    1.383562
   [9]
        0.2682927
                    1.354878
   [10] 0.2666667
                    1.346667
   [11]
       0.2631579
                   1.328947
##
        lhs
                                        rhs
                                                         support
                                                                    confidence
##
   [1]
        {toothed=FALSE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5555556
   [2]
                                     => {feathers=TRUE} 0.1980198 0.5555556
##
        {hair=FALSE,legs=TRUE}
##
   [3]
        {eggs=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [4]
        {milk=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
        {legs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3508772
##
   [6]
        {legs=TRUE,catsize=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.3414634
##
   [7]
        {backbone=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3125000
   [8]
        {predator=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1089109 0.2820513
##
        {breathes=TRUE,legs=TRUE}
##
   [9]
                                     => {feathers=TRUE} 0.1980198 0.2739726
   [10] {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
   [11] {fins=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2597403
##
   [12] {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
##
##
        lift
   [1]
        2.805556
##
   [2]
        2.805556
##
##
   [3]
        2.525000
##
   [4]
        2.525000
##
   [5]
        1.771930
   [6]
##
        1.724390
##
   [7]
        1.578125
##
   [8]
        1.424359
   [9]
        1.383562
##
   [10]
        1.364865
##
   [11]
       1.311688
##
   [12] 1.300758
##
        lhs
                                         rhs
                                                          support
                                                                     confidence
       {milk=FALSE,airborne=TRUE}
                                    => {feathers=TRUE} 0.1584158 0.7272727
```

```
{milk=FALSE,toothed=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
##
   [3]
                                      => {feathers=TRUE} 0.1980198 0.5128205
        {milk=FALSE,breathes=TRUE}
        {milk=FALSE,tail=TRUE}
   [4]
                                      => {feathers=TRUE} 0.1980198 0.5000000
   [5]
        {milk=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
##
   [6]
        {milk=FALSE,backbone=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.4761905
##
                                      => {feathers=TRUE} 0.1386139 0.4666667
   [7]
        {milk=FALSE, aquatic=FALSE}
   [8]
        {milk=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4255319
        {milk=FALSE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
##
   [9]
   [10] {milk=FALSE, venomous=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3846154
   [11] {hair=FALSE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3571429
                                      => {feathers=TRUE} 0.1980198 0.3448276
   [12] {eggs=TRUE,milk=FALSE}
##
        lift
##
   [1]
        3,672727
##
   [2]
        2.589744
   [3]
##
        2.589744
##
   [4]
        2.525000
   [5]
##
        2.525000
   [6]
        2.404762
   [7]
##
        2.356667
##
   [8]
        2.148936
##
   [9]
        2.136538
  [10] 1.942308
  [11] 1.803571
##
   [12] 1.741379
##
        lhs
                                        rhs
                                                        support
                                                                   confidence
  [1]
        {eggs=TRUE,airborne=TRUE}
                                    => {feathers=TRUE} 0.1584158 0.7272727
   [2]
        {eggs=TRUE,toothed=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
##
##
   [3]
        {eggs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
   [4]
                                    => {feathers=TRUE} 0.1980198 0.5128205
##
        {eggs=TRUE,breathes=TRUE}
   [5]
        {eggs=TRUE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5000000
##
##
   [6]
        {eggs=TRUE,aquatic=FALSE}
                                    => {feathers=TRUE} 0.1386139 0.4827586
##
   [7]
        {eggs=TRUE,backbone=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.4761905
   [8]
        {eggs=TRUE,fins=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.4347826
        {eggs=TRUE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
##
   [9]
   [10] {eggs=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3773585
   [11] {hair=FALSE,eggs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3703704
##
##
   [12] {eggs=TRUE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3448276
##
        lift.
   [1]
##
        3.672727
   [2]
##
        2.589744
   [3]
        2.589744
   [4]
        2.589744
##
##
   [5]
        2.525000
##
   [6]
        2.437931
##
   [7]
        2.404762
   [8]
        2.195652
##
##
   [9]
        2.136538
   [10] 1.905660
   [11] 1.870370
##
   [12]
        1.741379
##
        lhs
                                         rhs
                                                          support
                                                                    confidence
## [1]
        {hair=FALSE,airborne=TRUE}
                                     => {feathers=TRUE} 0.1584158 0.8888889
## [2]
        {hair=FALSE,toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5714286
## [3]
        {hair=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5555556
```

```
[4]
        {hair=FALSE,breathes=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5405405
##
                                     => {feathers=TRUE} 0.1386139 0.5384615
   [5]
        {hair=FALSE,aquatic=FALSE}
        {hair=FALSE, predator=FALSE} => {feathers=TRUE} 0.1089109 0.5000000
   [6]
   [7]
        {hair=FALSE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.4761905
##
##
   [8]
        {hair=FALSE,fins=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.4651163
                                     => {feathers=TRUE} 0.1980198 0.4545455
##
   [9]
        {hair=FALSE,backbone=TRUE}
   Γ107
       {hair=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
   [11] {hair=FALSE,eggs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3703704
##
   [12] {hair=FALSE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3571429
##
        lift
##
  [1]
        4.488889
   [2]
        2.885714
##
##
   [3]
        2.805556
##
   [4]
        2.729730
   [5]
##
        2.719231
##
   [6]
        2.525000
##
   [7]
        2.404762
   [8]
        2.348837
##
   [9]
        2.295455
   [10] 1.942308
##
   [11] 1.870370
##
   [12] 1.803571
##
        lhs
                                            rhs
                                                             support
##
   Г17
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [2]
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [3]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
   [4]
        {toothed=FALSE,breathes=TRUE}
##
                                         => {feathers=TRUE} 0.1980198
##
   [5]
        {hair=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [6]
##
        {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [7]
        {toothed=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198
##
   [8]
        {predator=FALSE,toothed=FALSE} => {feathers=TRUE} 0.1089109
##
   [9]
        {aquatic=FALSE, toothed=FALSE}
                                        => {feathers=TRUE} 0.1386139
       {eggs=TRUE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1980198
##
       {milk=FALSE,toothed=FALSE}
   [11]
##
        confidence lift
##
   [1]
        0.9090909
                   4.590909
   [2]
        0.8695652
                   4.391304
   [3]
        0.7272727
##
                   3.672727
   [4]
##
        0.6060606
                   3.060606
##
   [5]
        0.5714286
                   2.885714
   [6]
        0.555556
                   2.805556
   [7]
##
        0.555556
                   2.805556
##
   [8]
        0.5238095
                   2.645238
##
   [9]
        0.5185185
                   2.618519
  [10] 0.5128205
                   2.589744
   [11] 0.5128205
                   2.589744
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                             rhs
                                               support
                                                         confidence lift
##
  [1]
        {milk=TRUE}
                          => {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
##
   [2]
        {type=mammal}
                          => {venomous=FALSE} 0.4059406 1.0000000
                                                                     1.0860215
##
   [3]
        {catsize=TRUE}
                          => {venomous=FALSE} 0.4257426 0.9772727
                                                                     1.0613392
## [4]
        {predator=FALSE}
                          => {venomous=FALSE} 0.4257426 0.9555556
                          => {venomous=FALSE} 0.4059406 0.9534884
## [5]
        {hair=TRUE}
                                                                     1.0355089
## [6]
        {eggs=FALSE}
                          => {venomous=FALSE} 0.3960396 0.9523810 1.0343062
```

```
[7]
        {backbone=TRUE}
                             {venomous=FALSE} 0.7821782 0.9518072
                                                                    1.0336831
##
   [8]
        {legs=TRUE}
                             {venomous=FALSE} 0.7326733 0.9487179
                                                                    1.0303281
                             {venomous=FALSE} 0.7029703 0.9466667
##
   [9]
        {tail=TRUE}
                                                                    1.0281004
                             {venomous=FALSE} 0.1584158 0.9411765
   [10] {fins=TRUE}
##
                                                                    1.0221379
##
   [11] {aquatic=FALSE}
                             {venomous=FALSE} 0.6039604 0.9384615
                                                                    1.0191894
   [12] {breathes=TRUE}
                             {venomous=FALSE} 0.7425743 0.9375000
                                                                    1.0181452
##
  [13] {toothed=TRUE}
                             {venomous=FALSE} 0.5643564 0.9344262
                                                                    1.0148070
##
  [14] {domestic=TRUE}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
##
   [15]
       {type=fish}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
   [16]
       {airborne=FALSE}
                             {venomous=FALSE} 0.7029703 0.9220779
                                                                    1.0013965
   [17]
       {domestic=FALSE}
                             {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
   [18]
       {feathers=FALSE}
                             {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
##
        {toothed=FALSE}
                             {venomous=FALSE} 0.3564356 0.9000000
   [19]
                                                                    0.9774194
##
   [20]
        {eggs=TRUE}
                             {venomous=FALSE} 0.5247525 0.8983051
                                                                    0.9755786
  [21]
        {hair=FALSE}
                          => {venomous=FALSE} 0.5148515 0.8965517
                                                                    0.9736745
        {predator=TRUE}
                             {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
   [23]
       {catsize=FALSE}
                             {venomous=FALSE} 0.4950495 0.8771930
                                                                    0.9526504
   [24] {milk=FALSE}
                          => {venomous=FALSE} 0.5148515 0.8666667
                                                                    0.9412186
   [25] {breathes=FALSE} => {venomous=FALSE} 0.1782178 0.8571429
                                                                    0.9308756
   [26] {legs=FALSE}
                          => {venomous=FALSE} 0.1881188 0.8260870
                                                                    0.8971482
##
   [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
##
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {type=fish}
                                         => {backbone=TRUE} 0.1287129
##
   [2]
        {fins=TRUE}
                                            {backbone=TRUE} 0.1683168
        {type=bird}
   [3]
                                            {backbone=TRUE} 0.1980198
   [4]
                                            {backbone=TRUE} 0.1980198
##
        {feathers=TRUE}
##
   [5]
        {milk=TRUE}
                                            {backbone=TRUE} 0.4059406
   [6]
##
        {type=mammal}
                                            {backbone=TRUE} 0.4059406
##
   [7]
        {toothed=TRUE}
                                            {backbone=TRUE} 0.6039604
##
   [8]
        {venomous=FALSE,domestic=TRUE}
                                            {backbone=TRUE} 0.1188119
##
   [9]
        {aquatic=TRUE,tail=TRUE}
                                            {backbone=TRUE} 0.2574257
       {aquatic=TRUE, breathes=TRUE}
                                            {backbone=TRUE} 0.1584158
       {hair=TRUE, predator=TRUE}
                                            {backbone=TRUE} 0.1980198
   [11]
        {hair=TRUE,tail=TRUE}
                                            {backbone=TRUE} 0.3267327
   [12]
##
   [13] {predator=FALSE,catsize=TRUE}
                                            {backbone=TRUE} 0.1584158
   [14] {tail=TRUE,catsize=TRUE}
                                            {backbone=TRUE} 0.3762376
  [15] {venomous=FALSE,tail=TRUE}
                                            {backbone=TRUE} 0.7029703
   [16] {tail=TRUE}
                                             {backbone=TRUE} 0.7326733
   [17] {catsize=TRUE}
                                            {backbone=TRUE} 0.4257426
   [18] {predator=TRUE, breathes=TRUE}
                                            {backbone=TRUE} 0.3663366
   [19] {domestic=TRUE}
                                            {backbone=TRUE} 0.1188119
   [20] {hair=TRUE,domestic=FALSE}
                                            {backbone=TRUE} 0.3069307
  [21] {airborne=FALSE,breathes=TRUE}
                                            {backbone=TRUE} 0.5049505
  [22] {breathes=TRUE, venomous=FALSE}
                                            {backbone=TRUE} 0.6633663
   [23] {aquatic=FALSE,predator=TRUE}
                                            {backbone=TRUE} 0.2376238
   [24]
##
       {airborne=FALSE,aquatic=FALSE}
                                            {backbone=TRUE} 0.3960396
   [25] {breathes=TRUE}
                                            {backbone=TRUE} 0.6831683
   [26] {predator=TRUE, venomous=FALSE}
                                            {backbone=TRUE} 0.4257426
   [27] {airborne=FALSE, venomous=FALSE}
                                            {backbone=TRUE} 0.6039604
##
  [28] {airborne=FALSE,predator=FALSE}
                                            {backbone=TRUE} 0.2376238
  [29] {airborne=FALSE,legs=TRUE}
                                            {backbone=TRUE} 0.4554455
## [30] {legs=FALSE}
                                            {backbone=TRUE} 0.1881188
## [31] {legs=TRUE}
                                            {backbone=TRUE} 0.6336634
```

```
## [32] {aquatic=FALSE}
                                         => {backbone=TRUE} 0.5247525
   [33] {predator=FALSE}
                                            {backbone=TRUE} 0.3564356
   [34] {feathers=FALSE}
                                            {backbone=TRUE} 0.6237624
  [35] {airborne=TRUE}
                                            {backbone=TRUE} 0.1782178
##
   [36] {eggs=TRUE}
                                             {backbone=TRUE} 0.4158416
##
   [37]
       {catsize=FALSE}
                                            {backbone=TRUE} 0.3960396
                                         => {backbone=TRUE} 0.1386139
   [38] {breathes=FALSE}
##
   [39] {toothed=FALSE}
                                         => {backbone=TRUE} 0.2178218
##
        confidence lift
##
   [1]
        1.0000000 1.2168675
   [2]
        1.0000000
                   1.2168675
   [3]
##
        1.0000000
                   1.2168675
##
   [4]
        1.0000000
                   1.2168675
##
   [5]
        1.0000000
                   1.2168675
##
  [6]
                   1.2168675
        1.0000000
##
   [7]
        1.0000000
                   1.2168675
   [8]
##
        1.0000000
                   1.2168675
   [9]
        1.0000000
                   1.2168675
   [10] 1.0000000
                   1.2168675
   [11] 1.0000000
                   1.2168675
##
  [12] 1.0000000
                   1.2168675
  [13] 1.0000000
                   1.2168675
## [14] 1.0000000
                   1.2168675
   Γ15 | 1.0000000
                   1.2168675
  [16] 0.9866667
                   1.2006426
   [17] 0.9772727
                   1.1892114
  [18] 0.9487179
                   1.1544640
   [19] 0.9230769
                   1.1232623
  [20] 0.9117647
                   1.1094968
  [21] 0.9107143
                   1.1082186
  [22] 0.8933333
                   1.0870683
   [23] 0.8888889
                   1.0816600
   [24] 0.8695652
                   1.0581456
   [25] 0.8625000
                   1.0495482
   [26] 0.8600000
                   1.0465060
##
  [27] 0.8591549
                   1.0454777
  [28] 0.8571429
                   1.0430293
  [29] 0.8518519
                   1.0365908
   [30] 0.8260870
                   1.0052383
                   0.9984554
   [31] 0.8205128
   [32] 0.8153846
                   0.9922150
   [33] 0.8000000
                   0.9734940
   [34] 0.7777778
                   0.9464525
   [35] 0.7500000
                   0.9126506
                   0.8662446
   [36] 0.7118644
   [37] 0.7017544
                   0.8539421
   [38] 0.6666667
                   0.8112450
##
   [39] 0.5500000
                   0.6692771
##
       lhs
                           rhs
                                                       confidence lift
                                             support
##
   [1] {toothed=FALSE} => {backbone=FALSE} 0.1782178 0.4500000
                        => {backbone=FALSE} 0.1683168 0.2881356 1.616761
   [2] {eggs=TRUE}
##
   [3] {aquatic=FALSE} => {backbone=FALSE} 0.1188119 0.1846154 1.035897
##
       lhs
                                          rhs
                                                           support
                                                                      confidence
## [1] {aquatic=FALSE,predator=TRUE} => {backbone=TRUE} 0.2376238 0.8888889
```

```
[2] {airborne=FALSE,aquatic=FALSE} => {backbone=TRUE} 0.3960396 0.8695652
##
       lift.
  [1] 1.081660
##
   [2] 1.058146
##
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                            support
##
  Г17
        {aquatic=TRUE, catsize=TRUE}
                                         => {predator=TRUE} 0.1188119
   [2]
##
        {breathes=FALSE,domestic=FALSE} =>
                                            {predator=TRUE} 0.1683168
##
   [3]
        {aquatic=TRUE,fins=FALSE}
                                            {predator=TRUE} 0.1584158
##
   [4]
        {airborne=FALSE,aquatic=TRUE}
                                           {predator=TRUE} 0.2574257
   [5]
        {aquatic=TRUE,legs=TRUE}
                                           {predator=TRUE} 0.1485149
##
   [6]
        {feathers=FALSE, aquatic=TRUE}
                                           {predator=TRUE} 0.2475248
##
   [7]
        {fins=TRUE,domestic=FALSE}
                                           {predator=TRUE} 0.1287129
        {aquatic=TRUE, breathes=TRUE}
##
  [8]
                                           {predator=TRUE} 0.1287129
  [9]
##
        {breathes=FALSE}
                                            {predator=TRUE} 0.1683168
   [10] {aquatic=TRUE}
                                            {predator=TRUE} 0.2871287
  [11]
       {backbone=TRUE,legs=FALSE}
                                            {predator=TRUE} 0.1485149
  [12] {hair=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1782178
  [13] {legs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.1683168
  [14] {fins=TRUE}
                                            {predator=TRUE} 0.1287129
##
  [15] {milk=FALSE,toothed=TRUE}
                                           {predator=TRUE} 0.1584158
  [16] {eggs=TRUE,toothed=TRUE}
                                           {predator=TRUE} 0.1485149
  [17] {hair=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2871287
  [18] {hair=FALSE, feathers=FALSE}
                                            {predator=TRUE} 0.2673267
  [19] {milk=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2673267
  [20] {eggs=TRUE,airborne=FALSE}
                                           {predator=TRUE} 0.2574257
  [21] {airborne=FALSE,domestic=FALSE} =>
                                           {predator=TRUE} 0.4653465
  [22] {domestic=FALSE,catsize=TRUE}
                                           {predator=TRUE} 0.2574257
## [23] {toothed=TRUE,domestic=FALSE}
                                           {predator=TRUE} 0.3465347
  [24] {airborne=FALSE, toothed=FALSE}
                                           {predator=TRUE} 0.1188119
  [25] {hair=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.3564356
  [26]
       {catsize=TRUE}
                                            {predator=TRUE} 0.2772277
  [27] {feathers=FALSE,domestic=FALSE} =>
                                            {predator=TRUE} 0.4455446
  [28] {backbone=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4455446
   [29] {tail=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4059406
##
  [30] {feathers=FALSE,milk=FALSE}
                                           {predator=TRUE} 0.2475248
  [31] {eggs=FALSE,domestic=FALSE}
                                           {predator=TRUE} 0.2079208
  [32] {feathers=FALSE,eggs=TRUE}
                                            {predator=TRUE} 0.2376238
  [33] {feathers=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.3762376
  [34] {milk=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.2376238
  [35] {feathers=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.3267327
   [36] {eggs=TRUE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
   [37] {milk=FALSE,backbone=TRUE}
                                           {predator=TRUE} 0.2475248
  [38] {eggs=TRUE,tail=TRUE}
                                           {predator=TRUE} 0.2277228
  [39] {backbone=TRUE}
                                           {predator=TRUE} 0.4653465
  [40] {eggs=FALSE}
                                            {predator=TRUE} 0.2277228
##
  [41] {venomous=FALSE,tail=FALSE}
                                            {predator=TRUE} 0.1188119
  [42] {legs=TRUE}
                                            {predator=TRUE} 0.3861386
   [43] {hair=TRUE}
                                         => {predator=TRUE} 0.1980198
##
   [44] {aquatic=FALSE}
                                           {predator=TRUE} 0.2673267
##
        confidence lift
## [1]
        0.9230769 1.6648352
## [2]
        0.8500000 1.5330357
## [3]
       0.8421053 1.5187970
```

```
[4]
        0.8387097
                    1.5126728
##
   [5]
        0.8333333
                    1.5029762
        0.8333333
   [6]
                    1.5029762
   [7]
##
        0.8125000
                    1.4654018
##
   [8]
        0.8125000
                    1.4654018
##
   [9]
        0.8095238
                    1.4600340
   [10] 0.8055556
                    1.4528770
   [11] 0.7894737
                    1.4238722
   [12] 0.7826087
                    1.4114907
   [13] 0.7727273
                    1.3936688
   [14] 0.7647059
                    1.3792017
   [15] 0.7619048
                    1.3741497
   [16] 0.7500000
                    1.3526786
   [17] 0.7250000
                    1.3075893
   [18] 0.7105263
                    1.2814850
   [19] 0.7105263
                    1.2814850
   [20] 0.7027027
                    1.2673745
   [21] 0.6911765
                    1.2465861
   [22] 0.6842105
                    1.2340226
   [23] 0.6730769
                    1.2139423
##
   [24] 0.6666667
                    1.2023810
   [25] 0.6666667
                    1.2023810
   [26] 0.6363636
                    1.1477273
   [27] 0.6338028
                    1.1431087
   [28] 0.6338028
                    1.1431087
   [29] 0.6307692
                    1.1376374
   [30] 0.6250000
                    1.1272321
   [31] 0.6176471
                    1.1139706
   [32] 0.6153846
                    1.1098901
   [33] 0.6031746
                    1.0878685
   [34] 0.6000000
                    1.0821429
##
   [35] 0.6000000
                    1.0821429
   [36] 0.5952381
                    1.0735544
   [37]
        0.5952381
                    1.0735544
   [38]
        0.5897436
                    1.0636447
##
   [39] 0.5662651
                    1.0212995
   [40] 0.5476190
                    0.9876701
   [41] 0.5454545
                    0.9837662
   [42] 0.5000000
                    0.9017857
##
   [43] 0.4651163
                    0.8388704
   [44] 0.4153846
                    0.7491758
##
        lhs
                                               support
                                                          confidence lift
##
   [1]
        {domestic=TRUE}
                          => {predator=FALSE} 0.1089109 0.8461538
                                                                     1.8991453
##
   [2]
                          => {predator=FALSE} 0.1683168 0.7083333
        {airborne=TRUE}
                                                                      1.5898148
   [3]
        {type=bird}
                          => {predator=FALSE} 0.1089109 0.5500000
                                                                      1.2344444
   [4]
##
        {feathers=TRUE}
                          => {predator=FALSE} 0.1089109 0.5500000
                                                                      1.2344444
##
   [5]
        {toothed=FALSE}
                          => {predator=FALSE} 0.2079208 0.5250000
                                                                      1.1783333
##
   [6]
        {catsize=FALSE}
                             {predator=FALSE} 0.2871287 0.5087719
                                                                      1.1419103
##
   [7]
        {milk=TRUE}
                          => {predator=FALSE} 0.1881188 0.4634146
                                                                      1.0401084
##
   [8]
        {type=mammal}
                          => {predator=FALSE} 0.1881188 0.4634146
                                                                      1.0401084
##
   [9]
        {tail=FALSE}
                          => {predator=FALSE} 0.1188119 0.4615385
                                                                      1.0358974
  [10] {eggs=FALSE}
                          => {predator=FALSE} 0.1881188 0.4523810
## [11] {eggs=TRUE}
                          => {predator=FALSE} 0.2574257 0.4406780
                                                                      0.9890772
## [12] {milk=FALSE}
                          => {predator=FALSE} 0.2574257 0.4333333
                                                                    0.9725926
```

```
## [13] {domestic=FALSE} => {predator=FALSE} 0.3366337 0.3863636 0.8671717
  [14] {hair=FALSE}
                         => {predator=FALSE} 0.2178218 0.3793103 0.8513410
   [15] {catsize=TRUE}
                         => {predator=FALSE} 0.1584158 0.3636364
##
       lhs
                                          rhs
                                                          support
                                                                     confidence
##
   [1] {airborne=FALSE,toothed=FALSE} => {predator=TRUE} 0.1188119 0.6666667
##
       lift
   [1] 1.202381
##
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
##
   [1] {venomous=FALSE,tail=FALSE} => {predator=TRUE} 0.1188119 0.5454545
##
       lift
##
   [1] 0.9837662
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
##
   [1] {eggs=FALSE,domestic=FALSE} => {predator=TRUE} 0.2079208 0.6176471
##
       lift
##
  [1] 1.113971
##
       lhs
                                      rhs
                                                      support
                                                                 confidence
##
  [1] {eggs=TRUE,toothed=TRUE}
                                   => {predator=TRUE} 0.1485149 0.7500000
  [2] {eggs=TRUE,airborne=FALSE} => {predator=TRUE} 0.2574257 0.7027027
  [3] {feathers=FALSE,eggs=TRUE} => {predator=TRUE} 0.2376238 0.6153846
  [4] {eggs=TRUE,backbone=TRUE}
                                  => {predator=TRUE} 0.2475248 0.5952381
##
   [5] {eggs=TRUE,tail=TRUE}
                                   => {predator=TRUE} 0.2277228 0.5897436
##
       lift
## [1] 1.352679
##
  [2] 1.267375
## [3] 1.109890
  [4] 1.073554
  [5] 1.063645
##
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
## [1] {milk=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1584158 0.7619048
## [2] {milk=FALSE,airborne=FALSE} => {predator=TRUE} 0.2673267 0.7105263
  [3] {feathers=FALSE,milk=FALSE} => {predator=TRUE} 0.2475248 0.6250000
  [4] {milk=FALSE,tail=TRUE}
                                    => {predator=TRUE} 0.2376238 0.6000000
##
  [5] {milk=FALSE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
##
       lift
## [1] 1.374150
## [2] 1.281485
## [3] 1.127232
## [4] 1.082143
  [5] 1.073554
##
##
        lhs
                                            rhs
                                                             support
##
  [1]
        {breathes=FALSE,domestic=FALSE} => {predator=TRUE} 0.1683168
  [2]
        {fins=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.1287129
##
##
   [3]
        {legs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.1683168
  [4]
        {airborne=FALSE,domestic=FALSE} => {predator=TRUE} 0.4653465
##
##
  [5]
        {domestic=FALSE, catsize=TRUE}
                                         => {predator=TRUE} 0.2574257
  [6]
##
        {toothed=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.3465347
##
  [7]
        {hair=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.3564356
##
  [8]
        {feathers=FALSE,domestic=FALSE} => {predator=TRUE} 0.4455446
  [9]
        {backbone=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4455446
   [10] {tail=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4059406
##
       {eggs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.2079208
##
        confidence lift
## [1]
       0.8500000 1.533036
## [2]
       0.8125000 1.465402
```

```
[3]
        0.7727273
                   1.393669
##
   [4]
        0.6911765
                   1.246586
   [5]
        0.6842105
                   1.234023
   [6]
        0.6730769
##
                   1.213942
##
   [7]
        0.666667
                   1.202381
##
   [8]
        0.6338028
                   1.143109
   [9]
        0.6338028
                   1.143109
##
  [10] 0.6307692
                   1.137637
##
   [11] 0.6176471
                   1.113971
##
       lhs
                                       rhs
                                                        support
                                                                  confidence
  [1] {hair=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1782178 0.7826087
   [2] {hair=FALSE,airborne=FALSE} => {predator=TRUE} 0.2871287 0.7250000
   [3] {hair=FALSE,feathers=FALSE} => {predator=TRUE} 0.2673267 0.7105263
   [4] {hair=FALSE,domestic=FALSE} => {predator=TRUE} 0.3564356 0.6666667
##
##
       lift
##
   [1] 1.411491
##
   [2] 1.307589
   [3] 1.281485
   [4] 1.202381
##
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
##
  [1] {aquatic=TRUE, catsize=TRUE}
                                      => {predator=TRUE} 0.1188119 0.9230769
   [2] {domestic=FALSE,catsize=TRUE} => {predator=TRUE} 0.2574257 0.6842105
##
       lift
   [1] 1.664835
##
   [2] 1.234023
   [1]
       "Número de reglas con consecuente negado"
##
                             rhs
                                               support
                                                         confidence lift
##
   [1]
        {milk=TRUE}
                             {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
##
   [2]
        {type=mammal}
                          => {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
##
  [3]
        {catsize=TRUE}
                          => {venomous=FALSE} 0.4257426 0.9772727
                                                                    1.0613392
##
  [4]
        {predator=FALSE}
                         =>
                             {venomous=FALSE} 0.4257426 0.9555556
                                                                    1.0377539
##
   [5]
        {hair=TRUE}
                             {venomous=FALSE} 0.4059406 0.9534884
                                                                    1.0355089
##
   [6]
        {eggs=FALSE}
                          => {venomous=FALSE} 0.3960396 0.9523810
                                                                    1.0343062
##
  [7]
        {backbone=TRUE}
                         => {venomous=FALSE} 0.7821782 0.9518072
                                                                    1.0336831
   [8]
        {legs=TRUE}
                             {venomous=FALSE} 0.7326733 0.9487179
##
                                                                    1.0303281
        {tail=TRUE}
                          => {venomous=FALSE} 0.7029703 0.9466667
##
  [9]
                                                                    1.0281004
  [10] {fins=TRUE}
                          => {venomous=FALSE} 0.1584158 0.9411765
                                                                    1.0221379
  [11] {aquatic=FALSE}
                          => {venomous=FALSE} 0.6039604 0.9384615
                                                                    1.0191894
                             {venomous=FALSE} 0.7425743 0.9375000
  [12] {breathes=TRUE}
                                                                    1.0181452
  [13] {toothed=TRUE}
                          => {venomous=FALSE} 0.5643564 0.9344262
                                                                    1.0148070
                          => {venomous=FALSE} 0.1188119 0.9230769
  [14] {domestic=TRUE}
                                                                    1.0024814
                          => {venomous=FALSE} 0.1188119 0.9230769
  [15] {type=fish}
                                                                    1.0024814
  [16] {airborne=FALSE}
                         => {venomous=FALSE} 0.7029703 0.9220779
                                                                    1.0013965
  [17] {domestic=FALSE}
                         => {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
## [18] {feathers=FALSE}
                         => {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
## [19] {toothed=FALSE}
                         => {venomous=FALSE} 0.3564356 0.9000000
                                                                    0.9774194
##
  [20]
       {eggs=TRUE}
                          => {venomous=FALSE} 0.5247525 0.8983051
                                                                    0.9755786
  [21]
       {hair=FALSE}
                          => {venomous=FALSE} 0.5148515 0.8965517
                                                                    0.9736745
  [22] {predator=TRUE}
                         => {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
  [23] {catsize=FALSE}
                         => {venomous=FALSE} 0.4950495 0.8771930
                                                                    0.9526504
##
  [24] {milk=FALSE}
                          => {venomous=FALSE} 0.5148515 0.8666667
                                                                    0.9412186
## [25] {breathes=FALSE} => {venomous=FALSE} 0.1782178 0.8571429
                                                                    0.9308756
                          => {venomous=FALSE} 0.1881188 0.8260870
## [26] {legs=FALSE}
                                                                    0.8971482
## [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
```

```
[1] "Número de reglas con consecuente negado"
##
        lhs
                             rhs
                                              support
                                                         confidence lift
##
  [1]
        {milk=TRUE}
                          => {venomous=FALSE} 0.4059406 1.0000000
##
   [2]
        {type=mammal}
                             {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
##
   [3]
        {catsize=TRUE}
                             {venomous=FALSE} 0.4257426 0.9772727
                                                                    1.0613392
   [4]
##
        {predator=FALSE}
                             {venomous=FALSE} 0.4257426 0.9555556
                                                                    1.0377539
##
   [5]
        {hair=TRUE}
                             {venomous=FALSE} 0.4059406 0.9534884
                                                                    1.0355089
##
   [6]
        {eggs=FALSE}
                             {venomous=FALSE} 0.3960396 0.9523810
                                                                    1.0343062
##
   [7]
        {backbone=TRUE}
                             {venomous=FALSE} 0.7821782 0.9518072
                                                                    1.0336831
##
   [8]
        {legs=TRUE}
                             {venomous=FALSE} 0.7326733 0.9487179
                                                                    1.0303281
##
   [9]
        {tail=TRUE}
                             {venomous=FALSE} 0.7029703 0.9466667
                                                                    1.0281004
##
   [10]
        {fins=TRUE}
                             {venomous=FALSE} 0.1584158 0.9411765
                                                                    1.0221379
##
        {aquatic=FALSE}
                             {venomous=FALSE} 0.6039604 0.9384615
   [11]
                                                                    1.0191894
                             {venomous=FALSE} 0.7425743 0.9375000
##
   [12]
        {breathes=TRUE}
                                                                    1.0181452
  [13]
       {toothed=TRUE}
                             {venomous=FALSE} 0.5643564 0.9344262
                                                                    1.0148070
   [14]
        {domestic=TRUE}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
##
   [15]
        {type=fish}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
       {airborne=FALSE}
                             {venomous=FALSE} 0.7029703 0.9220779
   [16]
                                                                    1.0013965
                             {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
   [17] {domestic=FALSE}
       {feathers=FALSE}
                             {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
##
  [19]
       {toothed=FALSE}
                             {venomous=FALSE} 0.3564356 0.9000000
                                                                    0.9774194
                             {venomous=FALSE} 0.5247525 0.8983051
  [20]
       {eggs=TRUE}
                                                                    0.9755786
##
  [21] {hair=FALSE}
                             {venomous=FALSE} 0.5148515 0.8965517
                                                                    0.9736745
##
   [22]
       {predator=TRUE}
                             {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
   [23] {catsize=FALSE}
                             {venomous=FALSE} 0.4950495 0.8771930
                                                                    0.9526504
   [24] {milk=FALSE}
                             {venomous=FALSE} 0.5148515 0.8666667
                                                                    0.9412186
   [25] {breathes=FALSE}
                             {venomous=FALSE} 0.1782178 0.8571429
##
                                                                    0.9308756
##
   [26] {legs=FALSE}
                             {venomous=FALSE} 0.1881188 0.8260870
                                                                    0.8971482
                             {venomous=FALSE} 0.1386139 0.7777778
##
       {backbone=FALSE} =>
                                                                    0.8446834
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                             rhs
                                               support
                                                         confidence lift
##
   [1]
        {milk=TRUE}
                             {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
##
   [2]
        {type=mammal}
                             {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
   [3]
##
        {catsize=TRUE}
                          => {venomous=FALSE} 0.4257426 0.9772727
                                                                    1.0613392
   [4]
        {predator=FALSE}
                             {venomous=FALSE} 0.4257426 0.9555556
##
                                                                    1.0377539
   [5]
                                                                    1.0355089
##
        {hair=TRUE}
                             {venomous=FALSE} 0.4059406 0.9534884
##
   [6]
        {eggs=FALSE}
                             {venomous=FALSE} 0.3960396 0.9523810
                                                                    1.0343062
##
  [7]
                             {venomous=FALSE} 0.7821782 0.9518072
        {backbone=TRUE}
                                                                    1.0336831
   [8]
                             {venomous=FALSE} 0.7326733 0.9487179
##
        {legs=TRUE}
                                                                    1.0303281
   [9]
##
        {tail=TRUE}
                             {venomous=FALSE} 0.7029703 0.9466667
                                                                    1.0281004
   [10]
       {fins=TRUE}
                             {venomous=FALSE} 0.1584158 0.9411765
                                                                    1.0221379
   [11] {aquatic=FALSE}
                             {venomous=FALSE} 0.6039604 0.9384615
                                                                    1.0191894
   [12]
       {breathes=TRUE}
                             {venomous=FALSE} 0.7425743 0.9375000
                                                                    1.0181452
##
       {toothed=TRUE}
                             {venomous=FALSE} 0.5643564 0.9344262
   Г137
                                                                    1.0148070
  [14]
       {domestic=TRUE}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
   [15]
        {type=fish}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
##
   [16]
        {airborne=FALSE}
                             {venomous=FALSE} 0.7029703 0.9220779
                                                                    1.0013965
       {domestic=FALSE}
                             {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
   [18]
       {feathers=FALSE} =>
                             {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
   [19]
        {toothed=FALSE}
                             {venomous=FALSE} 0.3564356 0.9000000
                                                                    0.9774194
##
  [20]
                             {venomous=FALSE} 0.5247525 0.8983051
        {eggs=TRUE}
                                                                    0.9755786
  [21] {hair=FALSE}
                          => {venomous=FALSE} 0.5148515 0.8965517
                                                                    0.9736745
## [22] {predator=TRUE}
                             {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
## [23] {catsize=FALSE}
                          => {venomous=FALSE} 0.4950495 0.8771930
```

```
## [24] {milk=FALSE}
                         => {venomous=FALSE} 0.5148515 0.8666667
                                                                   0.9412186
  [25] {breathes=FALSE} => {venomous=FALSE} 0.1782178 0.8571429
                                                                   0.9308756
  [26] {legs=FALSE}
                         => {venomous=FALSE} 0.1881188 0.8260870
   [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
                                                                   0.8446834
##
       "Número de reglas con consecuente negado"
##
        lhs
                                                         support
                                                                   confidence
  [1]
        {backbone=FALSE,venomous=FALSE} => {tail=FALSE} 0.1386139 1.0000000
  [2]
##
        {backbone=FALSE}
                                           {tail=FALSE} 0.1683168 0.9444444
##
  [3]
        {feathers=FALSE, toothed=FALSE}
                                         => {tail=FALSE} 0.1683168 0.8500000
  [4]
##
        {airborne=FALSE, toothed=FALSE}
                                         => {tail=FALSE} 0.1089109 0.6111111
  [5]
        {feathers=FALSE,eggs=TRUE}
                                         => {tail=FALSE} 0.1980198 0.5128205
   [6]
##
        {feathers=FALSE,milk=FALSE}
                                         => {tail=FALSE} 0.1980198 0.5000000
##
   [7]
        {feathers=FALSE, catsize=FALSE}
                                        => {tail=FALSE} 0.1980198 0.4651163
##
  [8]
        {eggs=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4347826
## [9]
                                         => {tail=FALSE} 0.1980198 0.4255319
        {milk=FALSE,fins=FALSE}
  [10] {hair=FALSE, feathers=FALSE}
                                         => {tail=FALSE} 0.1584158 0.4210526
  [11] {fins=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4166667
  [12] {eggs=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
  [13] {milk=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
  [14] {feathers=FALSE,fins=FALSE}
                                            {tail=FALSE} 0.2475248 0.3906250
## [15] {legs=TRUE,catsize=FALSE}
                                           {tail=FALSE} 0.1584158 0.3902439
## [16] {airborne=FALSE,catsize=FALSE}
                                           {tail=FALSE} 0.1386139 0.3888889
                                         => {tail=FALSE} 0.1089109 0.3793103
## [17] {eggs=TRUE,aquatic=FALSE}
  [18] {eggs=TRUE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3783784
  [19] {hair=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3720930
  [20] {milk=FALSE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3684211
  [21] {milk=FALSE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3666667
## [22] {feathers=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.2079208 0.3620690
## [23] {domestic=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1782178 0.3600000
## [24] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
## [25] {aquatic=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1188119 0.3529412
  [26] {hair=FALSE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3500000
  [27] {hair=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1188119 0.3333333
  [28] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
   [29] {airborne=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.1881188 0.3166667
                                         => {tail=FALSE} 0.2178218 0.3055556
  [30] {fins=FALSE,domestic=FALSE}
  [31] {predator=TRUE,fins=FALSE}
                                           {tail=FALSE} 0.1287129 0.3023256
  [32] {fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.2976190
  [33] {predator=TRUE,legs=TRUE}
                                            {tail=FALSE} 0.1089109 0.2820513
##
                                         => {tail=FALSE} 0.1485149 0.2777778
  [34] {airborne=FALSE,legs=TRUE}
  [35] {legs=TRUE,domestic=FALSE}
                                         => {tail=FALSE} 0.1782178 0.2727273
                                         => {tail=FALSE} 0.2277228 0.2613636
   [36] {domestic=FALSE}
##
   [37]
       {predator=TRUE}
                                         => {tail=FALSE} 0.1386139 0.2500000
##
   [38] {venomous=FALSE}
                                        => {tail=FALSE} 0.2178218 0.2365591
##
        lift
## [1]
        3.8846154
##
   [2]
        3.6688034
##
  [3]
        3.3019231
   [4]
        2.3739316
##
   [5]
        1.9921105
   [6]
##
        1.9423077
##
  [7]
        1.8067979
## [8]
        1.6889632
## [9]
        1.6530278
```

```
## [10] 1.6356275
  [11] 1.6185897
  [12] 1.5538462
  [13] 1.5538462
   [14] 1.5174279
##
  [15] 1.5159475
  [16] 1.5106838
  [17] 1.4734748
   [18] 1.4698545
  [19] 1.4454383
  [20] 1.4311741
  [21] 1.4243590
  [22] 1.4064987
  [23] 1.3984615
  [24] 1.3710407
   [25] 1.3710407
   [26] 1.3596154
   [27] 1.2948718
  [28] 1.2583965
   [29] 1.2301282
##
  [30] 1.1869658
  [31] 1.1744186
  [32] 1.1561355
   [33] 1.0956607
  [34] 1.0790598
   [35] 1.0594406
   [36] 1.0152972
##
##
   [37] 0.9711538
##
   [38] 0.9189413
##
        lhs
                             rhs
                                         support
                                                    confidence lift
##
  [1]
        {type=fish}
                          => {tail=TRUE} 0.1287129 1.0000000
                                                               1.3466667
##
   [2]
        {type=bird}
                          => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
##
   [3]
        {feathers=TRUE}
                          => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
  [4]
##
        {fins=TRUE}
                          => {tail=TRUE} 0.1584158 0.9411765
                                                               1.2674510
##
   [5]
        {catsize=TRUE}
                          => {tail=TRUE} 0.3762376 0.8636364
                                                               1.1630303
##
   [6]
        {eggs=FALSE}
                          => {tail=TRUE} 0.3564356 0.8571429
                                                               1.1542857
  [7]
        {milk=TRUE}
                          => {tail=TRUE} 0.3465347 0.8536585
                                                               1.1495935
  [8]
                          => {tail=TRUE} 0.3465347 0.8536585
##
        {type=mammal}
                                                               1.1495935
  [9]
                             {tail=TRUE} 0.1782178 0.7826087
        {legs=FALSE}
                                                               1.0539130
                          => {tail=TRUE} 0.3267327 0.7674419
##
  [10] {hair=TRUE}
                                                               1.0334884
  [11] {aquatic=FALSE}
                          => {tail=TRUE} 0.4851485 0.7538462
                                                               1.0151795
  [12] {airborne=TRUE}
                          => {tail=TRUE} 0.1782178 0.7500000
                                                               1.0100000
   [13] {predator=TRUE}
                          => {tail=TRUE} 0.4158416 0.7500000
                                                               1.0100000
  [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
                                                               0.9946970
  [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                                                               0.9875556
                          => {tail=TRUE} 0.4158416 0.7241379
   [16] {hair=FALSE}
                                                               0.9751724
##
   [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
                                                               0.9144033
   [18] {eggs=TRUE}
                          => {tail=TRUE} 0.3861386 0.6610169
                                                               0.8901695
   [19] {catsize=FALSE}
                         => {tail=TRUE} 0.3663366 0.6491228
                                                               0.8741520
##
   [20] {toothed=FALSE}
                         => {tail=TRUE} 0.2277228 0.5750000
                                                               0.7743333
##
       lhs
                                         rhs
                                                       support
                                                                  confidence
## [1] {eggs=TRUE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3793103
## [2] {milk=FALSE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3666667
## [3] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
```

```
##
       lift
## [1] 1.473475
## [2] 1.424359
## [3] 1.371041
                                     rhs
                                                   support
                                                             confidence
## [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
## [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
##
       lift
## [1] 1.174419
## [2] 1.095661
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {domestic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
## [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
## [3] {fins=FALSE,domestic=FALSE}
                                       => {tail=FALSE} 0.2178218 0.3055556
## [4] {legs=TRUE,domestic=FALSE}
                                       => {tail=FALSE} 0.1782178 0.2727273
##
       lift
## [1] 1.398462
## [2] 1.258397
## [3] 1.186966
## [4] 1.059441
##
       lhs
                                          rhs
                                                        support
                                                                  confidence
## [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.371041
##
       lhs
                                      rhs
                                                    support
                                                              confidence
## [1] {hair=FALSE,feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
## [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
## [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
## [4] {hair=FALSE,legs=TRUE}
                                   => {tail=FALSE} 0.1188119 0.3333333
##
       lift
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
##
                                                        support
                                                                  confidence
                                           rhs
## [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE}
                                        => {tail=FALSE} 0.1980198 0.5128205
## [3] {feathers=FALSE,milk=FALSE}
                                        => {tail=FALSE} 0.1980198 0.5000000
## [4] {feathers=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4651163
## [5] {hair=FALSE,feathers=FALSE}
                                       => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                        => {tail=FALSE} 0.2475248 0.3906250
## [7] {feathers=FALSE,legs=TRUE}
                                       => {tail=FALSE} 0.2079208 0.3620690
## [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
## [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
       lift
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
## [7] 1.406499
## [8] 1.371041
## [9] 1.258397
```

```
##
                                     rhs
                                                   support
                                                             confidence
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
  [2] {eggs=TRUE,fins=FALSE}
                                  => {tail=FALSE} 0.1980198 0.4347826
  [3] {eggs=TRUE,legs=TRUE}
                                  => {tail=FALSE} 0.1584158 0.4000000
  [4] {eggs=TRUE,aquatic=FALSE} => {tail=FALSE} 0.1089109 0.3793103
   [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
       lift
## [1] 1.992110
## [2] 1.688963
## [3] 1.553846
## [4] 1.473475
## [5] 1.469854
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
## [2] {fins=FALSE,catsize=FALSE}
                                      => {tail=FALSE} 0.1980198 0.4166667
## [3] {legs=TRUE,catsize=FALSE}
                                       => {tail=FALSE} 0.1584158 0.3902439
## [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
  [5] {domestic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
  [6] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
##
       lift
## [1] 1.806798
## [2] 1.618590
## [3] 1.515947
## [4] 1.510684
## [5] 1.398462
  [6] 1.371041
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
  [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
   [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
       lift
## [1] 3.301923
  [2] 2.373932
##
  [1] "Número de reglas con consecuente negado"
##
                                         rhs
                                                         support
                                                                   confidence
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
                                     => {domestic=TRUE} 0.1188119 0.2000000
  [2] {aquatic=FALSE,legs=TRUE}
## [3] {backbone=TRUE,legs=TRUE}
                                     => {domestic=TRUE} 0.1089109 0.1718750
## [4] {backbone=TRUE,fins=FALSE}
                                     => {domestic=TRUE} 0.1089109 0.1666667
## [5] {backbone=TRUE, breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
## [1] 1.612482
## [2] 1.553846
## [3] 1.335337
## [4] 1.294872
## [5] 1.238573
##
        lhs
                            rhs
                                              support
                                                        confidence lift
## [1]
        {aquatic=TRUE}
                         => {domestic=FALSE} 0.3465347 0.9722222 1.1158460
## [2]
        {predator=TRUE}
                         => {domestic=FALSE} 0.5346535 0.9642857
                                                                   1.1067370
## [3]
        {legs=FALSE}
                         => {domestic=FALSE} 0.2178218 0.9565217
                                                                   1.0978261
## [4]
        {breathes=FALSE}
                         => {domestic=FALSE} 0.1980198 0.9523810
                                                                   1.0930736
## [5]
        {backbone=FALSE} => {domestic=FALSE} 0.1683168 0.9444444
                                                                   1.0839646
## [6]
        {fins=TRUE}
                         => {domestic=FALSE} 0.1584158 0.9411765
                                                                   1.0802139
                         => {domestic=FALSE} 0.5346535 0.9310345 1.0685737
## [7]
        {hair=FALSE}
## [8]
       {type=fish}
                         => {domestic=FALSE} 0.1188119 0.9230769 1.0594406
```

```
## [9]
        {milk=FALSE}
                         => {domestic=FALSE} 0.5445545 0.9166667
                                                                    1.0520833
                            {domestic=FALSE} 0.5346535 0.9152542
##
  [10] {eggs=TRUE}
                                                                    1.0504622
  [11] {toothed=FALSE}
                         => {domestic=FALSE} 0.3564356 0.9000000
                                                                    1.0329545
                            {domestic=FALSE} 0.6732673 0.8831169
  [12] {airborne=FALSE} =>
                                                                    1.0135773
  [13] {catsize=FALSE}
                            {domestic=FALSE} 0.4950495 0.8771930
                                                                    1.0067783
  [14] {feathers=FALSE}
                         => {domestic=FALSE} 0.7029703 0.8765432
                                                                    1.0060325
                         => {domestic=FALSE} 0.3762376 0.8636364
  [15] {catsize=TRUE}
                                                                    0.9912190
  [16] {backbone=TRUE}
                         => {domestic=FALSE} 0.7029703 0.8554217
                                                                    0.9817908
##
  [17] {legs=TRUE}
                            {domestic=FALSE} 0.6534653 0.8461538
                                                                    0.9711538
  [18] {airborne=TRUE}
                         => {domestic=FALSE} 0.1980198 0.8333333
                                                                    0.9564394
  [19] {eggs=FALSE}
                         => {domestic=FALSE} 0.3366337 0.8095238
                                                                    0.9291126
                         => {domestic=FALSE} 0.3267327 0.8048780
   [20] {milk=TRUE}
                                                                    0.9237805
##
   [21] {type=mammal}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                    0.9237805
##
                                         rhs
                                                          support
                                                                    confidence
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
##
   [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
   [3] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
   [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
##
  [1] 1.612482
##
   [2] 1.335337
  [3] 1.294872
  [4] 1.238573
##
##
                                     rhs
                                                     support
                                                                confidence
##
   [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
##
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
       lift
##
   [1] 1.553846
   [2] 1.335337
##
##
       "Número de reglas con consecuente negado"
##
                             rhs
                                              support
                                                        confidence lift
##
  [1]
        {milk=TRUE}
                         => {venomous=FALSE} 0.4059406 1.0000000
                                                                   1.0860215
##
   [2]
        {type=mammal}
                         => {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
   [3]
##
        {catsize=TRUE}
                         => {venomous=FALSE} 0.4257426 0.9772727
                                                                    1.0613392
   [4]
        {predator=FALSE}
                            {venomous=FALSE} 0.4257426 0.9555556
##
                                                                    1.0377539
   [5]
                         => {venomous=FALSE} 0.4059406 0.9534884
##
        {hair=TRUE}
                                                                    1.0355089
##
  [6]
        {eggs=FALSE}
                         => {venomous=FALSE} 0.3960396 0.9523810
                                                                    1.0343062
##
  [7]
                            {venomous=FALSE} 0.7821782 0.9518072
        {backbone=TRUE}
                                                                    1.0336831
  [8]
                            {venomous=FALSE} 0.7326733 0.9487179
##
        {legs=TRUE}
                                                                    1.0303281
  [9]
                            {venomous=FALSE} 0.7029703 0.9466667
##
        {tail=TRUE}
                                                                    1.0281004
                         => {venomous=FALSE} 0.1584158 0.9411765
  [10] {fins=TRUE}
                                                                    1.0221379
  [11] {aquatic=FALSE}
                         => {venomous=FALSE} 0.6039604 0.9384615
                                                                    1.0191894
  [12] {breathes=TRUE}
                         => {venomous=FALSE} 0.7425743 0.9375000
                                                                    1.0181452
  [13] {toothed=TRUE}
                         => {venomous=FALSE} 0.5643564 0.9344262
                                                                    1.0148070
## [14] {domestic=TRUE}
                         => {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
                         => {venomous=FALSE} 0.1188119 0.9230769
  [15]
       {type=fish}
                                                                    1.0024814
  [16]
       {airborne=FALSE}
                            {venomous=FALSE} 0.7029703 0.9220779
                                                                    1.0013965
  [17] {domestic=FALSE} =>
                            {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
  [18] {feathers=FALSE} =>
                            {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
  [19]
       {toothed=FALSE}
                            {venomous=FALSE} 0.3564356 0.9000000
                                                                    0.9774194
## [20]
                         => {venomous=FALSE} 0.5247525 0.8983051
       {eggs=TRUE}
                                                                    0.9755786
## [21] {hair=FALSE}
                         => {venomous=FALSE} 0.5148515 0.8965517
                                                                    0.9736745
## [22] {predator=TRUE}
                         => {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
## [23] {catsize=FALSE}
                         => {venomous=FALSE} 0.4950495 0.8771930
```

```
## [24] {milk=FALSE}
                          => {venomous=FALSE} 0.5148515 0.8666667
                                                                    0.9412186
                            {venomous=FALSE} 0.1782178 0.8571429
   [25] {breathes=FALSE}
                                                                    0.9308756
   [26] {legs=FALSE}
                            {venomous=FALSE} 0.1881188 0.8260870
                                                                    0.8971482
                         => {venomous=FALSE} 0.1386139 0.7777778
   [27] {backbone=FALSE}
                                                                    0.8446834
##
       "Número de reglas con consecuente negado"
##
        lhs
                             rhs
                                              support
                                                         confidence lift
##
  [1]
        {milk=TRUE}
                          => {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
  [2]
##
        {type=mammal}
                            {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
##
   [3]
        {catsize=TRUE}
                             {venomous=FALSE} 0.4257426 0.9772727
                                                                    1.0613392
##
   [4]
        {predator=FALSE}
                             {venomous=FALSE} 0.4257426 0.9555556
                                                                    1.0377539
   [5]
        {hair=TRUE}
                            {venomous=FALSE} 0.4059406 0.9534884
                                                                    1.0355089
   [6]
##
        {eggs=FALSE}
                            {venomous=FALSE} 0.3960396 0.9523810
                                                                    1.0343062
##
   [7]
        {backbone=TRUE}
                            {venomous=FALSE} 0.7821782 0.9518072
                                                                    1.0336831
                         => {venomous=FALSE} 0.7326733 0.9487179
##
   [8]
        {legs=TRUE}
                                                                    1.0303281
##
  [9]
        {tail=TRUE}
                          => {venomous=FALSE} 0.7029703 0.9466667
                                                                    1.0281004
   [10]
        {fins=TRUE}
                            {venomous=FALSE} 0.1584158 0.9411765
                                                                    1.0221379
##
                            {venomous=FALSE} 0.6039604 0.9384615
   [11]
       {aquatic=FALSE}
                                                                    1.0191894
       {breathes=TRUE}
                            {venomous=FALSE} 0.7425743 0.9375000
   [12]
                                                                    1.0181452
                          => {venomous=FALSE} 0.5643564 0.9344262
                                                                    1.0148070
  [13] {toothed=TRUE}
   [14] {domestic=TRUE}
                            {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
##
  [15] {type=fish}
                          => {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
                         => {venomous=FALSE} 0.7029703 0.9220779
  [16] {airborne=FALSE}
                                                                    1.0013965
  [17] {domestic=FALSE}
                         =>
                            {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
   Г187
       {feathers=FALSE}
                            {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
  Г197
       {toothed=FALSE}
                            {venomous=FALSE} 0.3564356 0.9000000
                                                                    0.9774194
  [20] {eggs=TRUE}
                          => {venomous=FALSE} 0.5247525 0.8983051
                                                                    0.9755786
                          => {venomous=FALSE} 0.5148515 0.8965517
  [21] {hair=FALSE}
                                                                    0.9736745
  [22] {predator=TRUE}
                            {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
  [23] {catsize=FALSE}
                            {venomous=FALSE} 0.4950495 0.8771930
                                                                    0.9526504
  [24] {milk=FALSE}
                          => {venomous=FALSE} 0.5148515 0.8666667
                                                                    0.9412186
  [25] {breathes=FALSE} =>
                            {venomous=FALSE} 0.1782178 0.8571429
                                                                    0.9308756
##
   [26]
       {legs=FALSE}
                          => {venomous=FALSE} 0.1881188 0.8260870
                                                                    0.8971482
   [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
##
       "Número de reglas con consecuente negado"
##
                                                             support
##
  [1]
        {catsize=FALSE, type=bird}
                                           {airborne=TRUE} 0.1287129
   [2]
        {feathers=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.1287129
##
  [3]
        {type=bird}
                                            {airborne=TRUE} 0.1584158
   [4]
        {feathers=TRUE}
                                            {airborne=TRUE} 0.1584158
##
   [5]
##
        {toothed=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [6]
        {predator=FALSE, toothed=FALSE}
                                            {airborne=TRUE} 0.1485149
   [7]
        {toothed=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
##
##
   [8]
        {toothed=FALSE, breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
##
        {aquatic=FALSE, toothed=FALSE}
                                           {airborne=TRUE} 0.1683168
   [9]
  [10] {toothed=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
  [11]
        {toothed=FALSE,legs=TRUE}
                                           {airborne=TRUE} 0.2178218
##
  [12]
       {eggs=TRUE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
       {eggs=TRUE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
  [14] {milk=FALSE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
   [15] {milk=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
  [16] {eggs=TRUE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
## [17] {milk=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
## [18] {toothed=FALSE, venomous=FALSE}
                                         =>
                                            {airborne=TRUE} 0.1980198
## [19] {toothed=FALSE}
                                            {airborne=TRUE} 0.2178218
```

```
## [20] {eggs=TRUE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
                                            {airborne=TRUE} 0.2178218
  [21] {milk=FALSE,legs=TRUE}
  [22] {predator=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
  [23] {legs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
  [24] {breathes=TRUE, catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
  [25] {hair=FALSE,predator=FALSE}
##
                                            {airborne=TRUE} 0.1089109
  [26] {aquatic=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1683168
  [27] {hair=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1287129
##
  ſ28]
       {hair=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1782178
   [29]
       {hair=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1782178
   [30] {eggs=TRUE,fins=FALSE}
                                           {airborne=TRUE} 0.2178218
   [31] {milk=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.2178218
  [32]
       {fins=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.2079208
  [33]
       {predator=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.1683168
       {hair=FALSE,fins=FALSE}
                                         => {airborne=TRUE} 0.1782178
## [34]
  [35]
        {predator=FALSE, breathes=TRUE}
                                           {airborne=TRUE} 0.1683168
  [36]
       {predator=FALSE,fins=FALSE}
                                         => {airborne=TRUE} 0.1683168
       {eggs=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
                                           {airborne=TRUE} 0.1584158
  [38] {eggs=TRUE,tail=TRUE}
   [39] {tail=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
##
  [40] {milk=FALSE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
  [41] {milk=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
                                            {airborne=TRUE} 0.1980198
## [42] {milk=FALSE, venomous=FALSE}
  [43] {predator=FALSE,domestic=FALSE} =>
                                            {airborne=TRUE} 0.1287129
  [44] {hair=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [45] {eggs=TRUE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [46] {milk=FALSE,backbone=TRUE}
                                           {airborne=TRUE} 0.1584158
  [47] {venomous=FALSE, catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
## [48] {eggs=TRUE, venomous=FALSE}
                                         => {airborne=TRUE} 0.1980198
  [49] {backbone=TRUE, catsize=FALSE}
                                         => {airborne=TRUE} 0.1485149
  [50]
       {hair=FALSE, venomous=FALSE}
                                         => {airborne=TRUE} 0.1782178
##
   [51]
        {breathes=TRUE,legs=TRUE}
                                           {airborne=TRUE} 0.2376238
       {aquatic=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.1881188
   [53] {legs=TRUE,tail=TRUE}
                                         => {airborne=TRUE} 0.1782178
   [54] {breathes=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2376238
   [55] {fins=FALSE,legs=TRUE}
##
                                         => {airborne=TRUE} 0.2376238
   [56] {fins=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1782178
   [57] {aquatic=FALSE}
                                         => {airborne=TRUE} 0.1881188
##
   [58] {venomous=FALSE}
                                         => {airborne=TRUE} 0.2178218
##
##
        confidence lift
  [1]
        0.9285714
                   3.9077381
##
   [2]
        0.9285714
                   3.9077381
##
   [3]
        0.8000000
                   3.3666667
##
   [4]
        0.8000000
                   3.3666667
##
  [5]
        0.7272727
                   3.0606061
  [6]
##
        0.7142857
                   3.0059524
##
   [7]
        0.6956522
                   2.9275362
##
  [8]
        0.6666667
                   2.8055556
  [9]
        0.6296296
                   2.6496914
   [10]
       0.6129032
                   2.5793011
##
  [11] 0.6111111
                   2.5717593
## [12] 0.5862069
                   2.4669540
## [13] 0.5769231
                   2.4278846
## [14] 0.5769231
                   2.4278846
```

```
## [15] 0.5666667
                    2.3847222
   [16] 0.5641026
                    2.3739316
   [17] 0.5641026
                    2.3739316
   [18] 0.555556
                    2.3379630
   [19] 0.5500000
                    2.3145833
   [20] 0.5500000
                    2.3145833
   [21] 0.5500000
                    2.3145833
   [22] 0.5172414
                    2.1767241
   [23] 0.5121951
                    2.1554878
   [24] 0.5121951
                    2.1554878
   [25] 0.5000000
                    2.1041667
   [26] 0.5000000
                    2.1041667
   [27] 0.5000000
                    2.1041667
   [28] 0.5000000
                    2.1041667
   [29] 0.4864865
                    2.0472973
   [30] 0.4782609
                    2.0126812
   [31] 0.4680851
                    1.9698582
   [32] 0.4375000
                    1.8411458
   [33] 0.4358974
                    1.8344017
   [34] 0.4186047
                    1.7616279
##
   [35] 0.4146341
                    1.7449187
   [36] 0.4146341
                    1.7449187
   [37] 0.4130435
                    1.7382246
   [38] 0.4102564
##
                    1.7264957
   [39] 0.4054054
                    1.7060811
   [40] 0.4000000
                    1.6833333
   [41] 0.3958333
                    1.6657986
##
   [42] 0.3846154
                    1.6185897
   [43] 0.3823529
                    1.6090686
   [44] 0.3809524
                    1.6031746
   [45] 0.3809524
                    1.6031746
##
   [46] 0.3809524
                    1.6031746
   [47] 0.3800000
                    1.5991667
   [48] 0.3773585
                    1.5880503
   [49] 0.3750000
                    1.5781250
##
   [50] 0.3461538
                    1.4567308
   [51] 0.3287671
                    1.3835616
   [52] 0.3166667
##
                    1.3326389
   [53] 0.3157895
                    1.3289474
##
   [54] 0.3157895
                    1.3289474
   [55] 0.3116883
                    1.3116883
   [56] 0.3050847
                    1.2838983
##
   [57]
        0.2923077
                    1.2301282
                    0.9955197
##
   [58] 0.2365591
                                                          confidence lift
##
        lhs
                                               support
   [1]
                             {airborne=FALSE} 0.1287129 1.0000000
##
        {type=fish}
                                                                     1.3116883
                                                                     1.3116883
##
   [2]
        {fins=TRUE}
                             {airborne=FALSE} 0.1683168 1.0000000
   [3]
##
        {breathes=FALSE}
                             {airborne=FALSE} 0.2079208 1.0000000
                                                                     1.3116883
##
   [4]
        {legs=FALSE}
                             {airborne=FALSE} 0.2277228 1.0000000
                                                                     1.3116883
##
   [5]
        {toothed=TRUE}
                             {airborne=FALSE} 0.5841584 0.9672131
                                                                     1.2686821
##
   [6]
        {eggs=FALSE}
                             {airborne=FALSE} 0.3960396 0.9523810
                                                                     1.2492270
                          =>
##
   [7]
        {milk=TRUE}
                             {airborne=FALSE} 0.3861386 0.9512195
##
  [8]
        {type=mammal}
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                     1.2477035
## [9]
        {catsize=TRUE}
                          => {airborne=FALSE} 0.4059406 0.9318182 1.2222550
```

```
## [10] {predator=TRUE}
                         => {airborne=FALSE} 0.4851485 0.8750000 1.1477273
                         => {airborne=FALSE} 0.3069307 0.8611111
## [11] {aquatic=TRUE}
                                                                   1.1295094
## [12] {hair=TRUE}
                         => {airborne=FALSE} 0.3663366 0.8604651
## [13] {backbone=TRUE}
                         => {airborne=FALSE} 0.6435644 0.7831325
                                                                   1.0272258
## [14] {tail=FALSE}
                         => {airborne=FALSE} 0.1980198 0.7692308
                                                                   1.0089910
## [15] {tail=TRUE}
                         => {airborne=FALSE} 0.5643564 0.7600000
                                                                   0.9968831
                         => {airborne=FALSE} 0.4554455 0.7076923
## [16] {aquatic=FALSE}
                                                                   0.9282717
## [17] {hair=FALSE}
                         => {airborne=FALSE} 0.3960396 0.6896552
                                                                   0.9046126
## [18] {backbone=FALSE} => {airborne=FALSE} 0.1188119 0.6666667
                                                                   0.8744589
## [19] {milk=FALSE}
                         => {airborne=FALSE} 0.3762376 0.6333333
                                                                   0.8307359
## [20] {eggs=TRUE}
                         => {airborne=FALSE} 0.3663366 0.6271186
                                                                   0.8225842
  [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.6222222
                                                                   0.8161616
                                                                   0.5902597
   [22] {toothed=FALSE} => {airborne=FALSE} 0.1782178 0.4500000
##
       lhs
                                        rhs
                                                         support
                                                                   confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
   [2] {eggs=TRUE,backbone=TRUE}
                                     => {airborne=TRUE} 0.1584158 0.3809524
  [3] {milk=FALSE,backbone=TRUE}
                                     => {airborne=TRUE} 0.1584158 0.3809524
  [4] {backbone=TRUE, catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift
## [1] 3.060606
## [2] 1.603175
## [3] 1.603175
## [4] 1.578125
##
                                    rhs
                                                     support
                                                               confidence
## [1] {toothed=FALSE,tail=TRUE} => {airborne=TRUE} 0.1584158 0.6956522
## [2] {eggs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4102564
## [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4000000
                                 => {airborne=TRUE} 0.1584158 0.3809524
## [5] {hair=FALSE,tail=TRUE}
## [6] {legs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1782178 0.3157895
## [7] {fins=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1782178 0.3050847
##
       lift
## [1] 2.927536
## [2] 1.726496
## [3] 1.706081
## [4] 1.683333
## [5] 1.603175
## [6] 1.328947
  [7] 1.283898
##
##
       lhs
                                                         support
                                                                   confidence
                                         rhs
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
## [2] {eggs=TRUE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5862069
## [3] {milk=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5666667
  [4] {aquatic=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
## [5] {hair=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1287129 0.5000000
                                     => {airborne=TRUE} 0.1881188 0.3166667
  [6] {aquatic=FALSE,legs=TRUE}
##
##
       lift
## [1] 2.649691
## [2] 2.466954
## [3] 2.384722
## [4] 2.104167
## [5] 2.104167
## [6] 1.332639
##
       lhs
                                                       support
                                                                 confidence
                                      rhs
```

```
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
## [2] {hair=FALSE,aquatic=FALSE} => {airborne=TRUE} 0.1287129 0.5000000
## [3] {hair=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.5000000
## [4] {hair=FALSE,breathes=TRUE} => {airborne=TRUE} 0.1782178 0.4864865
## [5] {hair=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.1782178 0.4186047
## [6] {hair=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.3809524
## [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
##
       lift
## [1] 2.104167
## [2] 2.104167
## [3] 2.104167
## [4] 2.047297
## [5] 1.761628
## [6] 1.603175
## [7] 1.456731
##
       lhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
## [2] {milk=FALSE,aquatic=FALSE} => {airborne=TRUE} 0.1683168 0.5666667
## [3] {milk=FALSE,breathes=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5641026
## [4] {milk=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5500000
## [5] {milk=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.2178218 0.4680851
## [6] {milk=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.4000000
## [7] {milk=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1881188 0.3958333
## [8] {milk=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
## [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
       lift
## [1] 2.427885
## [2] 2.384722
## [3] 2.373932
## [4] 2.314583
## [5] 1.969858
## [6] 1.683333
## [7] 1.665799
## [8] 1.618590
## [9] 1.603175
##
       lhs
                                     rhs
                                                     support
                                                                confidence
## [1] {eggs=TRUE,aquatic=FALSE} => {airborne=TRUE} 0.1683168 0.5862069
## [2] {eggs=TRUE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
## [3] {eggs=TRUE,breathes=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5641026
## [4] {eggs=TRUE,legs=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5500000
## [5] {eggs=TRUE,fins=FALSE}
                                  => {airborne=TRUE} 0.2178218 0.4782609
## [6] {eggs=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1881188 0.4130435
## [7] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
## [8] {eggs=TRUE,backbone=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
## [9] {eggs=TRUE,venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
       lift
## [1] 2.466954
## [2] 2.427885
## [3] 2.373932
## [4] 2.314583
## [5] 2.012681
## [6] 1.738225
## [7] 1.726496
## [8] 1.603175
```

```
[9] 1.588050
##
       lhs
                                           rhs
                                                           support
  [1] {predator=FALSE, toothed=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [2] {eggs=TRUE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [3] {milk=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [4] {predator=FALSE, catsize=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [5] {hair=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1089109
  [6] {predator=FALSE,legs=TRUE}
                                        => {airborne=TRUE} 0.1683168
  [7] {predator=FALSE,breathes=TRUE}
                                        => {airborne=TRUE} 0.1683168
   [8] {predator=FALSE,fins=FALSE}
                                        => {airborne=TRUE} 0.1683168
   [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
##
       confidence lift
## [1] 0.7142857
                  3.005952
## [2] 0.5769231
                  2.427885
## [3] 0.5769231
                  2.427885
## [4] 0.5172414
                  2.176724
  [5] 0.5000000
                  2.104167
  [6] 0.4358974
                  1.834402
  [7] 0.4146341
                  1.744919
   [8] 0.4146341
                  1.744919
##
   [9] 0.3823529
                  1.609069
##
                                                          support
                                                                     confidence
##
  [1] {toothed=FALSE,backbone=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.7272727
   [2] {predator=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1485149 0.7142857
  [3] {toothed=FALSE,tail=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.6956522
  [4] {toothed=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6666667
  [5] {aquatic=FALSE,toothed=FALSE}
                                       => {airborne=TRUE} 0.1683168 0.6296296
  [6] {toothed=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1881188 0.6129032
  [7] {toothed=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6111111
  [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
       lift
## [1] 3.060606
  [2] 3.005952
  [3] 2.927536
   [4] 2.805556
##
  [5] 2.649691
## [6] 2.579301
  [7] 2.571759
##
   [8]
      2.337963
##
  [1]
      "Número de reglas con consecuente negado"
##
                                            rhs
                                                              support
                                           {breathes=FALSE} 0.1287129
##
  [1]
        {type=fish}
##
  [2]
        {eggs=TRUE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
##
  [3]
        {milk=FALSE,fins=TRUE}
                                           {breathes=FALSE} 0.1287129
## [4]
        {hair=FALSE,fins=TRUE}
                                           {breathes=FALSE} 0.1287129
## [5]
        {aquatic=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
##
  [6]
        {milk=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
##
  [7]
        {eggs=TRUE,legs=FALSE}
                                           {breathes=FALSE} 0.1485149
  [8]
        {legs=FALSE,catsize=FALSE}
                                           {breathes=FALSE} 0.1188119
  [9]
        {hair=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
  [10] {predator=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1188119
## [11] {milk=FALSE,aquatic=TRUE}
                                           {breathes=FALSE} 0.1980198
## [12] {feathers=FALSE,aquatic=TRUE}
                                         => {breathes=FALSE} 0.1980198
## [13] {milk=FALSE,toothed=TRUE}
                                           {breathes=FALSE} 0.1386139
```

```
## [14] {aquatic=TRUE,catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
                                            {breathes=FALSE} 0.1287129
   [15] {eggs=TRUE,toothed=TRUE}
  [16] {airborne=FALSE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1980198
  [17] {eggs=TRUE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1881188
##
   [18] {hair=FALSE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1980198
   [19] {aquatic=TRUE, toothed=TRUE}
##
                                             {breathes=FALSE} 0.1386139
  [20] {hair=FALSE,toothed=TRUE}
                                             {breathes=FALSE} 0.1386139
  [21] {hair=FALSE, feathers=FALSE}
                                             {breathes=FALSE} 0.2079208
   [22]
       {milk=FALSE,airborne=FALSE}
                                             {breathes=FALSE} 0.2079208
   [23]
       {eggs=TRUE,airborne=FALSE}
                                            {breathes=FALSE} 0.1980198
   [24] {hair=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
   [25] {feathers=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
   [26]
       {feathers=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
       {milk=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
       {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
  [28]
   [29]
        {hair=FALSE, predator=TRUE}
                                             {breathes=FALSE} 0.1683168
##
   [30]
        {airborne=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [31] {predator=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
                                            {breathes=FALSE} 0.2079208
   [32] {hair=FALSE,milk=FALSE}
   [33]
       {feathers=FALSE, catsize=FALSE}
                                             {breathes=FALSE} 0.1584158
##
  [34]
       {hair=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
       {hair=FALSE,domestic=FALSE}
                                             {breathes=FALSE} 0.1980198
       {hair=FALSE,catsize=FALSE}
   [36]
                                             {breathes=FALSE} 0.1584158
##
        {milk=FALSE,domestic=FALSE}
##
   [37]
                                             {breathes=FALSE} 0.1980198
   [38]
       {feathers=FALSE, predator=TRUE}
                                             {breathes=FALSE} 0.1683168
   [39]
       {eggs=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1881188
   [40] {airborne=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
                                         =>
   [41] {domestic=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
       {airborne=FALSE,domestic=FALSE}
  [42]
                                            {breathes=FALSE} 0.1980198
  [43] {feathers=FALSE,airborne=FALSE} =>
                                            {breathes=FALSE} 0.2079208
   [44]
        {feathers=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
##
   [45]
        {toothed=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1287129
##
   [46]
       {tail=TRUE}
                                            {breathes=FALSE} 0.1386139
##
        confidence lift
##
   [1]
        1.0000000
                   4.8095238
##
   [2]
        1.0000000
                   4.8095238
##
   [3]
        1.0000000
                   4.8095238
##
  [4]
        0.8666667
                   4.1682540
   [5]
##
        0.8333333
                   4.0079365
##
   [6]
        0.8000000
                   3.8476190
   [7]
        0.7894737
                   3.7969925
   [8]
##
        0.7500000
                   3.6071429
##
   [9]
        0.7272727
                   3.4978355
##
   [10] 0.7058824
                   3.3949580
  [11] 0.6666667
                   3.2063492
   [12] 0.6666667
                   3.2063492
##
   [13] 0.6666667
                   3.2063492
   [14] 0.6521739
                   3.1366460
                   3.1261905
   [15] 0.6500000
   [16] 0.6451613
                   3.1029186
##
   [17]
       0.6333333
                   3.0460317
## [18] 0.6250000
                   3.0059524
## [19] 0.6086957
                   2.9275362
## [20] 0.6086957
                   2.9275362
```

```
## [21] 0.5526316
                   2.6578947
   [22] 0.5526316
                   2.6578947
   [23] 0.5405405
                    2.5997426
   [24] 0.5250000
                    2.5250000
   [25] 0.5250000
                    2.5250000
   [26] 0.5128205
                    2.4664225
##
   [27] 0.5000000
                    2.4047619
   [28] 0.4848485
                    2.3318903
   [29] 0.4722222
                    2.2711640
   [30] 0.444444
                    2.1375661
   [31] 0.4285714
                    2.0612245
   [32] 0.3750000
                    1.8035714
##
   [33] 0.3720930
                    1.7895903
   [34] 0.3703704
                    1.7813051
   [35] 0.3703704
                    1.7813051
   [36] 0.3636364
                    1.7489177
##
   [37] 0.3636364
                    1.7489177
                    1.7396150
   [38] 0.3617021
                    1.6922399
   [39] 0.3518519
   [40] 0.3469388
                    1.6686103
##
   [41] 0.3000000
                    1.4428571
   [42] 0.2941176
                    1.4145658
   [43] 0.2876712
                    1.3835616
##
   [44] 0.2816901
                    1.3547954
   [45] 0.2500000
                    1.2023810
##
   [46]
       0.1866667
                   0.8977778
##
                                                        confidence lift
        lhs
                                              support
        {type=bird}
##
   [1]
                             {breathes=TRUE} 0.1980198 1.0000000
                                                                    1.2625000
##
   [2]
        {feathers=TRUE}
                             {breathes=TRUE} 0.1980198 1.0000000
                                                                    1.2625000
##
   [3]
        {airborne=TRUE}
                             {breathes=TRUE} 0.2376238 1.0000000
                                                                    1.2625000
##
   [4]
        {milk=TRUE}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                    1.2625000
##
   [5]
        {type=mammal}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                    1.2625000
##
   [6]
        {hair=TRUE}
                             {breathes=TRUE} 0.4257426 1.0000000
                                                                    1.2625000
                             {breathes=TRUE} 0.6336634 0.9846154
##
   [7]
        {aquatic=FALSE}
                                                                    1.2430769
   [8]
        {eggs=FALSE}
                             {breathes=TRUE} 0.4059406 0.9761905
##
                                                                    1.2324405
##
   [9]
        {legs=TRUE}
                             {breathes=TRUE} 0.7227723 0.9358974
                                                                    1.1815705
       {domestic=TRUE}
                             {breathes=TRUE} 0.1188119 0.9230769
                                                                    1.1653846
                             {breathes=TRUE} 0.4059406 0.9111111
   [11]
       {predator=FALSE} =>
                                                                    1.1502778
                             {breathes=TRUE} 0.3861386 0.8863636
   [12]
       {catsize=TRUE}
                                                                    1.1190341
##
   [13] {toothed=FALSE}
                             {breathes=TRUE} 0.3267327 0.8250000
                                                                    1.0415625
   [14] {tail=TRUE}
                             {breathes=TRUE} 0.6039604 0.8133333
                                                                    1.0268333
                             {breathes=TRUE} 0.6732673 0.7727273
   [15] {domestic=FALSE}
                                                                    0.9755682
   [16] {tail=FALSE}
                             {breathes=TRUE} 0.1881188 0.7307692
                                                                    0.9225962
   [17] {airborne=FALSE}
                             {breathes=TRUE} 0.5544554 0.7272727
                                                                    0.9181818
   [18] {catsize=FALSE}
                             {breathes=TRUE} 0.4059406 0.7192982
                                                                    0.9081140
                             {breathes=TRUE} 0.3861386 0.6964286
   [19]
       {predator=TRUE}
                          =>
                                                                    0.8792411
##
   [20] {eggs=TRUE}
                             {breathes=TRUE} 0.3861386 0.6610169
                                                                    0.8345339
   [21] {milk=FALSE}
                          => {breathes=TRUE} 0.3861386 0.6500000
                                                                    0.8206250
##
   [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
                                                                    0.7715278
##
       lhs
                                            rhs
                                                              support
##
   [1] {hair=FALSE,domestic=FALSE}
                                           {breathes=FALSE} 0.1980198
   [2] {milk=FALSE,domestic=FALSE}
                                         => {breathes=FALSE} 0.1980198
   [3] {eggs=TRUE,domestic=FALSE}
                                         => {breathes=FALSE} 0.1881188
## [4] {domestic=FALSE, catsize=FALSE}
                                         => {breathes=FALSE} 0.1485149
```

```
## [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [7] {toothed=TRUE,domestic=FALSE}
                                      => {breathes=FALSE} 0.1287129
##
       confidence lift
##
   [1] 0.3703704 1.781305
##
  [2] 0.3636364
                 1.748918
  [3] 0.3518519
                  1.692240
## [4] 0.3000000
                  1.442857
   [5] 0.2941176
                  1.414566
  [6] 0.2816901
                  1.354795
  [7] 0.2500000
                  1.202381
##
       lhs
                                           rhs
                                                            support
## [1] {airborne=FALSE,aquatic=TRUE}
                                       => {breathes=FALSE} 0.1980198
  [2] {milk=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
## [3] {eggs=TRUE,airborne=FALSE}
                                       => {breathes=FALSE} 0.1980198
## [4] {hair=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
  [5] {airborne=FALSE, catsize=FALSE}
                                       => {breathes=FALSE} 0.1584158
  [6] {airborne=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
  [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
##
       confidence lift
## [1] 0.6451613 3.102919
## [2] 0.5526316
                  2.657895
  [3] 0.5405405
                  2.599743
## [4] 0.5250000
                  2.525000
  [5] 0.444444
                  2.137566
  [6] 0.3469388
                  1.668610
   [7] 0.2941176
                  1.414566
   [8] 0.2876712
##
                 1.383562
##
       lhs
                                         rhs
                                                           support
## [1] {legs=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
   [2] {aquatic=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1485149
  [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
  [4] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
   [5] {feathers=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
##
  [6] {hair=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1584158
   [7] {domestic=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1485149
##
       confidence lift
  [1] 0.7500000
                  3.607143
##
  [2] 0.6521739
                  3.136646
  [3] 0.444444
                  2.137566
  [4] 0.4285714
                  2.061224
   [5] 0.3720930
                  1.789590
  [6] 0.3636364
##
                  1.748918
##
  [7] 0.3000000
                  1.442857
##
       lhs
                                         rhs
                                                           support
## [1] {predator=TRUE,legs=FALSE}
                                      => {breathes=FALSE} 0.1188119
   [2] {milk=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
  [3] {eggs=TRUE,predator=TRUE}
                                      => {breathes=FALSE} 0.1584158
   [4] {hair=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
  [5] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
## [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
## [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
##
       confidence lift
```

```
## [1] 0.7058824
                  3.394958
   [2] 0.5000000
                  2.404762
  [3] 0.4848485
                  2.331890
  [4] 0.4722222
                  2.271164
   [5] 0.4285714
                  2.061224
   [6] 0.3617021
                  1.739615
##
##
  [7] 0.3469388
                  1.668610
##
       lhs
                                      rhs
                                                       support
                                                                  confidence
##
  [1] {eggs=TRUE,fins=TRUE}
                                   => {breathes=FALSE} 0.1287129 1.0000000
   [2] {eggs=TRUE,legs=FALSE}
                                   => {breathes=FALSE} 0.1485149 0.7894737
  [3] {eggs=TRUE,toothed=TRUE}
                                   => {breathes=FALSE} 0.1287129 0.6500000
   [4] {eggs=TRUE,aquatic=TRUE}
                                   => {breathes=FALSE} 0.1881188 0.6333333
   [5] {eggs=TRUE,airborne=FALSE} => {breathes=FALSE} 0.1980198 0.5405405
                                  => {breathes=FALSE} 0.1980198 0.5128205
   [6] {feathers=FALSE,eggs=TRUE}
  [7] {eggs=TRUE,predator=TRUE}
                                   => {breathes=FALSE} 0.1584158 0.4848485
   [8] {hair=FALSE,eggs=TRUE}
                                   => {breathes=FALSE} 0.1980198 0.3703704
##
   [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
       lift
  [1] 4.809524
##
   [2] 3.796992
##
   [3] 3.126190
  [4] 3.046032
##
  [5] 2.599743
##
   [6] 2.466422
##
  [7] 2.331890
  [8] 1.781305
##
   [9] 1.692240
##
       lhs
                                                                   confidence
                                       rhs
                                                        support
##
  [1] {milk=FALSE,fins=TRUE}
                                       {breathes=FALSE} 0.1287129 1.0000000
  [2] {milk=FALSE,legs=FALSE}
                                    => {breathes=FALSE} 0.1584158 0.8000000
   [3] {milk=FALSE,aquatic=TRUE}
                                       {breathes=FALSE} 0.1980198 0.6666667
   [4] {milk=FALSE, toothed=TRUE}
                                       {breathes=FALSE} 0.1386139 0.6666667
  [5] {milk=FALSE,airborne=FALSE} =>
                                       {breathes=FALSE} 0.2079208 0.5526316
  [6] {feathers=FALSE,milk=FALSE} => {breathes=FALSE} 0.2079208 0.5250000
   [7] {milk=FALSE,predator=TRUE}
                                    => {breathes=FALSE} 0.1683168 0.5000000
                                    => {breathes=FALSE} 0.2079208 0.3750000
##
   [8] {hair=FALSE,milk=FALSE}
##
   [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
       lift
  [1] 4.809524
##
##
  [2] 3.847619
  [3] 3.206349
   [4] 3.206349
##
   [5] 2.657895
##
   [6] 2.525000
  [7] 2.404762
  [8] 1.803571
##
##
   [9] 1.748918
##
       "Número de reglas con consecuente negado"
##
        lhs
                                              support
                                                        confidence lift
##
  [1]
        {milk=TRUE}
                         => {venomous=FALSE} 0.4059406 1.0000000
                                                                   1.0860215
   [2]
##
                         => {venomous=FALSE} 0.4059406 1.0000000
                                                                   1.0860215
        {type=mammal}
##
  [3]
        {catsize=TRUE}
                         => {venomous=FALSE} 0.4257426 0.9772727
## [4]
        {predator=FALSE} => {venomous=FALSE} 0.4257426 0.9555556
                                                                   1.0377539
## [5]
        {hair=TRUE}
                         => {venomous=FALSE} 0.4059406 0.9534884 1.0355089
```

```
{eggs=FALSE}
   [6]
                             {venomous=FALSE} 0.3960396 0.9523810
                                                                    1.0343062
##
##
   [7]
        {backbone=TRUE}
                             {venomous=FALSE} 0.7821782 0.9518072
                                                                    1.0336831
##
   [8]
        {legs=TRUE}
                             {venomous=FALSE} 0.7326733 0.9487179
                                                                    1.0303281
   [9]
                             {venomous=FALSE} 0.7029703 0.9466667
##
        {tail=TRUE}
                                                                    1.0281004
##
   [10]
       {fins=TRUE}
                             {venomous=FALSE} 0.1584158 0.9411765
                                                                    1.0221379
       {aquatic=FALSE}
                             {venomous=FALSE} 0.6039604 0.9384615
                                                                    1.0191894
##
   [11]
   [12]
       {breathes=TRUE}
                             {venomous=FALSE} 0.7425743 0.9375000
                                                                    1.0181452
   [13]
       {toothed=TRUE}
                             {venomous=FALSE} 0.5643564 0.9344262
                                                                    1.0148070
##
   Γ147
       {domestic=TRUE}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
##
   [15]
       {type=fish}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
   [16] {airborne=FALSE}
                             {venomous=FALSE} 0.7029703 0.9220779
                                                                    1.0013965
   [17]
        {domestic=FALSE}
                             {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
   Γ187
        {feathers=FALSE}
                             {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
##
   [19]
       {toothed=FALSE}
                             {venomous=FALSE} 0.3564356 0.9000000
                                                                    0.9774194
   [20]
        {eggs=TRUE}
                             {venomous=FALSE} 0.5247525 0.8983051
                                                                    0.9755786
   [21]
        {hair=FALSE}
                             {venomous=FALSE} 0.5148515 0.8965517
                                                                    0.9736745
##
   [22]
                             {venomous=FALSE} 0.4950495 0.8928571
        {predator=TRUE}
                                                                    0.9696621
       {catsize=FALSE}
                             {venomous=FALSE} 0.4950495 0.8771930
   [23]
                                                                    0.9526504
   [24]
       {milk=FALSE}
                             {venomous=FALSE} 0.5148515 0.8666667
##
                                                                    0.9412186
   [25]
        {breathes=FALSE}
                             {venomous=FALSE} 0.1782178 0.8571429
                                                                    0.9308756
##
   [26] {legs=FALSE}
                          => {venomous=FALSE} 0.1881188 0.8260870
                                                                    0.8971482
  [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
##
   [1] "Número de reglas con consecuente negado"
##
                                                                   confidence
                                                         support
                                            {milk=TRUE} 0.3762376 1.0000000
##
   [1]
        {hair=TRUE,eggs=FALSE}
   [2]
        {eggs=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3069307 1.0000000
   [3]
                                            {milk=TRUE} 0.1881188 1.0000000
##
        {eggs=FALSE,predator=FALSE}
##
   [4]
        {eggs=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3960396 1.0000000
##
   [5]
        {hair=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2970297 1.0000000
##
   [6]
        {hair=TRUE, predator=TRUE}
                                            {milk=TRUE} 0.1980198 1.0000000
##
   [7]
        {hair=TRUE, toothed=TRUE}
                                            {milk=TRUE} 0.3762376 1.0000000
##
   [8]
        {hair=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 1.0000000
##
   [9]
        {hair=TRUE,airborne=FALSE}
                                            {milk=TRUE} 0.3663366 1.0000000
##
   [10]
        {hair=TRUE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 1.0000000
        {eggs=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.9756098
   [11]
##
   [12]
       {eggs=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3960396 0.9756098
       {eggs=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3663366 0.9736842
  [14] {hair=TRUE, venomous=FALSE}
                                            {milk=TRUE} 0.3861386 0.9512195
##
       {aquatic=FALSE, toothed=TRUE}
                                            {milk=TRUE} 0.3465347 0.9210526
##
   [15]
##
   [16] {hair=TRUE,domestic=FALSE}
                                            {milk=TRUE} 0.3069307 0.9117647
   [17] {toothed=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3069307 0.8857143
   [18] {toothed=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3663366 0.8809524
   Γ19]
       {toothed=TRUE,breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.8510638
   [20] {feathers=FALSE,catsize=TRUE}
##
                                            {milk=TRUE} 0.3168317 0.8421053
  [21] {aquatic=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.2574257 0.8387097
   [22]
        {breathes=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.8205128
##
   [23]
        {toothed=TRUE,fins=FALSE}
                                            {milk=TRUE} 0.3564356 0.8181818
   [24]
       {predator=FALSE, toothed=TRUE}
                                            {milk=TRUE} 0.1881188 0.7916667
   [25] {legs=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2871287 0.7837838
   [26] {airborne=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.7804878
##
   [27]
       {fins=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.2772277 0.7777778
  [28] {predator=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.1188119 0.7500000
  [29] {backbone=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.7441860
## [30] {venomous=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.7441860
```

```
## [31] {airborne=FALSE,aquatic=FALSE}
                                         => {milk=TRUE} 0.3267327 0.7173913
   [32] {toothed=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.3960396 0.7017544
  [33] {airborne=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.3861386 0.6964286
  [34] {feathers=FALSE, aquatic=FALSE}
                                            {milk=TRUE} 0.3465347 0.6862745
##
   [35] {feathers=FALSE, breathes=TRUE}
                                            {milk=TRUE} 0.4059406 0.6833333
  [36] {airborne=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3564356 0.6666667
##
  [37] {aquatic=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3465347 0.6603774
  [38] {toothed=TRUE}
                                            {milk=TRUE} 0.3960396 0.6557377
##
   [39]
       {feathers=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.6551724
   [40] {feathers=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.4059406 0.6507937
  [41] {feathers=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.6363636
   [42] {aquatic=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.2970297 0.6122449
  [43] {airborne=FALSE,predator=FALSE} =>
                                           {milk=TRUE} 0.1683168 0.6071429
  [44] {airborne=FALSE,backbone=TRUE}
                                         => {milk=TRUE} 0.3861386 0.6000000
  [45] {backbone=TRUE,breathes=TRUE}
                                         => {milk=TRUE} 0.4059406 0.5942029
   [46]
        {backbone=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5937500
   [47]
       {aquatic=FALSE, predator=TRUE}
                                         => {milk=TRUE} 0.1584158 0.5925926
   [48] {aquatic=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3465347 0.5833333
   [49] {airborne=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3465347 0.5833333
   [50] {airborne=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 0.5789474
##
  [51] {legs=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
  [52] {feathers=FALSE,fins=FALSE}
                                            {milk=TRUE} 0.3663366 0.5781250
       {aquatic=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3465347 0.5737705
  [53]
       {breathes=TRUE,tail=TRUE}
##
   Γ54]
                                            {milk=TRUE} 0.3465347 0.5737705
   [55] {predator=TRUE, breathes=TRUE}
                                           {milk=TRUE} 0.2178218 0.5641026
   [56] {feathers=FALSE, venomous=FALSE} =>
                                           {milk=TRUE} 0.4059406 0.5616438
   [57] {backbone=TRUE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.5606061
   [58] {feathers=FALSE,predator=FALSE} =>
                                            {milk=TRUE} 0.1881188 0.5588235
   [59] {airborne=FALSE, venomous=FALSE} =>
                                           {milk=TRUE} 0.3861386 0.5492958
   [60] {aquatic=FALSE,breathes=TRUE}
                                           {milk=TRUE} 0.3465347 0.5468750
   [61] {breathes=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.4059406 0.5466667
##
   [62]
        {fins=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3168317 0.5423729
       {feathers=FALSE,airborne=FALSE} =>
                                           {milk=TRUE} 0.3861386 0.5342466
   [64] {predator=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.1881188 0.5277778
   [65] {breathes=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.5205479
   [66] {backbone=TRUE, venomous=FALSE}
##
                                           {milk=TRUE} 0.4059406 0.5189873
   [67] {predator=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.1683168 0.5151515
  [68] {venomous=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5135135
##
       {feathers=FALSE}
                                            {milk=TRUE} 0.4059406 0.5061728
   [69]
  [70] {venomous=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.4929577
  [71] {venomous=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.4805195
   [72] {predator=FALSE, venomous=FALSE} =>
                                           {milk=TRUE} 0.1881188 0.4418605
##
   [73]
       {predator=TRUE}
                                         => {milk=TRUE} 0.2178218 0.3928571
##
        lift
##
  [1]
        2.463415
   [2]
        2.463415
##
##
   [3]
        2.463415
##
   [4]
        2.463415
##
   [5]
        2.463415
##
   [6]
        2.463415
##
   [7]
        2.463415
  [8]
        2.463415
## [9]
        2.463415
## [10] 2.463415
```

- ## [11] 2.403331
- ## [12] 2.403331
- ## [13] 2.398588
- ## [14] 2.343248
- ## [15] 2.268935
- ## [16] 2.246055
- "" [47] 0 404000
- ## [17] 2.181882
- ## [18] 2.170151
- ## [19] 2.096523
- ## [20] 2.074454
- ## [21] 2.066090
- ## [22] 2.021263
- ... [22] 2.02
- ## [23] 2.015521
- ## [24] 1.950203
- ## [25] 1.930784
- ## [26] 1.922665
- ## [27] 1.915989
- ## [28] 1.847561
- ## [29] 1.833239
- ## [30] 1.833239
- ## [30] 1.033233
- ## [31] 1.767232
- ## [32] 1.728712
- ## [33] 1.715592
- ## [34] 1.690579
- ## [35] 1.683333
- ## [36] 1.642276
- ## [37] 1.626783
- ## [38] 1.615354
- ## [39] 1.613961
- ## [40] 1.603175
- ## [41] 1.567627
- ## [42] 1.508213
- ## [43] 1.495645
- ## [44] 1.478049
- ## [45] 1.463768
- ## [46] 1.462652
- ## [47] 1.459801 ## [48] 1.436992
- ## [49] 1.436992
- ## [50] 1.426187
- ## [51] 1.426187
- **##** [52] 1.424162
- ## [53] 1.413435
- ## [54] 1.413435
- ## [55] 1.389619
- ## [56] 1.383562
- ## [57] 1.381005
- ## [58] 1.376614
- ## [59] 1.353143
- ## [60] 1.347180
- ## [61] 1.346667
- ## [62] 1.336089
- ## [63] 1.316071 ## [64] 1.300136

885

```
## [65] 1.282325
   [66] 1.278481
  [67] 1.269032
  [68] 1.264997
   [69] 1.246914
##
  [70] 1.214359
  [71] 1.183719
## [72] 1.088486
##
  [73] 0.967770
##
        lhs
                             rhs
                                          support
                                                    confidence lift
##
  [1]
        {type=fish}
                          => {milk=FALSE} 0.1287129 1.0000000
                                                               1.6833333
  [2]
##
        {backbone=FALSE} => {milk=FALSE} 0.1782178 1.0000000
                                                                1.6833333
        {type=bird}
##
   [3]
                          => {milk=FALSE} 0.1980198 1.0000000
                                                                1.6833333
## [4]
        {feathers=TRUE}
                         => {milk=FALSE} 0.1980198 1.0000000
                                                                1.6833333
## [5]
        {breathes=FALSE} => {milk=FALSE} 0.2079208 1.0000000
                                                                1.6833333
##
  [6]
        {eggs=TRUE}
                          => {milk=FALSE} 0.5742574 0.9830508
                                                                1.6548023
  [7]
                          => {milk=FALSE} 0.5544554 0.9655172
##
        {hair=FALSE}
                                                                1.6252874
##
  [8]
        {airborne=TRUE}
                         => {milk=FALSE} 0.2178218 0.9166667
                                                                1.5430556
                          => {milk=FALSE} 0.1980198 0.8695652
  [9]
        {legs=FALSE}
                                                                1.4637681
  [10] {aquatic=TRUE}
                          => {milk=FALSE} 0.2970297 0.8333333
                                                                1.4027778
## [11] {tail=FALSE}
                          => {milk=FALSE} 0.1980198 0.7692308
                                                                1.2948718
                          => {milk=FALSE} 0.1287129 0.7647059
  [12] {fins=TRUE}
                                                                1.2872549
                         => {milk=FALSE} 0.3366337 0.6071429
## [13] {predator=TRUE}
                                                                1.0220238
                          => {milk=FALSE} 0.4653465 0.5595238
  [14] {fins=FALSE}
                                                                0.9418651
## [15] {tail=TRUE}
                          => {milk=FALSE} 0.3960396 0.5333333
                                                                0.8977778
  [16] {backbone=TRUE}
                         => {milk=FALSE} 0.4158416 0.5060241
                                                                0.8518072
                         => {milk=FALSE} 0.2970297 0.4615385
  [17] {aquatic=FALSE}
                                                                0.7769231
##
   [18] {toothed=TRUE}
                          => {milk=FALSE} 0.2079208 0.3442623
                                                                0.5795082
##
       lhs
                                         rhs
                                                     support
                                                                confidence
                                      => {milk=TRUE} 0.1980198 1.0000000
  [1] {hair=TRUE,predator=TRUE}
   [2] {aquatic=FALSE,predator=TRUE} => {milk=TRUE} 0.1584158 0.5925926
##
   [3] {predator=TRUE,breathes=TRUE} => {milk=TRUE} 0.2178218 0.5641026
##
       lift
  [1] 2.463415
##
   [2] 1.459801
##
   [3] 1.389619
##
##
       lhs
                                                   support
                                                              confidence
## [1] {toothed=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3564356 0.8181818
   [2] {fins=FALSE,catsize=TRUE}
                                    => {milk=TRUE} 0.2772277 0.7777778
  [3] {airborne=FALSE,fins=FALSE} => {milk=TRUE} 0.3465347 0.5833333
  [4] {feathers=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5781250
  [5] {backbone=TRUE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5606061
   [6] {fins=FALSE,tail=TRUE}
                                    => {milk=TRUE} 0.3168317 0.5423729
##
  [7] {venomous=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.4805195
##
       lift
## [1] 2.015521
##
  [2] 1.915989
  [3] 1.436992
  [4] 1.424162
  [5] 1.381005
##
  [6] 1.336089
##
  [7] 1.183719
##
       lhs
                                      rhs
                                                  support
                                                             confidence
## [1] {hair=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 1.0000000
```

```
## [2] {feathers=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.6363636
## [3] {aquatic=FALSE,tail=TRUE} => {milk=TRUE} 0.2970297 0.6122449
## [4] {airborne=FALSE,tail=TRUE} => {milk=TRUE} 0.3267327 0.5789474
## [5] {legs=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 0.5789474
  [6] {breathes=TRUE,tail=TRUE}
                                  => {milk=TRUE} 0.3465347 0.5737705
  [7] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
## [8] {predator=FALSE,tail=TRUE} => {milk=TRUE} 0.1683168 0.5151515
## [9] {venomous=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.4929577
##
       lift
## [1] 2.463415
  [2] 1.567627
  [3] 1.508213
   [4] 1.426187
  [5] 1.426187
## [6] 1.413435
   [7] 1.336089
##
  [8] 1.269032
  [9] 1.214359
##
        lhs
                                           rhs
                                                       support
                                                                  confidence
##
  [1]
        {hair=TRUE,backbone=TRUE}
                                        => {milk=TRUE} 0.3861386 1.0000000
##
  [2]
        {eggs=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3960396 0.9756098
  [3]
        {backbone=TRUE,catsize=TRUE}
                                        => {milk=TRUE} 0.3168317 0.7441860
## [4]
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
  [5]
        {feathers=FALSE.backbone=TRUE} => {milk=TRUE} 0.4059406 0.6507937
##
  [6]
##
        {airborne=FALSE,backbone=TRUE} => {milk=TRUE} 0.3861386 0.6000000
  [7]
        {backbone=TRUE,breathes=TRUE}
                                        => {milk=TRUE} 0.4059406 0.5942029
  [8]
        {backbone=TRUE,legs=TRUE}
                                        => {milk=TRUE} 0.3762376 0.5937500
##
   [9]
        {backbone=TRUE,fins=FALSE}
                                        => {milk=TRUE} 0.3663366 0.5606061
  [10] {predator=FALSE,backbone=TRUE} => {milk=TRUE} 0.1881188 0.5277778
##
  [11] {backbone=TRUE, venomous=FALSE} => {milk=TRUE} 0.4059406 0.5189873
##
        lift
##
  [1]
        2.463415
##
   [2]
        2.403331
  [3]
##
        1.833239
   [4]
        1.626783
##
   [5]
##
        1.603175
##
  [6]
        1.478049
##
  [7]
        1.463768
  [8]
##
        1.462652
  [9]
##
        1.381005
  [10] 1.300136
   [11] 1.278481
##
##
        lhs
                                           rhs
                                                       support
                                                                  confidence
##
  [1]
        {aquatic=FALSE, toothed=TRUE}
                                        => {milk=TRUE} 0.3465347 0.9210526
##
  [2]
        {aquatic=FALSE, catsize=TRUE}
                                        => {milk=TRUE} 0.2574257 0.8387097
## [3]
        {airborne=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3267327 0.7173913
##
  [4]
        {feathers=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3465347 0.6862745
  [5]
##
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
  [6]
        {aquatic=FALSE,tail=TRUE}
                                        => {milk=TRUE} 0.2970297 0.6122449
##
   [7]
        {aquatic=FALSE, predator=TRUE}
                                        => {milk=TRUE} 0.1584158 0.5925926
##
  [8]
        {aquatic=FALSE,legs=TRUE}
                                        => {milk=TRUE} 0.3465347 0.5833333
        {aquatic=FALSE, venomous=FALSE} => {milk=TRUE} 0.3465347 0.5737705
## [10] {aquatic=FALSE,breathes=TRUE} => {milk=TRUE} 0.3465347 0.5468750
##
        lift
```

```
[1]
        2.268935
##
   [2]
        2.066090
##
   [3]
        1.767232
   [4]
##
        1.690579
##
   [5]
        1.626783
   [6]
##
        1.508213
##
   [7]
        1.459801
##
   [8]
        1.436992
##
   [9]
        1.413435
##
   [10] 1.347180
##
       lhs
                                          rhs
                                                      support
                                                                 confidence
##
   [1] {hair=TRUE,toothed=TRUE}
                                         {milk=TRUE} 0.3762376 1.0000000
   [2] {aquatic=FALSE, toothed=TRUE}
                                      => {milk=TRUE} 0.3465347 0.9210526
   [3] {toothed=TRUE,catsize=TRUE}
                                         {milk=TRUE} 0.3069307 0.8857143
   [4] {toothed=TRUE,legs=TRUE}
                                         {milk=TRUE} 0.3663366 0.8809524
   [5] {toothed=TRUE,breathes=TRUE}
                                         {milk=TRUE} 0.3960396 0.8510638
   [6] {toothed=TRUE,fins=FALSE}
                                      => {milk=TRUE} 0.3564356 0.8181818
   [7] {predator=FALSE,toothed=TRUE} => {milk=TRUE} 0.1881188 0.7916667
   [8] {toothed=TRUE, venomous=FALSE} => {milk=TRUE} 0.3960396 0.7017544
##
##
##
   [1] 2.463415
   [2] 2.268935
   [3] 2.181882
##
   [4] 2.170151
##
   [5] 2.096523
   [6] 2.015521
##
   [7] 1.950203
##
       1.728712
##
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                              support
##
   [1]
        {domestic=TRUE}
                                        => {predator=FALSE} 0.1089109
##
   [2]
        {hair=TRUE,catsize=FALSE}
                                           {predator=FALSE} 0.1089109
##
   [3]
        {airborne=TRUE, aquatic=FALSE}
                                         => {predator=FALSE} 0.1485149
   [4]
##
        {airborne=TRUE}
                                         => {predator=FALSE} 0.1683168
   [5]
        {aquatic=FALSE, toothed=FALSE}
##
                                        => {predator=FALSE} 0.1881188
##
   [6]
        {aquatic=FALSE,tail=FALSE}
                                         => {predator=FALSE} 0.1089109
   [7]
        {aquatic=FALSE, catsize=FALSE}
                                         => {predator=FALSE} 0.2277228
   [8]
##
        {eggs=TRUE,aquatic=FALSE}
                                         => {predator=FALSE} 0.1881188
        {toothed=FALSE,breathes=TRUE}
   [9]
                                           {predator=FALSE} 0.2079208
##
   [10] {milk=FALSE,aquatic=FALSE}
                                           {predator=FALSE} 0.1881188
   [11] {breathes=TRUE,tail=FALSE}
                                         => {predator=FALSE} 0.1188119
   [12] {breathes=TRUE,catsize=FALSE}
                                        => {predator=FALSE} 0.2475248
   [13] {aquatic=FALSE, venomous=FALSE}
                                        => {predator=FALSE} 0.3564356
   [14] {eggs=TRUE,breathes=TRUE}
                                         => {predator=FALSE} 0.2178218
   [15] {milk=FALSE,breathes=TRUE}
                                         => {predator=FALSE} 0.2178218
   [16] {legs=TRUE,catsize=FALSE}
                                           {predator=FALSE} 0.2277228
##
   [17] {type=bird}
                                        => {predator=FALSE} 0.1089109
   [18] {feathers=TRUE}
                                           {predator=FALSE} 0.1089109
   [19] {toothed=FALSE,backbone=TRUE}
                                        => {predator=FALSE} 0.1188119
   [20] {venomous=FALSE,catsize=FALSE}
                                           {predator=FALSE} 0.2673267
##
   [21] {toothed=FALSE, venomous=FALSE}
                                        => {predator=FALSE} 0.1881188
  [22] {toothed=FALSE}
                                         => {predator=FALSE} 0.2079208
## [23] {fins=FALSE,catsize=FALSE}
                                        => {predator=FALSE} 0.2475248
## [24] {breathes=TRUE, venomous=FALSE} => {predator=FALSE} 0.3861386
```

```
## [25] {catsize=FALSE}
                                        => {predator=FALSE} 0.2871287
   [26] {legs=TRUE,tail=TRUE}
                                        => {predator=FALSE} 0.2871287
   [27] {venomous=FALSE,fins=FALSE}
                                         => {predator=FALSE} 0.3861386
   [28] {fins=FALSE,tail=TRUE}
                                        => {predator=FALSE} 0.2871287
   [29] {milk=TRUE}
                                         => {predator=FALSE} 0.1881188
  [30] {type=mammal}
                                        => {predator=FALSE} 0.1881188
   [31] {tail=FALSE}
                                        => {predator=FALSE} 0.1188119
   [32] {eggs=FALSE}
                                        => {predator=FALSE} 0.1881188
##
   [33] {eggs=TRUE}
                                        => {predator=FALSE} 0.2574257
   [34] {milk=FALSE}
                                        => {predator=FALSE} 0.2574257
   [35] {domestic=FALSE}
                                        => {predator=FALSE} 0.3366337
                                        => {predator=FALSE} 0.2178218
   [36] {hair=FALSE}
   [37]
       {catsize=TRUE}
                                        => {predator=FALSE} 0.1584158
##
        confidence lift
##
  [1]
        0.8461538
                   1.8991453
##
   [2]
        0.8461538
                   1.8991453
   [3]
##
        0.7894737
                   1.7719298
   [4]
        0.7083333
                   1.5898148
   [5]
##
        0.7037037
                   1.5794239
   [6]
        0.6875000
                   1.5430556
##
   [7]
        0.6764706
                   1.5183007
   [8]
        0.6551724
                   1.4704981
   [9]
        0.6363636
                   1.4282828
   [10] 0.6333333
                   1.4214815
  [11] 0.6315789
                   1.4175439
   Γ12 ] 0.6097561
                   1.3685637
   [13] 0.5901639
                   1.3245902
   [14] 0.5641026
                   1.2660969
   [15] 0.5641026
                   1.2660969
                   1.2590786
   [16] 0.5609756
   [17] 0.5500000
                   1.2344444
   [18] 0.5500000
                   1.2344444
   [19] 0.5454545
                   1.2242424
   [20] 0.5400000
                   1.2120000
                   1.1845679
   [21] 0.5277778
   [22] 0.5250000
                   1.1783333
  [23] 0.5208333
                   1.1689815
  [24] 0.5200000
                   1.1671111
   [25] 0.5087719
                   1.1419103
   [26] 0.5087719
                   1.1419103
   [27] 0.5064935
                   1.1367965
   [28] 0.4915254
                   1.1032015
   [29] 0.4634146
                   1.0401084
   [30] 0.4634146
                   1.0401084
   [31] 0.4615385
                   1.0358974
   [32] 0.4523810
                   1.0153439
                   0.9890772
   [33] 0.4406780
   [34] 0.4333333
                   0.9725926
   [35] 0.3863636
                   0.8671717
   [36] 0.3793103
                   0.8513410
   [37] 0.3636364
##
                   0.8161616
##
                                            support
                                                       confidence lift
## [1] {breathes=FALSE} => {predator=TRUE} 0.1683168 0.8095238 1.4600340
## [2] {aquatic=TRUE}
                        => {predator=TRUE} 0.2871287 0.8055556 1.4528770
```

```
## [3] {fins=TRUE}
                        => {predator=TRUE} 0.1287129 0.7647059
                                                                 1.3792017
                        => {predator=TRUE} 0.2772277 0.6363636
## [4] {catsize=TRUE}
                                                                 1.1477273
## [5] {backbone=TRUE}
                        => {predator=TRUE} 0.4653465 0.5662651
                        => {predator=TRUE} 0.2277228 0.5476190
## [6] {eggs=FALSE}
                                                                 0.9876701
  [7] {legs=TRUE}
                        => {predator=TRUE} 0.3861386 0.5000000
                                                                 0.9017857
                        => {predator=TRUE} 0.1980198 0.4651163
  [8] {hair=TRUE}
##
                                                                 0.8388704
                        => {predator=TRUE} 0.2673267 0.4153846
##
   [9] {aquatic=FALSE}
                                                                 0.7491758
##
                                         rhs
                                                          support
                                                                     confidence
##
  [1] {toothed=FALSE,backbone=TRUE} => {predator=FALSE} 0.1188119 0.5454545
##
       lift
##
  [1] 1.224242
##
       lhs
                                     rhs
                                                      support
                                                                 confidence
##
   [1] {legs=TRUE,catsize=FALSE} => {predator=FALSE} 0.2277228 0.5609756
   [2] {legs=TRUE,tail=TRUE}
##
                                 => {predator=FALSE} 0.2871287 0.5087719
##
       lift
##
  [1] 1.259079
##
   [2] 1.141910
##
       lhs
                                     rhs
                                                      support
                                                                 confidence
   [1] {hair=TRUE,catsize=FALSE} => {predator=FALSE} 0.1089109 0.8461538
##
##
  [1] 1.899145
##
       lhs
                                                           support
  [1] {airborne=TRUE, aquatic=FALSE}
                                       => {predator=FALSE} 0.1485149
  [2] {aquatic=FALSE, toothed=FALSE}
                                       => {predator=FALSE} 0.1881188
                                       => {predator=FALSE} 0.1089109
  [3] {aquatic=FALSE,tail=FALSE}
  [4] {aquatic=FALSE,catsize=FALSE}
                                       => {predator=FALSE} 0.2277228
  [5] {eggs=TRUE,aquatic=FALSE}
                                       => {predator=FALSE} 0.1881188
  [6] {milk=FALSE,aquatic=FALSE}
                                       => {predator=FALSE} 0.1881188
  [7] {aquatic=FALSE, venomous=FALSE} => {predator=FALSE} 0.3564356
##
       confidence lift
## [1] 0.7894737 1.771930
  [2] 0.7037037
                  1.579424
## [3] 0.6875000
                  1.543056
## [4] 0.6764706
                  1.518301
## [5] 0.6551724
                  1.470498
## [6] 0.6333333
                  1.421481
## [7] 0.5901639 1.324590
## [1]
       "Número de reglas con consecuente negado"
##
        lhs
                            rhs
                                              support
                                                        confidence lift
                         => {venomous=FALSE} 0.4059406 1.0000000 1.0860215
## [1]
        {milk=TRUE}
                         => {venomous=FALSE} 0.4059406 1.0000000
  [2]
        {type=mammal}
                                                                   1.0860215
## [3]
                         => {venomous=FALSE} 0.4257426 0.9772727
        {catsize=TRUE}
                                                                   1.0613392
##
  ۲4٦
        {predator=FALSE}
                         => {venomous=FALSE} 0.4257426 0.9555556
                                                                   1.0377539
## [5]
                         => {venomous=FALSE} 0.4059406 0.9534884
        {hair=TRUE}
                                                                   1.0355089
## [6]
        {eggs=FALSE}
                         => {venomous=FALSE} 0.3960396 0.9523810
                                                                   1.0343062
## [7]
                         => {venomous=FALSE} 0.7821782 0.9518072
        {backbone=TRUE}
                                                                   1.0336831
                                                                   1.0303281
## [8]
        {legs=TRUE}
                         => {venomous=FALSE} 0.7326733 0.9487179
## [9]
        {tail=TRUE}
                         => {venomous=FALSE} 0.7029703 0.9466667
                                                                   1.0281004
## [10] {fins=TRUE}
                         => {venomous=FALSE} 0.1584158 0.9411765
                                                                   1.0221379
## [11] {aquatic=FALSE}
                         => {venomous=FALSE} 0.6039604 0.9384615
                                                                   1.0191894
## [12] {breathes=TRUE}
                         => {venomous=FALSE} 0.7425743 0.9375000
                                                                   1.0181452
## [13] {toothed=TRUE}
                         => {venomous=FALSE} 0.5643564 0.9344262
## [14] {domestic=TRUE}
                         => {venomous=FALSE} 0.1188119 0.9230769
## [15] {type=fish}
                         => {venomous=FALSE} 0.1188119 0.9230769 1.0024814
```

```
## [16] {airborne=FALSE} => {venomous=FALSE} 0.7029703 0.9220779
                                                                    1.0013965
       {domestic=FALSE} => {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
   [18] {feathers=FALSE} => {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
   [19] {toothed=FALSE}
                             {venomous=FALSE} 0.3564356 0.9000000
                                                                    0.9774194
##
   [20]
       {eggs=TRUE}
                             {venomous=FALSE} 0.5247525 0.8983051
                                                                    0.9755786
##
  [21] {hair=FALSE}
                             {venomous=FALSE} 0.5148515 0.8965517
                                                                    0.9736745
  [22] {predator=TRUE}
                             {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
  [23]
       {catsize=FALSE}
                             {venomous=FALSE} 0.4950495 0.8771930
                                                                    0.9526504
   [24]
       {milk=FALSE}
                             {venomous=FALSE} 0.5148515 0.8666667
                                                                    0.9412186
   [25] {breathes=FALSE}
                             {venomous=FALSE} 0.1782178 0.8571429
                                                                    0.9308756
   [26] {legs=FALSE}
                          => {venomous=FALSE} 0.1881188 0.8260870
                                                                    0.8971482
   [27] {backbone=FALSE}
                         => {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
##
       "Número de reglas con consecuente negado"
##
                                              support
                                                         confidence lift
##
  [1]
        {milk=TRUE}
                          => {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
##
   [2]
        {type=mammal}
                             {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
   [3]
##
                             {venomous=FALSE} 0.4257426 0.9772727
        {catsize=TRUE}
                                                                    1.0613392
##
   [4]
                             {venomous=FALSE} 0.4257426 0.9555556
        {predator=FALSE}
                                                                    1.0377539
##
   [5]
        {hair=TRUE}
                             {venomous=FALSE} 0.4059406 0.9534884
                                                                    1.0355089
##
   [6]
        {eggs=FALSE}
                             {venomous=FALSE} 0.3960396 0.9523810
                                                                    1.0343062
##
   [7]
        {backbone=TRUE}
                             {venomous=FALSE} 0.7821782 0.9518072
                                                                    1.0336831
##
  [8]
        {legs=TRUE}
                             {venomous=FALSE} 0.7326733 0.9487179
                                                                    1.0303281
  [9]
##
        {tail=TRUE}
                             {venomous=FALSE} 0.7029703 0.9466667
                                                                    1.0281004
##
   [10] {fins=TRUE}
                             {venomous=FALSE} 0.1584158 0.9411765
                                                                    1.0221379
   [11] {aquatic=FALSE}
                             {venomous=FALSE} 0.6039604 0.9384615
                                                                    1.0191894
   [12] {breathes=TRUE}
                             {venomous=FALSE} 0.7425743 0.9375000
                                                                    1.0181452
                             {venomous=FALSE} 0.5643564 0.9344262
   [13]
       {toothed=TRUE}
                                                                    1.0148070
   [14]
       {domestic=TRUE}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
  [15]
       {type=fish}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
                             {venomous=FALSE} 0.7029703 0.9220779
   [16] {airborne=FALSE}
                                                                    1.0013965
        {domestic=FALSE}
                             {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
   [18]
        {feathers=FALSE}
                             {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
   [19]
       {toothed=FALSE}
                             {venomous=FALSE} 0.3564356 0.9000000
                                                                    0.9774194
   [20]
       {eggs=TRUE}
                          => {venomous=FALSE} 0.5247525 0.8983051
                                                                    0.9755786
        {hair=FALSE}
                             {venomous=FALSE} 0.5148515 0.8965517
   [21]
                                                                    0.9736745
##
  [22] {predator=TRUE}
                             {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
   [23] {catsize=FALSE}
                             {venomous=FALSE} 0.4950495 0.8771930
                                                                    0.9526504
                             {venomous=FALSE} 0.5148515 0.8666667
##
  [24] {milk=FALSE}
                          =>
                                                                    0.9412186
                             {venomous=FALSE} 0.1782178 0.8571429
   [25]
        {breathes=FALSE} =>
                                                                    0.9308756
   [26] {legs=FALSE}
                          => {venomous=FALSE} 0.1881188 0.8260870
                                                                    0.8971482
   [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                             support
##
   [1]
        {aquatic=TRUE, catsize=TRUE}
                                            {predator=TRUE} 0.1188119
##
   [2]
        {breathes=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.1683168
   [3]
##
        {aquatic=TRUE,fins=FALSE}
                                            {predator=TRUE} 0.1584158
##
   [4]
        {airborne=FALSE, aquatic=TRUE}
                                            {predator=TRUE} 0.2574257
##
   [5]
        {aquatic=TRUE,legs=TRUE}
                                            {predator=TRUE} 0.1485149
##
   [6]
        {feathers=FALSE, aquatic=TRUE}
                                            {predator=TRUE} 0.2475248
##
   [7]
        {fins=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.1287129
##
   [8]
        {aquatic=TRUE, breathes=TRUE}
                                            {predator=TRUE} 0.1287129
##
   [9]
        {breathes=FALSE}
                                            {predator=TRUE} 0.1683168
  [10] {aquatic=TRUE}
                                            {predator=TRUE} 0.2871287
## [11] {backbone=TRUE,legs=FALSE}
                                            {predator=TRUE} 0.1485149
```

```
## [12] {hair=FALSE,toothed=TRUE}
                                         => {predator=TRUE} 0.1782178
                                            {predator=TRUE} 0.1683168
  [13] {legs=FALSE,domestic=FALSE}
  [14] {fins=TRUE}
                                            {predator=TRUE} 0.1287129
  [15] {milk=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1584158
   [16] {eggs=TRUE,toothed=TRUE}
                                            {predator=TRUE} 0.1485149
  [17] {hair=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2871287
  [18] {hair=FALSE, feathers=FALSE}
                                            {predator=TRUE} 0.2673267
  [19] {milk=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2673267
   [20] {eggs=TRUE,airborne=FALSE}
                                            {predator=TRUE} 0.2574257
   [21] {airborne=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.4653465
  [22] {domestic=FALSE,catsize=TRUE}
                                            {predator=TRUE} 0.2574257
   [23] {toothed=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.3465347
  [24]
       {airborne=FALSE, toothed=FALSE}
                                            {predator=TRUE} 0.1188119
                                            {predator=TRUE} 0.3564356
  [25] {hair=FALSE,domestic=FALSE}
  [26] {catsize=TRUE}
                                            {predator=TRUE} 0.2772277
        {feathers=FALSE,domestic=FALSE} =>
                                            {predator=TRUE} 0.4455446
  [28]
        {backbone=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4455446
       {tail=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4059406
  [30] {feathers=FALSE,milk=FALSE}
                                            {predator=TRUE} 0.2475248
   [31] {eggs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.2079208
  [32] {feathers=FALSE,eggs=TRUE}
                                            {predator=TRUE} 0.2376238
  [33] {feathers=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.3762376
  [34] {milk=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.2376238
       {feathers=FALSE,tail=TRUE}
   [35]
                                            {predator=TRUE} 0.3267327
   [36]
       {eggs=TRUE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
   [37]
       {milk=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
   [38] {eggs=TRUE,tail=TRUE}
                                            {predator=TRUE} 0.2277228
##
   [39]
       {backbone=TRUE}
                                            {predator=TRUE} 0.4653465
  [40]
       {eggs=FALSE}
                                            {predator=TRUE} 0.2277228
       {venomous=FALSE,tail=FALSE}
                                            {predator=TRUE} 0.1188119
  [41]
   [42]
        {legs=TRUE}
                                            {predator=TRUE} 0.3861386
##
   [43]
        {hair=TRUE}
                                            {predator=TRUE} 0.1980198
##
   [44]
        {aquatic=FALSE}
                                            {predator=TRUE} 0.2673267
##
        confidence lift
        0.9230769
##
   [1]
                   1.6648352
##
   [2]
        0.8500000
                   1.5330357
   [3]
        0.8421053
                   1.5187970
  [4]
        0.8387097
##
                   1.5126728
   [5]
##
        0.8333333
                   1.5029762
##
   [6]
        0.8333333
                   1.5029762
  [7]
        0.8125000
                   1.4654018
##
   [8]
        0.8125000
                   1.4654018
##
   [9]
        0.8095238
                   1.4600340
   [10] 0.8055556
                   1.4528770
  [11] 0.7894737
                   1.4238722
  [12] 0.7826087
                   1.4114907
                   1.3936688
   [13] 0.7727273
   [14] 0.7647059
                   1.3792017
                   1.3741497
  [15] 0.7619048
   [16] 0.7500000
                   1.3526786
  [17] 0.7250000
                   1.3075893
## [18] 0.7105263
                   1.2814850
## [19] 0.7105263
                   1.2814850
## [20] 0.7027027
                   1.2673745
```

```
## [21] 0.6911765
                   1.2465861
  [22] 0.6842105
                   1.2340226
  [23] 0.6730769
                   1.2139423
  [24] 0.6666667
                   1.2023810
  [25] 0.6666667
                   1.2023810
  [26] 0.6363636
                   1.1477273
  [27] 0.6338028
                   1.1431087
## [28] 0.6338028
                   1.1431087
  [29] 0.6307692
                   1.1376374
  [30] 0.6250000
                   1.1272321
  [31] 0.6176471
                   1.1139706
  [32] 0.6153846
                   1.1098901
  [33] 0.6031746
                   1.0878685
## [34] 0.6000000
                   1.0821429
## [35] 0.6000000
                   1.0821429
  [36] 0.5952381
                   1.0735544
  [37] 0.5952381
                   1.0735544
  [38] 0.5897436
                   1.0636447
                   1.0212995
  [39] 0.5662651
                   0.9876701
  [40] 0.5476190
## [41] 0.5454545
                   0.9837662
  [42] 0.5000000
                   0.9017857
## [43] 0.4651163
                   0.8388704
   [44] 0.4153846
##
                   0.7491758
##
        lhs
                                              support
                                                         confidence lift
  [1]
        {domestic=TRUE}
                          => {predator=FALSE} 0.1089109 0.8461538
  [2]
        {airborne=TRUE}
                         => {predator=FALSE} 0.1683168 0.7083333
##
                                                                    1.5898148
##
   [3]
        {type=bird}
                          => {predator=FALSE} 0.1089109 0.5500000
                                                                    1.2344444
## [4]
        {feathers=TRUE}
                          => {predator=FALSE} 0.1089109 0.5500000
                                                                    1.2344444
## [5]
        {toothed=FALSE}
                         => {predator=FALSE} 0.2079208 0.5250000
                                                                    1.1783333
## [6]
        {catsize=FALSE}
                         => {predator=FALSE} 0.2871287 0.5087719
                                                                    1.1419103
##
  [7]
        {milk=TRUE}
                          => {predator=FALSE} 0.1881188 0.4634146
                                                                    1.0401084
  [8]
        {type=mammal}
                          => {predator=FALSE} 0.1881188 0.4634146
                                                                    1.0401084
  [9]
        {tail=FALSE}
                          => {predator=FALSE} 0.1188119 0.4615385
                                                                    1.0358974
   [10] {eggs=FALSE}
                          => {predator=FALSE} 0.1881188 0.4523810
                                                                    1.0153439
                          => {predator=FALSE} 0.2574257 0.4406780
                                                                    0.9890772
  [11] {eggs=TRUE}
  [12] {milk=FALSE}
                          => {predator=FALSE} 0.2574257 0.4333333
## [13] {domestic=FALSE} => {predator=FALSE} 0.3366337 0.3863636
                                                                    0.8671717
  [14] {hair=FALSE}
                          => {predator=FALSE} 0.2178218 0.3793103
                                                                    0.8513410
   [15] {catsize=TRUE}
                          => {predator=FALSE} 0.1584158 0.3636364
##
                                                                    0.8161616
##
                                          rhs
                                                           support
                                                                     confidence
   [1] {airborne=FALSE,toothed=FALSE} => {predator=TRUE} 0.1188119 0.6666667
##
##
       lift
##
   [1] 1.202381
##
                                       rhs
                                                        support
                                                                  confidence
   [1] {venomous=FALSE,tail=FALSE} => {predator=TRUE} 0.1188119 0.5454545
##
##
       lift
   [1] 0.9837662
##
##
                                       rhs
                                                        support
                                                                  confidence
   [1] {eggs=FALSE,domestic=FALSE} => {predator=TRUE} 0.2079208 0.6176471
##
##
       lift
##
   [1] 1.113971
##
       lhs
                                                       support
                                                                 confidence
                                      rhs
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {predator=TRUE} 0.1485149 0.7500000
```

```
## [2] {eggs=TRUE,airborne=FALSE} => {predator=TRUE} 0.2574257 0.7027027
  [3] {feathers=FALSE,eggs=TRUE} => {predator=TRUE} 0.2376238 0.6153846
  [4] {eggs=TRUE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
   [5] {eggs=TRUE,tail=TRUE}
                                   => {predator=TRUE} 0.2277228 0.5897436
##
       lift.
## [1] 1.352679
  [2] 1.267375
  [3] 1.109890
##
   [4] 1.073554
##
  [5] 1.063645
##
       lhs
                                       rhs
                                                        support
                                                                  confidence
##
  [1] {milk=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1584158 0.7619048
   [2] {milk=FALSE,airborne=FALSE} => {predator=TRUE} 0.2673267 0.7105263
   [3] {feathers=FALSE,milk=FALSE} => {predator=TRUE} 0.2475248 0.6250000
  [4] {milk=FALSE,tail=TRUE}
                                    => {predator=TRUE} 0.2376238 0.6000000
   [5] {milk=FALSE,backbone=TRUE}
                                   => {predator=TRUE} 0.2475248 0.5952381
##
       lift
  [1] 1.374150
##
##
  [2] 1.281485
   [3] 1.127232
##
  [4] 1.082143
  [5] 1.073554
##
##
        lhs
                                            rhs
                                                             support
##
  [1]
        {breathes=FALSE,domestic=FALSE} => {predator=TRUE} 0.1683168
  [2]
        {fins=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.1287129
  [3]
        {legs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.1683168
   [4]
        {airborne=FALSE,domestic=FALSE} => {predator=TRUE} 0.4653465
##
##
   [5]
        {domestic=FALSE, catsize=TRUE}
                                         => {predator=TRUE} 0.2574257
##
   [6]
        {toothed=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.3465347
  [7]
        {hair=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.3564356
##
##
  [8]
        {feathers=FALSE,domestic=FALSE} =>
                                            {predator=TRUE} 0.4455446
##
  [9]
        {backbone=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4455446
   [10] {tail=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4059406
   [11] {eggs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.2079208
##
        confidence lift
##
##
  [1]
        0.8500000 1.533036
  [2]
        0.8125000
                   1.465402
  [3]
        0.7727273
##
                   1.393669
   [4]
##
        0.6911765
                   1.246586
  [5]
        0.6842105
                   1.234023
##
  [6]
        0.6730769
                   1.213942
##
   [7]
        0.6666667
                   1.202381
##
   [8]
        0.6338028
                   1.143109
##
   [9]
        0.6338028
                   1.143109
## [10] 0.6307692
                   1.137637
  [11] 0.6176471
##
                   1.113971
##
       lhs
                                       rhs
                                                        support
                                                                  confidence
##
  [1] {hair=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1782178 0.7826087
  [2] {hair=FALSE,airborne=FALSE} => {predator=TRUE} 0.2871287 0.7250000
   [3] {hair=FALSE, feathers=FALSE} => {predator=TRUE} 0.2673267 0.7105263
   [4] {hair=FALSE,domestic=FALSE} => {predator=TRUE} 0.3564356 0.6666667
##
##
       lift
## [1] 1.411491
## [2] 1.307589
```

```
[3] 1.281485
##
   [4] 1.202381
##
       lhs
                                                         support
                                                                   confidence
##
  [1] {aquatic=TRUE,catsize=TRUE}
                                      => {predator=TRUE} 0.1188119 0.9230769
##
   [2] {domestic=FALSE,catsize=TRUE} => {predator=TRUE} 0.2574257 0.6842105
       lift
##
  [1] 1.664835
##
  [2] 1.234023
##
   [1] "Número de reglas con consecuente negado"
##
                                                        support
                                                                  confidence
##
  [1]
        {type=fish}
                                           {tail=TRUE} 0.1287129 1.0000000
   [2]
##
        {type=bird}
                                           {tail=TRUE} 0.1980198 1.0000000
##
   [3]
        {feathers=TRUE}
                                         => {tail=TRUE} 0.1980198 1.0000000
        {backbone=TRUE, breathes=FALSE}
                                         => {tail=TRUE} 0.1386139 1.0000000
##
  [4]
  [5]
                                         => {tail=TRUE} 0.1782178 1.0000000
##
        {airborne=TRUE,backbone=TRUE}
##
   [6]
        {toothed=FALSE,backbone=TRUE}
                                           {tail=TRUE} 0.2178218 1.0000000
##
  [7]
        {backbone=TRUE,legs=FALSE}
                                         => {tail=TRUE} 0.1782178 0.9473684
##
  [8]
        {fins=TRUE}
                                         => {tail=TRUE} 0.1584158 0.9411765
  [9]
        {predator=FALSE, catsize=TRUE}
                                         => {tail=TRUE} 0.1485149 0.9375000
  [10] {hair=FALSE,backbone=TRUE}
                                            {tail=TRUE} 0.4059406 0.9318182
## [11] {hair=FALSE,catsize=TRUE}
                                           {tail=TRUE} 0.1287129 0.9285714
## [12] {eggs=TRUE,backbone=TRUE}
                                           {tail=TRUE} 0.3861386 0.9285714
## [13] {milk=FALSE,backbone=TRUE}
                                           {tail=TRUE} 0.3861386 0.9285714
## [14] {eggs=TRUE,catsize=TRUE}
                                            {tail=TRUE} 0.1188119 0.9230769
                                           {tail=TRUE} 0.1089109 0.9166667
  [15] {milk=FALSE,catsize=TRUE}
  [16] {predator=FALSE,backbone=TRUE}
                                         => {tail=TRUE} 0.3267327 0.9166667
  [17] {aquatic=FALSE,backbone=TRUE}
                                           {tail=TRUE} 0.4752475 0.9056604
  [18] {backbone=TRUE,domestic=FALSE}
                                        => {tail=TRUE} 0.6336634 0.9014085
## [19] {backbone=TRUE,catsize=FALSE}
                                         => {tail=TRUE} 0.3564356 0.9000000
## [20] {eggs=FALSE,domestic=FALSE}
                                         => {tail=TRUE} 0.2970297 0.8823529
  [21] {milk=TRUE,domestic=FALSE}
                                         => {tail=TRUE} 0.2871287 0.8787879
  [22] {domestic=FALSE,type=mammal}
                                         => {tail=TRUE} 0.2871287 0.8787879
  [23] {predator=FALSE,toothed=TRUE}
                                         => {tail=TRUE} 0.2079208 0.8750000
  [24] {hair=FALSE,toothed=TRUE}
                                         => {tail=TRUE} 0.1980198 0.8695652
  [25] {domestic=FALSE,catsize=TRUE}
                                            {tail=TRUE} 0.3267327 0.8684211
## [26] {aquatic=FALSE,toothed=TRUE}
                                         => {tail=TRUE} 0.3267327 0.8684211
## [27] {toothed=TRUE,domestic=FALSE}
                                           {tail=TRUE} 0.4455446 0.8653846
## [28] {catsize=TRUE}
                                           {tail=TRUE} 0.3762376 0.8636364
  [29] {toothed=TRUE, venomous=FALSE}
                                            {tail=TRUE} 0.4851485 0.8596491
  [30] {eggs=FALSE}
                                           {tail=TRUE} 0.3564356 0.8571429
  [31] {milk=FALSE,toothed=TRUE}
                                           {tail=TRUE} 0.1782178 0.8571429
  [32] {milk=TRUE}
                                           {tail=TRUE} 0.3465347 0.8536585
##
  [33] {type=mammal}
                                           {tail=TRUE} 0.3465347 0.8536585
  [34] {predator=TRUE,breathes=TRUE}
                                         => {tail=TRUE} 0.3168317 0.8205128
## [35] {airborne=TRUE, venomous=FALSE}
                                         => {tail=TRUE} 0.1782178 0.8181818
  [36] {aquatic=FALSE,predator=TRUE}
                                         => {tail=TRUE} 0.2178218 0.8148148
  [37] {hair=TRUE,predator=TRUE}
                                         => {tail=TRUE} 0.1584158 0.8000000
  [38] {hair=TRUE,domestic=FALSE}
                                         => {tail=TRUE} 0.2673267 0.7941176
  [39] {venomous=FALSE,legs=FALSE}
                                         => {tail=TRUE} 0.1485149 0.7894737
  [40] {breathes=TRUE, venomous=FALSE}
                                         => {tail=TRUE} 0.5841584 0.7866667
## [41] {legs=FALSE}
                                         => {tail=TRUE} 0.1782178 0.7826087
## [42] {airborne=FALSE,aquatic=FALSE}
                                         => {tail=TRUE} 0.3564356 0.7826087
## [43] {airborne=FALSE,breathes=TRUE}
                                         => {tail=TRUE} 0.4257426 0.7678571
## [44] {hair=TRUE}
                                           {tail=TRUE} 0.3267327 0.7674419
```

```
## [45] {breathes=TRUE,domestic=FALSE} => {tail=TRUE} 0.5148515 0.7647059
## [46] {aquatic=FALSE,domestic=FALSE}
                                        => {tail=TRUE} 0.3960396 0.7547170
## [47] {aquatic=FALSE}
                                         => {tail=TRUE} 0.4851485 0.7538462
## [48] {airborne=TRUE}
                                         => {tail=TRUE} 0.1782178 0.7500000
## [49] {predator=TRUE}
                                         => {tail=TRUE} 0.4158416 0.7500000
## [50] {airborne=FALSE,predator=FALSE} => {tail=TRUE} 0.2079208 0.7500000
                                         => {tail=TRUE} 0.6435644 0.7386364
## [51] {domestic=FALSE}
                                         => {tail=TRUE} 0.3267327 0.7333333
## [52] {predator=FALSE}
                                         => {tail=TRUE} 0.4158416 0.7241379
  [53] {hair=FALSE}
  [54] {feathers=FALSE}
                                         => {tail=TRUE} 0.5445545 0.6790123
  [55] {eggs=TRUE}
                                         => {tail=TRUE} 0.3861386 0.6610169
                                         => {tail=TRUE} 0.3663366 0.6491228
   [56] {catsize=FALSE}
##
   [57] {toothed=FALSE}
                                        => {tail=TRUE} 0.2277228 0.5750000
##
        lift
## [1]
        1.3466667
## [2]
        1.3466667
##
  [3]
        1.3466667
  [4]
        1.3466667
  [5]
##
        1.3466667
##
   [6]
        1.3466667
##
  [7]
        1.2757895
## [8]
        1.2674510
        1.2625000
## [9]
## [10] 1.2548485
## [11] 1.2504762
## [12] 1.2504762
## [13] 1.2504762
## [14] 1.2430769
## [15] 1.2344444
## [16] 1.2344444
## [17] 1.2196226
## [18] 1.2138967
## [19] 1.2120000
## [20] 1.1882353
## [21] 1.1834343
## [22] 1.1834343
## [23] 1.1783333
## [24] 1.1710145
## [25] 1.1694737
## [26] 1.1694737
## [27] 1.1653846
## [28] 1.1630303
## [29] 1.1576608
## [30] 1.1542857
## [31] 1.1542857
## [32] 1.1495935
## [33] 1.1495935
## [34] 1.1049573
## [35] 1.1018182
## [36] 1.0972840
## [37] 1.0773333
## [38] 1.0694118
## [39] 1.0631579
## [40] 1.0593778
```

```
## [41] 1.0539130
## [42] 1.0539130
## [43] 1.0340476
## [44] 1.0334884
## [45] 1.0298039
## [46] 1.0163522
## [47] 1.0151795
## [48] 1.0100000
## [49] 1.0100000
## [50] 1.0100000
## [51] 0.9946970
## [52] 0.9875556
## [53] 0.9751724
## [54] 0.9144033
## [55] 0.8901695
  [56] 0.8741520
##
  [57] 0.7743333
##
       lhs
                                                   confidence lift
                           rhs
                                         support
## [1] {backbone=FALSE} => {tail=FALSE} 0.1683168 0.9444444
                                                              3.6688034
  [2] {fins=FALSE}
                        => {tail=FALSE} 0.2475248 0.2976190
                                                              1.1561355
  [3] {domestic=FALSE} => {tail=FALSE} 0.2277228 0.2613636 1.0152972
## [4] {predator=TRUE} => {tail=FALSE} 0.1386139 0.2500000 0.9711538
## [5] {venomous=FALSE} => {tail=FALSE} 0.2178218 0.2365591 0.9189413
                                          rhs
                                                      support
                                                                confidence
## [1] {backbone=TRUE,domestic=FALSE} => {tail=TRUE} 0.6336634 0.9014085
  [2] {eggs=FALSE,domestic=FALSE}
                                      => {tail=TRUE} 0.2970297 0.8823529
  [3] {milk=TRUE,domestic=FALSE}
                                      => {tail=TRUE} 0.2871287 0.8787879
## [4] {domestic=FALSE,type=mammal}
                                      => {tail=TRUE} 0.2871287 0.8787879
## [5] {domestic=FALSE,catsize=TRUE}
                                      => {tail=TRUE} 0.3267327 0.8684211
## [6] {toothed=TRUE,domestic=FALSE}
                                      => {tail=TRUE} 0.4455446 0.8653846
## [7] {hair=TRUE,domestic=FALSE}
                                      => {tail=TRUE} 0.2673267 0.7941176
  [8] {breathes=TRUE,domestic=FALSE} => {tail=TRUE} 0.5148515 0.7647059
##
  [9] {aquatic=FALSE,domestic=FALSE} => {tail=TRUE} 0.3960396 0.7547170
##
       lift
## [1] 1.213897
## [2] 1.188235
## [3] 1.183434
## [4] 1.183434
  [5] 1.169474
##
  [6] 1.165385
  [7] 1.069412
## [8] 1.029804
##
   [9] 1.016352
##
       lhs
                                         rhs
                                                     support
                                                               confidence
## [1] {predator=TRUE, breathes=TRUE} => {tail=TRUE} 0.3168317 0.8205128
   [2] {aquatic=FALSE,predator=TRUE} => {tail=TRUE} 0.2178218 0.8148148
##
  [3] {hair=TRUE,predator=TRUE}
                                     => {tail=TRUE} 0.1584158 0.8000000
##
       lift
## [1] 1.104957
## [2] 1.097284
##
  [3] 1.077333
##
       lhs
                                          rhs
                                                      support
## [1] {toothed=TRUE, venomous=FALSE} => {tail=TRUE} 0.4851485 0.8596491
## [2] {airborne=TRUE, venomous=FALSE} => {tail=TRUE} 0.1782178 0.8181818
```

```
## [3] {venomous=FALSE,legs=FALSE}
                                      => {tail=TRUE} 0.1485149 0.7894737
   [4] {breathes=TRUE, venomous=FALSE} => {tail=TRUE} 0.5841584 0.7866667
##
       lift
## [1] 1.157661
##
   [2] 1.101818
##
  [3] 1.063158
  [4] 1.059378
##
  [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                         support
                                                                   confidence
##
  [1]
        {backbone=FALSE, venomous=FALSE} => {tail=FALSE} 0.1386139 1.0000000
  [2]
        {backbone=FALSE}
                                         => {tail=FALSE} 0.1683168 0.9444444
  [3]
##
        {feathers=FALSE, toothed=FALSE}
                                        => {tail=FALSE} 0.1683168 0.8500000
##
   [4]
        {airborne=FALSE, toothed=FALSE}
                                        => {tail=FALSE} 0.1089109 0.6111111
##
  [5]
        {feathers=FALSE,eggs=TRUE}
                                         => {tail=FALSE} 0.1980198 0.5128205
  [6]
                                         => {tail=FALSE} 0.1980198 0.5000000
##
        {feathers=FALSE,milk=FALSE}
##
  [7]
        {feathers=FALSE, catsize=FALSE}
                                           {tail=FALSE} 0.1980198 0.4651163
##
  [8]
        {eggs=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4347826
        {milk=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4255319
  [10] {hair=FALSE,feathers=FALSE}
                                           {tail=FALSE} 0.1584158 0.4210526
  [11] {fins=FALSE,catsize=FALSE}
                                            {tail=FALSE} 0.1980198 0.4166667
## [12] {eggs=TRUE,legs=TRUE}
                                           {tail=FALSE} 0.1584158 0.4000000
## [13] {milk=FALSE,legs=TRUE}
                                           {tail=FALSE} 0.1584158 0.4000000
## [14] {feathers=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.2475248 0.3906250
## [15] {legs=TRUE,catsize=FALSE}
                                            {tail=FALSE} 0.1584158 0.3902439
  [16] {airborne=FALSE,catsize=FALSE}
                                           {tail=FALSE} 0.1386139 0.3888889
  [17] {eggs=TRUE,aquatic=FALSE}
                                           {tail=FALSE} 0.1089109 0.3793103
  [18] {eggs=TRUE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3783784
## [19] {hair=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3720930
## [20] {milk=FALSE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3684211
## [21] {milk=FALSE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3666667
## [22] {feathers=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.2079208 0.3620690
  [23] {domestic=FALSE,catsize=FALSE}
                                           {tail=FALSE} 0.1782178 0.3600000
  [24] {feathers=FALSE,predator=FALSE} =>
                                           {tail=FALSE} 0.1188119 0.3529412
  [25] {aquatic=FALSE, catsize=FALSE}
                                         => {tail=FALSE} 0.1188119 0.3529412
  [26] {hair=FALSE,airborne=FALSE}
                                            {tail=FALSE} 0.1386139 0.3500000
                                           {tail=FALSE} 0.1188119 0.3333333
## [27] {hair=FALSE,legs=TRUE}
## [28] {feathers=FALSE,domestic=FALSE} =>
                                           {tail=FALSE} 0.2277228 0.3239437
## [29] {airborne=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.1881188 0.3166667
## [30] {fins=FALSE,domestic=FALSE}
                                            {tail=FALSE} 0.2178218 0.3055556
                                           {tail=FALSE} 0.1287129 0.3023256
  [31] {predator=TRUE,fins=FALSE}
##
  [32] {fins=FALSE}
                                           {tail=FALSE} 0.2475248 0.2976190
  [33] {predator=TRUE,legs=TRUE}
                                           {tail=FALSE} 0.1089109 0.2820513
  [34] {airborne=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1485149 0.2777778
                                         => {tail=FALSE} 0.1782178 0.2727273
  [35] {legs=TRUE,domestic=FALSE}
## [36] {domestic=FALSE}
                                         => {tail=FALSE} 0.2277228 0.2613636
                                         => {tail=FALSE} 0.1386139 0.2500000
  [37]
       {predator=TRUE}
##
   [38]
       {venomous=FALSE}
                                        => {tail=FALSE} 0.2178218 0.2365591
##
        lift
##
  [1]
        3.8846154
##
   [2]
        3.6688034
   [3]
##
        3.3019231
## [4]
        2.3739316
## [5]
        1.9921105
## [6]
        1.9423077
```

```
## [7]
        1.8067979
##
   [8]
        1.6889632
   [9]
        1.6530278
  [10] 1.6356275
  [11] 1.6185897
##
  [12] 1.5538462
  [13] 1.5538462
## [14] 1.5174279
   [15] 1.5159475
   [16] 1.5106838
  [17] 1.4734748
  [18] 1.4698545
  [19] 1.4454383
  [20] 1.4311741
  [21] 1.4243590
  [22] 1.4064987
   [23] 1.3984615
   [24] 1.3710407
  [25] 1.3710407
  [26] 1.3596154
##
  [27] 1.2948718
  [28] 1.2583965
  [29] 1.2301282
   [30] 1.1869658
  [31] 1.1744186
   [32] 1.1561355
  [33] 1.0956607
   [34] 1.0790598
   [35] 1.0594406
   [36] 1.0152972
##
   [37] 0.9711538
##
   [38] 0.9189413
##
        lhs
                                         support
                                                    confidence lift
                          => {tail=TRUE} 0.1287129 1.0000000
##
  [1]
                                                               1.3466667
        {type=fish}
##
   [2]
        {type=bird}
                          => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
##
   [3]
                          => {tail=TRUE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                               1.3466667
##
  [4]
        {fins=TRUE}
                          => {tail=TRUE} 0.1584158 0.9411765
                                                               1.2674510
##
  [5]
        {catsize=TRUE}
                          => {tail=TRUE} 0.3762376 0.8636364
                                                               1.1630303
   [6]
                          => {tail=TRUE} 0.3564356 0.8571429
##
        {eggs=FALSE}
                                                               1.1542857
  [7]
                          => {tail=TRUE} 0.3465347 0.8536585
##
        {milk=TRUE}
                                                               1.1495935
                          => {tail=TRUE} 0.3465347 0.8536585
  [8]
        {type=mammal}
                                                               1.1495935
   [9]
        {legs=FALSE}
                          => {tail=TRUE} 0.1782178 0.7826087
##
                                                               1.0539130
##
   [10] {hair=TRUE}
                          => {tail=TRUE} 0.3267327 0.7674419
                                                               1.0334884
  [11] {aquatic=FALSE}
                          => {tail=TRUE} 0.4851485 0.7538462
                                                               1.0151795
  [12] {airborne=TRUE}
                          => {tail=TRUE} 0.1782178 0.7500000
                                                               1.0100000
                          => {tail=TRUE} 0.4158416 0.7500000
  [13] {predator=TRUE}
                                                               1.0100000
                                                               0.9946970
   [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
   [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                                                               0.9875556
  [16] {hair=FALSE}
                          => {tail=TRUE} 0.4158416 0.7241379
                                                               0.9751724
   [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
                                                               0.9144033
                          => {tail=TRUE} 0.3861386 0.6610169
##
  [18] {eggs=TRUE}
                                                               0.8901695
  [19] {catsize=FALSE}
                         => {tail=TRUE} 0.3663366 0.6491228
                                                               0.8741520
##
  [20] {toothed=FALSE} => {tail=TRUE} 0.2277228 0.5750000
                                                               0.7743333
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
```

```
## [1] {eggs=TRUE,aquatic=FALSE}
                                     => {tail=FALSE} 0.1089109 0.3793103
  [2] {milk=FALSE,aquatic=FALSE}
                                     => {tail=FALSE} 0.1089109 0.3666667
  [3] {aquatic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.473475
## [2] 1.424359
## [3] 1.371041
##
       lhs
                                     rhs
                                                   support
                                                             confidence
## [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
##
   [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
##
       lift
## [1] 1.174419
##
  [2] 1.095661
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {domestic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
## [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
                                       => {tail=FALSE} 0.2178218 0.3055556
  [3] {fins=FALSE,domestic=FALSE}
  [4] {legs=TRUE,domestic=FALSE}
                                        => {tail=FALSE} 0.1782178 0.2727273
##
       lift
## [1] 1.398462
## [2] 1.258397
## [3] 1.186966
## [4] 1.059441
##
                                           rhs
                                                        support
                                                                  confidence
##
  [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
       lift
## [1] 1.371041
##
       lhs
                                       rhs
                                                    support
                                                              confidence
## [1] {hair=FALSE,feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
## [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
## [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
##
  [4] {hair=FALSE,legs=TRUE}
                                   => {tail=FALSE} 0.1188119 0.3333333
##
       lift
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
##
                                                                  confidence
       lhs
                                                        support
                                           rhs
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {tail=FALSE} 0.1683168 0.8500000
                                        => {tail=FALSE} 0.1980198 0.5128205
## [2] {feathers=FALSE,eggs=TRUE}
## [3] {feathers=FALSE,milk=FALSE}
                                        => {tail=FALSE} 0.1980198 0.5000000
## [4] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
## [5] {hair=FALSE, feathers=FALSE}
                                        => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                        => {tail=FALSE} 0.2475248 0.3906250
## [7] {feathers=FALSE,legs=TRUE}
                                        => {tail=FALSE} 0.2079208 0.3620690
## [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
## [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
##
       lift
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
```

```
## [7] 1.406499
  [8] 1.371041
##
  [9] 1.258397
##
       lhs
                                      rhs
                                                   support
                                                             confidence
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
  [2] {eggs=TRUE,fins=FALSE}
                                  => {tail=FALSE} 0.1980198 0.4347826
  [3] {eggs=TRUE,legs=TRUE}
                                  => {tail=FALSE} 0.1584158 0.4000000
## [4] {eggs=TRUE,aquatic=FALSE} => {tail=FALSE} 0.1089109 0.3793103
##
   [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
       lift
## [1] 1.992110
## [2] 1.688963
  [3] 1.553846
## [4] 1.473475
## [5] 1.469854
##
       lhs
                                                                 confidence
                                                       support
## [1] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
  [2] {fins=FALSE, catsize=FALSE}
                                      => {tail=FALSE} 0.1980198 0.4166667
  [3] {legs=TRUE,catsize=FALSE}
                                       => {tail=FALSE} 0.1584158 0.3902439
## [4] {airborne=FALSE, catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
## [5] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
  [6] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.806798
## [2] 1.618590
  [3] 1.515947
  [4] 1.510684
##
  [5] 1.398462
##
  [6] 1.371041
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
##
  [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
   [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
       lift
## [1] 3.301923
   [2] 2.373932
##
   [1] "Número de reglas con consecuente negado"
##
                                              support
                                                        confidence lift
## [1]
                         => {venomous=FALSE} 0.4059406 1.0000000 1.0860215
        {milk=TRUE}
  [2]
                         => {venomous=FALSE} 0.4059406 1.0000000
        {type=mammal}
                                                                   1.0860215
                         => {venomous=FALSE} 0.4257426 0.9772727
##
  [3]
        {catsize=TRUE}
                                                                   1.0613392
  [4]
        {predator=FALSE} => {venomous=FALSE} 0.4257426 0.9555556
                                                                   1.0377539
  [5]
                         => {venomous=FALSE} 0.4059406 0.9534884
##
        {hair=TRUE}
                                                                   1.0355089
##
   [6]
        {eggs=FALSE}
                         => {venomous=FALSE} 0.3960396 0.9523810
                                                                   1.0343062
##
        {backbone=TRUE}
                         => {venomous=FALSE} 0.7821782 0.9518072
  [7]
                                                                   1.0336831
## [8]
        {legs=TRUE}
                         => {venomous=FALSE} 0.7326733 0.9487179
                                                                   1.0303281
## [9]
                         => {venomous=FALSE} 0.7029703 0.9466667
        {tail=TRUE}
                                                                   1.0281004
## [10] {fins=TRUE}
                         => {venomous=FALSE} 0.1584158 0.9411765
                                                                   1.0221379
## [11] {aquatic=FALSE}
                         => {venomous=FALSE} 0.6039604 0.9384615
                                                                   1.0191894
## [12] {breathes=TRUE}
                         => {venomous=FALSE} 0.7425743 0.9375000
                                                                   1.0181452
## [13] {toothed=TRUE}
                         => {venomous=FALSE} 0.5643564 0.9344262
                                                                   1.0148070
## [14] {domestic=TRUE}
                         => {venomous=FALSE} 0.1188119 0.9230769
                                                                   1.0024814
## [15] {type=fish}
                         => {venomous=FALSE} 0.1188119 0.9230769
                                                                   1.0024814
## [16] {airborne=FALSE} => {venomous=FALSE} 0.7029703 0.9220779
                                                                   1.0013965
## [17] {domestic=FALSE} => {venomous=FALSE} 0.8019802 0.9204545 0.9996334
```

```
## [18] {feathers=FALSE} => {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
  [19] {toothed=FALSE}
                         => {venomous=FALSE} 0.3564356 0.9000000
                                                                   0.9774194
                         => {venomous=FALSE} 0.5247525 0.8983051
   [20] {eggs=TRUE}
                                                                    0.9755786
                         => {venomous=FALSE} 0.5148515 0.8965517
##
   [21] {hair=FALSE}
                                                                    0.9736745
##
   [22] {predator=TRUE}
                            {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
   [23] {catsize=FALSE}
                         => {venomous=FALSE} 0.4950495 0.8771930
##
                                                                    0.9526504
  [24] {milk=FALSE}
                         => {venomous=FALSE} 0.5148515 0.8666667
                                                                    0.9412186
  [25] {breathes=FALSE} => {venomous=FALSE} 0.1782178 0.8571429
                                                                    0.9308756
##
   [26] {legs=FALSE}
                         => {venomous=FALSE} 0.1881188 0.8260870
                                                                    0.8971482
   [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
       "Número de reglas con consecuente negado"
##
                                                            support
##
   [1]
        {breathes=TRUE,domestic=TRUE}
                                           {aquatic=FALSE} 0.1188119
        {fins=FALSE,domestic=TRUE}
                                           {aquatic=FALSE} 0.1188119
##
   [2]
   [3]
##
        {backbone=FALSE,breathes=TRUE}
                                           {aquatic=FALSE} 0.1089109
##
   [4]
        {milk=TRUE, predator=FALSE}
                                            {aquatic=FALSE} 0.1881188
##
   [5]
        {predator=FALSE, type=mammal}
                                            {aquatic=FALSE} 0.1881188
   [6]
        {eggs=FALSE,predator=FALSE}
                                            {aquatic=FALSE} 0.1881188
##
   [7]
        {hair=TRUE, predator=FALSE}
                                            {aquatic=FALSE} 0.2277228
##
   [8]
        {hair=TRUE,catsize=FALSE}
                                            {aquatic=FALSE} 0.1287129
##
   [9]
        {hair=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.3861386
  [10] {eggs=FALSE,legs=TRUE}
                                            {aquatic=FALSE} 0.3564356
  [11] {eggs=FALSE,fins=FALSE}
                                            {aquatic=FALSE} 0.3564356
##
   [12] {milk=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.3465347
  [13] {fins=FALSE,type=mammal}
                                            {aquatic=FALSE} 0.3465347
  [14] {predator=FALSE,catsize=TRUE}
                                            {aquatic=FALSE} 0.1485149
   [15] {predator=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.3762376
  [16] {predator=FALSE,fins=FALSE}
                                            {aquatic=FALSE} 0.3762376
  [17] {domestic=TRUE}
                                            {aquatic=FALSE} 0.1188119
  [18] {predator=FALSE,legs=TRUE}
                                            {aquatic=FALSE} 0.3564356
   [19]
        {hair=TRUE}
                                            {aquatic=FALSE} 0.3861386
##
   [20]
       {eggs=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.3564356
       {toothed=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.3762376
   [22] {fins=FALSE,catsize=TRUE}
                                           {aquatic=FALSE} 0.3069307
   [23] {eggs=FALSE}
                                            {aquatic=FALSE} 0.3564356
##
  [24] {toothed=TRUE,legs=TRUE}
                                            {aquatic=FALSE} 0.3564356
  [25] {milk=TRUE}
                                            {aquatic=FALSE} 0.3465347
  [26] {type=mammal}
                                            {aquatic=FALSE} 0.3465347
   [27] {feathers=FALSE,predator=FALSE}
##
                                            {aquatic=FALSE} 0.2871287
   [28] {predator=FALSE}
                                            {aquatic=FALSE} 0.3762376
##
   [29] {breathes=TRUE,fins=FALSE}
                                           {aquatic=FALSE} 0.6336634
   [30] {legs=TRUE,catsize=TRUE}
                                            {aquatic=FALSE} 0.3069307
   [31] {feathers=FALSE, breathes=TRUE}
                                           {aquatic=FALSE} 0.4950495
##
  [32] {fins=FALSE,tail=TRUE}
                                            {aquatic=FALSE} 0.4851485
  [33] {legs=TRUE,tail=TRUE}
                                            {aquatic=FALSE} 0.4653465
  [34] {breathes=TRUE,legs=TRUE}
                                            {aquatic=FALSE} 0.5940594
   [35]
       {breathes=TRUE, catsize=FALSE}
                                            {aquatic=FALSE} 0.3267327
       {airborne=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.4455446
   [37]
       {backbone=TRUE,fins=FALSE}
                                           {aquatic=FALSE} 0.5247525
   [38] {feathers=FALSE,fins=FALSE}
                                            {aquatic=FALSE} 0.5049505
   [39] {feathers=FALSE,legs=TRUE}
                                           {aquatic=FALSE} 0.4554455
  [40] {venomous=FALSE,fins=FALSE}
                                           {aquatic=FALSE} 0.6039604
## [41] {fins=FALSE,legs=TRUE}
                                         => {aquatic=FALSE} 0.5940594
## [42] {fins=FALSE}
                                            {aquatic=FALSE} 0.6435644
```

```
## [43] {toothed=FALSE,tail=TRUE}
                                         => {aquatic=FALSE} 0.1584158
## [44] {toothed=FALSE,backbone=TRUE}
                                         => {aquatic=FALSE} 0.1485149
## [45] {toothed=FALSE}
                                            {aquatic=FALSE} 0.2673267
## [46] {toothed=TRUE}
                                            {aquatic=FALSE} 0.3762376
  [47] {tail=FALSE}
                                         => {aquatic=FALSE} 0.1584158
  [48] {domestic=FALSE}
                                         => {aquatic=FALSE} 0.5247525
  [49] {catsize=FALSE}
                                         => {aquatic=FALSE} 0.3366337
##
   [50] {eggs=TRUE}
                                         => {aquatic=FALSE} 0.2871287
##
        confidence lift
##
  [1]
        1.0000000
                   1.5538462
   [2]
        1.0000000
                   1.5538462
   [3]
##
                   1.5538462
        1.0000000
##
   [4]
        1.0000000
                   1.5538462
##
  [5]
        1.0000000
                   1.5538462
## [6]
        1.0000000
                   1.5538462
##
  [7]
        1.0000000
                   1.5538462
##
   [8]
        1.0000000
                   1.5538462
   [9]
        0.9512195
                   1.4780488
  [10] 0.9473684
                   1.4720648
   [11] 0.9473684
                   1.4720648
  [12] 0.9459459
                   1.4698545
  [13] 0.9459459
                   1.4698545
  [14] 0.9375000
                   1.4567308
   [15] 0.9268293
                   1.4401501
  [16] 0.9268293
                   1.4401501
   [17] 0.9230769
                   1.4343195
  [18] 0.9230769
                   1.4343195
## [19] 0.9069767
                   1.4093023
## [20] 0.8780488
                   1.3643527
## [21] 0.8636364
                   1.3419580
## [22] 0.8611111
                   1.3380342
   [23] 0.8571429
                   1.3318681
   [24] 0.8571429
                   1.3318681
  [25] 0.8536585
                   1.3264540
   [26] 0.8536585
                   1.3264540
  [27] 0.8529412
                   1.3253394
  [28] 0.844444
                   1.3121368
  [29] 0.8421053
                   1.3085020
   [30] 0.8378378
                   1.3018711
   [31] 0.8333333
                   1.2948718
   [32] 0.8305085
                   1.2904824
  [33] 0.8245614
                   1.2812416
   [34] 0.8219178
                   1.2771338
  [35] 0.8048780
                   1.2506567
  [36] 0.8035714
                   1.2486264
                   1.2477855
  [37] 0.8030303
   [38] 0.7968750
                   1.2382212
   [39] 0.7931034
                   1.2323607
   [40] 0.7922078
                   1.2309690
   [41] 0.7792208
                   1.2107892
  [42] 0.7738095
                   1.2023810
## [43] 0.6956522
                   1.0809365
## [44] 0.6818182
                   1.0594406
```

## [45] 0.6750000

1.0488462

```
## [46] 0.6229508
                  0.9679697
  [47] 0.6153846
                   0.9562130
  [48] 0.6022727
                   0.9358392
  [49] 0.5964912
                   0.9268556
   [50] 0.4915254
                  0.7637549
##
       lhs
                                           support
                                                     confidence lift
                        => {aquatic=TRUE} 0.1287129 1.0000000
## [1] {type=fish}
## [2] {fins=TRUE}
                        => {aquatic=TRUE} 0.1683168 1.0000000
                                                                2.8055556
  [3] {breathes=FALSE} => {aquatic=TRUE} 0.1980198 0.9523810
                                                                2.6719577
  [4] {legs=FALSE}
                        => {aquatic=TRUE} 0.1782178 0.7826087
                                                                2.1956522
  [5] {backbone=TRUE}
                        => {aquatic=TRUE} 0.2970297 0.3614458
                                                                1.0140562
                        => {aquatic=TRUE} 0.2574257 0.3466667
  [6] {tail=TRUE}
                                                                0.9725926
  [7] {venomous=FALSE} => {aquatic=TRUE} 0.3168317 0.3440860
                                                                0.9653524
                        => {aquatic=TRUE} 0.1287129 0.3250000
  [8] {toothed=FALSE}
  [9] {breathes=TRUE} => {aquatic=TRUE} 0.1584158 0.2000000
                                                                0.5611111
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
##
  [1] {backbone=TRUE,fins=FALSE}
                                     => {aquatic=FALSE} 0.5247525 0.8030303
   [2] {toothed=FALSE,backbone=TRUE} => {aquatic=FALSE} 0.1485149 0.6818182
##
       lift
##
  [1] 1.247786
##
   [2] 1.059441
##
                                                     support
                                                               confidence
                                 => {aquatic=FALSE} 0.4851485 0.8305085
  [1] {fins=FALSE,tail=TRUE}
   [2] {legs=TRUE,tail=TRUE}
                                 => {aquatic=FALSE} 0.4653465 0.8245614
   [3] {toothed=FALSE,tail=TRUE} => {aquatic=FALSE} 0.1584158 0.6956522
       lift
##
  [1] 1.290482
   [2] 1.281242
   [3] 1.080936
##
##
                                      rhs
                                                       support
                                                                 confidence
##
   [1] {venomous=FALSE,fins=FALSE} => {aquatic=FALSE} 0.6039604 0.7922078
##
       lift
##
   [1] 1.230969
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
   [1] {toothed=FALSE,tail=TRUE}
                                     => {aquatic=FALSE} 0.1584158 0.6956522
   [2] {toothed=FALSE,backbone=TRUE} => {aquatic=FALSE} 0.1485149 0.6818182
##
       lift
## [1] 1.080936
   [2] 1.059441
##
##
                                                                    confidence
       lhs
                                                          support
                                          rhs
  [1] {breathes=TRUE,domestic=TRUE} => {aquatic=FALSE} 0.1188119 1.0000000
  [2] {backbone=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.1089109 1.0000000
  [3] {predator=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.3762376 0.9268293
  [4] {eggs=FALSE,breathes=TRUE}
                                      => {aquatic=FALSE} 0.3564356 0.8780488
## [5] {breathes=TRUE,fins=FALSE}
                                       => {aquatic=FALSE} 0.6336634 0.8421053
## [6] {feathers=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.4950495 0.8333333
## [7] {breathes=TRUE,legs=TRUE}
                                      => {aquatic=FALSE} 0.5940594 0.8219178
  [8] {breathes=TRUE,catsize=FALSE}
                                      => {aquatic=FALSE} 0.3267327 0.8048780
##
   [9] {airborne=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.4455446 0.8035714
##
       lift
## [1] 1.553846
## [2] 1.553846
## [3] 1.440150
## [4] 1.364353
```

```
## [5] 1.308502
  [6] 1.294872
  [7] 1.277134
  [8] 1.250657
  [9] 1.248626
##
   [1] "Número de reglas con consecuente negado"
##
                                         rhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
   [2] {aquatic=FALSE,legs=TRUE}
                                      => {domestic=TRUE} 0.1188119 0.2000000
   [3] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
  [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
   [5] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
##
       lift
## [1] 1.612482
## [2] 1.553846
  [3] 1.335337
  [4] 1.294872
  [5] 1.238573
##
        lhs
                                              support
                                                        confidence lift
##
  [1]
        {aquatic=TRUE}
                         => {domestic=FALSE} 0.3465347 0.9722222
##
  [2]
        {predator=TRUE}
                         => {domestic=FALSE} 0.5346535 0.9642857
                                                                   1.1067370
  [3]
                         => {domestic=FALSE} 0.2178218 0.9565217
        {legs=FALSE}
## [4]
        {breathes=FALSE} => {domestic=FALSE} 0.1980198 0.9523810
                                                                   1.0930736
        fbackbone=FALSE} => {domestic=FALSE} 0.1683168 0.9444444
##
  [5]
                                                                   1.0839646
## [6]
        {fins=TRUE}
                         => {domestic=FALSE} 0.1584158 0.9411765
                                                                   1.0802139
  [7]
        {hair=FALSE}
                         => {domestic=FALSE} 0.5346535 0.9310345
                                                                   1.0685737
  [8]
                         => {domestic=FALSE} 0.1188119 0.9230769
##
        {type=fish}
                                                                   1.0594406
##
  [9]
        {milk=FALSE}
                         => {domestic=FALSE} 0.5445545 0.9166667
                                                                   1.0520833
                         => {domestic=FALSE} 0.5346535 0.9152542
## [10] {eggs=TRUE}
                                                                   1.0504622
                         => {domestic=FALSE} 0.3564356 0.9000000
## [11] {toothed=FALSE}
                                                                   1.0329545
## [12] {airborne=FALSE}
                         => {domestic=FALSE} 0.6732673 0.8831169
                                                                   1.0135773
## [13] {catsize=FALSE}
                         => {domestic=FALSE} 0.4950495 0.8771930
                                                                   1.0067783
## [14] {feathers=FALSE}
                         => {domestic=FALSE} 0.7029703 0.8765432
                                                                   1.0060325
                         => {domestic=FALSE} 0.3762376 0.8636364
## [15] {catsize=TRUE}
                                                                   0.9912190
## [16] {backbone=TRUE}
                         => {domestic=FALSE} 0.7029703 0.8554217
                                                                   0.9817908
## [17] {legs=TRUE}
                         => {domestic=FALSE} 0.6534653 0.8461538
                                                                   0.9711538
## [18] {airborne=TRUE}
                         => {domestic=FALSE} 0.1980198 0.8333333
                         => {domestic=FALSE} 0.3366337 0.8095238
## [19] {eggs=FALSE}
                                                                   0.9291126
  [20] {milk=TRUE}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                   0.9237805
                         => {domestic=FALSE} 0.3267327 0.8048780
##
  [21] {type=mammal}
                                                                   0.9237805
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
   [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
  [3] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
  [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
## [1] 1.612482
  [2] 1.335337
  [3] 1.294872
##
  [4] 1.238573
##
       lhs
                                     rhs
                                                     support
                                                               confidence
## [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
## [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
       lift
```

```
[1] 1.553846
   [2] 1.335337
   [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                        support
                                                                  confidence
##
   [1]
        {type=fish}
                                            {fins=TRUE} 0.1287129 1.0000000
##
   [2]
        {toothed=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
##
   [3]
        {breathes=FALSE.tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.9285714
  [4]
##
        {backbone=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.9285714
##
   [5]
        {aquatic=TRUE,legs=FALSE}
                                            {fins=TRUE} 0.1584158 0.8888889
##
   [6]
        {toothed=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1584158 0.8421053
   [7]
        {backbone=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1584158 0.8421053
   [8]
##
        {legs=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1485149 0.8333333
##
   [9]
        {breathes=FALSE,legs=FALSE}
                                           {fins=TRUE} 0.1287129 0.8125000
  [10] {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
  [11] {aquatic=TRUE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.7391304
        {predator=TRUE,legs=FALSE}
                                            {fins=TRUE} 0.1188119 0.7058824
   [12]
       {breathes=FALSE, venomous=FALSE} =>
                                           {fins=TRUE} 0.1188119 0.6666667
  [13]
  [14] {hair=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1485149 0.6521739
                                         => {fins=TRUE} 0.1287129 0.6500000
  [15] {aquatic=TRUE, breathes=FALSE}
  [16] {eggs=TRUE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.6500000
##
  [17] {breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6190476
  [18] {milk=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6190476
  [19] {aquatic=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.6153846
  [20] {feathers=FALSE,aquatic=TRUE}
                                           {fins=TRUE} 0.1683168 0.5666667
  [21] {aquatic=TRUE, backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
  [22] {airborne=FALSE,aquatic=TRUE}
                                           {fins=TRUE} 0.1683168 0.5483871
   [23] {aquatic=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1584158 0.5000000
  [24] {hair=FALSE, feathers=FALSE}
                                           {fins=TRUE} 0.1485149 0.3947368
  [25] {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [26] {hair=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3571429
  [27] {predator=TRUE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.3513514
  [28] {eggs=TRUE,airborne=FALSE}
                                           {fins=TRUE} 0.1287129 0.3513514
  [29] {milk=FALSE,airborne=FALSE}
                                           {fins=TRUE} 0.1287129 0.3421053
  [30] {hair=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3409091
   [31] {eggs=TRUE,tail=TRUE}
                                            {fins=TRUE} 0.1287129 0.3333333
##
  [32] {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
  [33] {milk=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.3250000
  [34] {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
  [35] {eggs=TRUE,backbone=TRUE}
                                            {fins=TRUE} 0.1287129 0.3095238
##
  [36] {milk=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.3095238
  [37] {toothed=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.3076923
   [38] {toothed=TRUE,domestic=FALSE}
                                           {fins=TRUE} 0.1584158 0.3076923
  [39] {hair=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1089109 0.3055556
  [40] {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
## [41] {airborne=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
                                           {fins=TRUE} 0.1188119 0.2857143
## [42] {predator=TRUE,tail=TRUE}
## [43] {toothed=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1584158 0.2807018
  [44] {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
  [45] {feathers=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
  [46] {predator=TRUE, backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.2765957
## [47] {feathers=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2698413
## [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
## [49] {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
## [50] {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
```

```
## [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
                                         => {fins=TRUE} 0.1485149 0.2586207
  [52] {hair=FALSE}
  [53] {predator=TRUE, venomous=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2400000
  [54] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [57] {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
## [58] {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
   [59] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [60] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [61] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
   [62] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
   [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [64] {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
  [65] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
##
   [66] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
##
  [1]
        5.941176
  [2]
       5.516807
##
##
   [3]
       5.516807
##
  [4]
       5.516807
  [5]
##
        5.281046
  [6]
##
       5.003096
##
  [7]
       5.003096
##
  [8]
        4.950980
  [9]
        4.827206
  [10] 4.690402
##
## [11] 4.391304
## [12] 4.193772
## [13] 3.960784
## [14] 3.874680
##
  [15] 3.861765
  [16] 3.861765
## [17] 3.677871
  [18] 3.677871
## [19] 3.656109
## [20] 3.366667
## [21] 3.366667
  [22] 3.258065
## [23] 2.970588
  [24] 2.345201
  [25] 2.227941
## [26] 2.121849
##
  [27] 2.087440
## [28] 2.087440
## [29] 2.032508
##
  [30] 2.025401
  [31] 1.980392
## [32] 1.980392
## [33] 1.930882
## [34] 1.930882
## [35] 1.838936
## [36] 1.838936
## [37] 1.828054
```

```
## [38] 1.828054
   [39] 1.815359
  [40] 1.728342
  [41] 1.711864
  [42] 1.697479
##
  [43] 1.667699
  [44] 1.667699
  [45] 1.643304
   [46] 1.643304
  [47] 1.603175
  [48] 1.599548
   [49] 1.576230
##
   [50] 1.553846
   [51] 1.540305
  [52] 1.536511
   [53] 1.425882
##
   [54] 1.397924
   [55] 1.383562
   [56] 1.371041
   [57] 1.371041
##
   [58] 1.345172
  [59] 1.338857
##
  [60] 1.338857
##
   [61] 1.338857
   [62] 1.320261
   [63] 1.302176
##
   [64] 1.296257
##
   [65] 1.284579
##
   [66] 1.100218
##
        lhs
                             rhs
                                          support
                                                     confidence lift
##
  [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000
                                                                1.2023810
##
   [2]
        {type=bird}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
   [3]
        {feathers=TRUE}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
   [4]
##
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
                                                                1.2023810
##
   [5]
                          => {fins=FALSE} 0.3960396 1.0000000
        {toothed=FALSE}
                                                                1.2023810
##
   [6]
        {legs=TRUE}
                          => {fins=FALSE} 0.7623762 0.9871795
                                                                1.1869658
##
  [7]
        {hair=TRUE}
                          => {fins=FALSE} 0.4059406 0.9534884
##
  [8]
                          => {fins=FALSE} 0.7524752 0.9500000
        {breathes=TRUE}
                                                                1.1422619
        {domestic=TRUE}
                          => {fins=FALSE} 0.1188119 0.9230769
   [9]
                                                                1.1098901
  [10] {predator=FALSE} => {fins=FALSE} 0.4059406 0.9111111
##
                                                                1.0955026
                          => {fins=FALSE} 0.3762376 0.9047619
  [11] {eggs=FALSE}
                                                                1.0878685
                          => {fins=FALSE} 0.3663366 0.9024390
  [12] {milk=TRUE}
                                                                1.0850755
  [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
   [14] {catsize=FALSE}
                          => {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
  [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
                          => {fins=FALSE} 0.3564356 0.8181818
  [16] {catsize=TRUE}
                                                                0.9837662
   [17]
       {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                0.9837662
  [18] {backbone=TRUE}
                         => {fins=FALSE} 0.6534653 0.7951807
                                                                0.9561102
  [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
  [20]
       {tail=TRUE}
                          => {fins=FALSE} 0.5841584 0.7866667
                                                                0.9458730
                          => {fins=FALSE} 0.4554455 0.7796610
##
  [21]
                                                                0.9374496
       {eggs=TRUE}
## [22] {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                0.9369202
## [23] {predator=TRUE}
                          => {fins=FALSE} 0.4257426 0.7678571
                                                                0.9232568
## [24] {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
```

```
## [25] {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115 0.8672912
                          => {fins=FALSE} 0.1881188 0.5277778 0.6345899
##
   [26] {aquatic=TRUE}
##
        lhs
                                                         support
                                                                    confidence
##
  [1]
        {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
##
   [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
##
   [3]
        {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
##
   [4]
        {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
   [5]
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
##
   [6]
        {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
##
   [7]
        {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [8]
        {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
   [9]
##
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   Γ10]
   [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
        lift
##
  [1]
        4.690402
   [2]
##
        3.960784
   [3]
        2.970588
##
   [4]
##
        1.667699
##
   [5]
        1.599548
##
   [6]
        1.425882
##
  [7]
        1.371041
  [8]
##
        1.345172
##
   [9]
        1.338857
  [10] 1.302176
##
   [11] 1.100218
##
       lhs
                                            rhs
                                                        support
                                                                   confidence
##
  [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
  [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
## [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
  [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
  [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
   [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
   [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
       lift
## [1] 1.828054
  [2] 1.540305
##
  [3] 1.397924
  [4] 1.371041
  [5] 1.338857
##
   [6] 1.338857
##
  [7] 1.320261
## [8] 1.296257
## [9] 1.100218
##
        lhs
                                            rhs
                                                        support
                                                                  confidence
##
  [1]
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
  [2]
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
##
   [3]
        {aquatic=TRUE, backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
   [4]
##
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
##
  [5]
        {eggs=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
## [6]
        {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
## [7]
        {predator=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
```

```
{feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
  [9]
  [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [11] {backbone=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
        lift.
## [1]
        5.516807
  [2]
        5.003096
## [3]
        3.366667
##
  [4]
        2.025401
##
  [5]
        1.838936
  [6]
        1.838936
   [7]
##
        1.643304
##
   [8]
        1.603175
##
  [9]
        1.553846
## [10] 1.338857
##
  [11] 1.284579
##
        lhs
                                                                    confidence
                                                         support
                                            rhs
##
  [1]
        {feathers=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
##
  [2]
        {hair=FALSE,feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
   [3]
        {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
##
  [4]
        {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
  [5]
        {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
##
                                         => {fins=TRUE} 0.1287129 0.2765957
  [6]
        {feathers=FALSE,predator=TRUE}
##
##
  [7]
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
##
  [8]
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
   [10]
##
        lift
## [1]
        3.366667
##
  [2]
        2.345201
##
  [3]
        1.980392
##
  [4]
        1.930882
##
  [5]
        1.728342
  [6]
        1.643304
##
   [7]
##
        1.603175
  [8]
##
        1.383562
  [9]
        1.338857
  [10] 1.302176
##
##
        lhs
                                       rhs
                                                    support
                                                              confidence
## [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
        {legs=FALSE,tail=TRUE}
  [2]
                                    => {fins=TRUE} 0.1485149 0.8333333
  [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
##
##
   [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
##
  [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
  [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
## [7]
                                    => {fins=TRUE} 0.1584158 0.3076923
        {toothed=TRUE,tail=TRUE}
##
  [8]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
  [9]
        {predator=TRUE, tail=TRUE} => {fins=TRUE} 0.1188119 0.2857143
  [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
   [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
        {backbone=TRUE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
   [12]
##
        lift
## [1]
        5.516807
## [2]
        4.950980
```

```
## [3]
        3.656109
##
   [4]
        2.121849
  [5]
        1.980392
  [6]
##
        1.930882
##
   [7]
        1.828054
##
   [8]
        1.728342
  [9]
        1.697479
## [10] 1.667699
  [11] 1.371041
##
  [12] 1.284579
##
       lhs
                                      rhs
                                                             confidence
                                                   support
                                   => {fins=TRUE} 0.1287129 0.6500000
##
  [1] {eggs=TRUE,toothed=TRUE}
   [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
  [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
   [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
   [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
   [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
       lift
## [1] 3.861765
##
  [2] 2.087440
  [3] 1.980392
## [4] 1.980392
   [5] 1.838936
  [6] 1.345172
   [7] 1.320261
##
        lhs
                                             rhs
                                                         support
                                                                    confidence
##
  [1]
        {airborne=FALSE,aquatic=TRUE}
                                            {fins=TRUE} 0.1683168 0.5483871
##
  [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
##
  [5]
        {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
  [6]
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
  [7]
        {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
   [8]
        {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
##
  [9]
  [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
##
        lift
##
        3.258065
  [1]
  [2]
        2.227941
  [3]
        2.087440
##
##
   [4]
        2.032508
##
   [5]
        1.711864
##
  [6]
        1.667699
  [7]
##
        1.576230
##
  [8]
        1.553846
##
  [9]
        1.397924
  [10] 1.383562
##
   [11] 1.338857
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
## [2] {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
## [3] {hair=FALSE,predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
```

```
## [4] {predator=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1188119 0.2857143
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
##
   [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
## [4] 1.697479
## [5] 1.643304
## [6] 1.643304
## [7] 1.576230
## [8] 1.425882
##
       lhs
                                       rhs
                                                   support
                                                             confidence
## [1] {hair=FALSE,toothed=TRUE}
                                   => {fins=TRUE} 0.1485149 0.6521739
## [2] {hair=FALSE,feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
                                   => {fins=TRUE} 0.1485149 0.3571429
## [4] {hair=FALSE,tail=TRUE}
## [5] {hair=FALSE,backbone=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3409091
## [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
## [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
## [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
       lift
## [1] 3.874680
## [2] 2.345201
## [3] 2.227941
## [4] 2.121849
## [5] 2.025401
## [6] 1.815359
## [7] 1.599548
## [8] 1.540305
                                                                confidence
##
        lhs
                                                      support
## [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
##
  [2]
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
## [3]
## [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
## [5]
        {eggs=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
## [6]
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
        {predator=TRUE,toothed=TRUE}
                                      => {fins=TRUE} 0.1287129 0.3513514
## [7]
        {toothed=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.3076923
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
## [9]
  [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
  [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
##
        lift
## [1]
       5.516807
##
  [2]
       5.003096
## [3]
        4.391304
## [4]
        3.874680
##
  [5]
        3.861765
  [6]
##
        3.677871
## [7]
        2.087440
## [8]
        1.828054
## [9]
       1.828054
```

```
## [10] 1.711864
##
  [11] 1.667699
##
       lhs
                                                     support
                                                               confidence
                                      => {fins=TRUE} 0.1584158 0.8888889
## [1] {aquatic=TRUE,legs=FALSE}
##
  [2] {aquatic=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
  [3] {aquatic=TRUE, breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
## [4] {aquatic=TRUE, tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
  [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
   [6] {aquatic=TRUE,backbone=TRUE}
                                     => {fins=TRUE} 0.1683168 0.5666667
   [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
   [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
## [1] 5.281046
  [2] 4.391304
##
## [3] 3.861765
  [4] 3.656109
##
  [5] 3.366667
  [6] 3.366667
  [7] 3.258065
   [8] 2.970588
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                         support
                                                                   confidence
##
  [1]
        {backbone=FALSE, venomous=FALSE} => {tail=FALSE} 0.1386139 1.0000000
##
   [2]
        {backbone=FALSE}
                                           {tail=FALSE} 0.1683168 0.9444444
##
  [3]
        {feathers=FALSE, toothed=FALSE}
                                        => {tail=FALSE} 0.1683168 0.8500000
  [4]
        {airborne=FALSE, toothed=FALSE}
                                         => {tail=FALSE} 0.1089109 0.6111111
   [5]
##
        {feathers=FALSE,eggs=TRUE}
                                         => {tail=FALSE} 0.1980198 0.5128205
##
   [6]
        {feathers=FALSE,milk=FALSE}
                                         => {tail=FALSE} 0.1980198 0.5000000
  [7]
##
        {feathers=FALSE, catsize=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4651163
        {eggs=TRUE,fins=FALSE}
## [8]
                                         => {tail=FALSE} 0.1980198 0.4347826
## [9]
        {milk=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4255319
  [10] {hair=FALSE,feathers=FALSE}
                                         => {tail=FALSE} 0.1584158 0.4210526
  [11] {fins=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4166667
                                         => {tail=FALSE} 0.1584158 0.4000000
  [12] {eggs=TRUE,legs=TRUE}
  [13] {milk=FALSE,legs=TRUE}
                                           {tail=FALSE} 0.1584158 0.4000000
                                         => {tail=FALSE} 0.2475248 0.3906250
## [14] {feathers=FALSE,fins=FALSE}
## [15] {legs=TRUE,catsize=FALSE}
                                           {tail=FALSE} 0.1584158 0.3902439
## [16] {airborne=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3888889
## [17] {eggs=TRUE,aquatic=FALSE}
                                           {tail=FALSE} 0.1089109 0.3793103
## [18] {eggs=TRUE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3783784
## [19] {hair=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3720930
  [20] {milk=FALSE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3684211
## [21] {milk=FALSE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3666667
## [22] {feathers=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.2079208 0.3620690
## [23] {domestic=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1782178 0.3600000
                                           {tail=FALSE} 0.1188119 0.3529412
## [24] {feathers=FALSE,predator=FALSE} =>
## [25] {aquatic=FALSE, catsize=FALSE}
                                         => {tail=FALSE} 0.1188119 0.3529412
## [26] {hair=FALSE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3500000
## [27] {hair=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1188119 0.3333333
## [28] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
## [29] {airborne=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1881188 0.3166667
## [30] {fins=FALSE,domestic=FALSE}
                                         => {tail=FALSE} 0.2178218 0.3055556
## [31] {predator=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1287129 0.3023256
## [32] {fins=FALSE}
                                           {tail=FALSE} 0.2475248 0.2976190
```

```
## [33] {predator=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1089109 0.2820513
  [34] {airborne=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1485149 0.2777778
  [35] {legs=TRUE,domestic=FALSE}
                                         => {tail=FALSE} 0.1782178 0.2727273
  [36] {domestic=FALSE}
                                         => {tail=FALSE} 0.2277228 0.2613636
##
   [37] {predator=TRUE}
                                         => {tail=FALSE} 0.1386139 0.2500000
   [38] {venomous=FALSE}
                                         => {tail=FALSE} 0.2178218 0.2365591
##
##
        lift
## [1]
        3.8846154
   [2]
        3.6688034
  [3]
##
        3.3019231
  [4]
        2.3739316
  [5]
##
        1.9921105
##
   [6]
        1.9423077
  [7]
##
        1.8067979
## [8]
        1.6889632
## [9]
        1.6530278
  [10] 1.6356275
## [11] 1.6185897
## [12] 1.5538462
## [13] 1.5538462
## [14] 1.5174279
## [15] 1.5159475
## [16] 1.5106838
  [17] 1.4734748
## [18] 1.4698545
## [19] 1.4454383
## [20] 1.4311741
## [21] 1.4243590
## [22] 1.4064987
## [23] 1.3984615
## [24] 1.3710407
  [25] 1.3710407
## [26] 1.3596154
## [27] 1.2948718
  [28] 1.2583965
## [29] 1.2301282
## [30] 1.1869658
## [31] 1.1744186
  [32] 1.1561355
  [33] 1.0956607
  [34] 1.0790598
  [35] 1.0594406
   [36] 1.0152972
   [37] 0.9711538
   [38] 0.9189413
##
        lhs
                             rhs
                                         support
                                                    confidence lift
## [1]
        {type=fish}
                          => {tail=TRUE} 0.1287129 1.0000000
                                                               1.3466667
   [2]
        {type=bird}
                          => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
  [3]
        {feathers=TRUE}
                         => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
                                                               1.2674510
##
  [4]
        {fins=TRUE}
                          => {tail=TRUE} 0.1584158 0.9411765
##
   [5]
                          => {tail=TRUE} 0.3762376 0.8636364
        {catsize=TRUE}
                                                               1.1630303
## [6]
        {eggs=FALSE}
                          => {tail=TRUE} 0.3564356 0.8571429
                                                               1.1542857
## [7]
        {milk=TRUE}
                          => {tail=TRUE} 0.3465347 0.8536585
                                                               1.1495935
## [8]
        {type=mammal}
                          => {tail=TRUE} 0.3465347 0.8536585
```

```
## [9] {legs=FALSE}
                         => {tail=TRUE} 0.1782178 0.7826087
                                                              1.0539130
                         => {tail=TRUE} 0.3267327 0.7674419
## [10] {hair=TRUE}
                                                              1.0334884
## [11] {aquatic=FALSE} => {tail=TRUE} 0.4851485 0.7538462
## [12] {airborne=TRUE} => {tail=TRUE} 0.1782178 0.7500000
                                                              1.0100000
## [13] {predator=TRUE} => {tail=TRUE} 0.4158416 0.7500000
                                                              1.0100000
## [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
                                                              0.9946970
## [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                                                              0.9875556
## [16] {hair=FALSE}
                         => {tail=TRUE} 0.4158416 0.7241379
                                                              0.9751724
## [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
                                                              0.9144033
## [18] {eggs=TRUE}
                         => {tail=TRUE} 0.3861386 0.6610169
                                                              0.8901695
## [19] {catsize=FALSE}
                         => {tail=TRUE} 0.3663366 0.6491228
                                                              0.8741520
## [20] {toothed=FALSE} => {tail=TRUE} 0.2277228 0.5750000
                                                              0.7743333
##
       lhs
                                                      support
                                        rhs
                                                                confidence
## [1] {eggs=TRUE,aquatic=FALSE}
                                     => {tail=FALSE} 0.1089109 0.3793103
## [2] {milk=FALSE,aquatic=FALSE}
                                     => {tail=FALSE} 0.1089109 0.3666667
## [3] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.473475
## [2] 1.424359
## [3] 1.371041
##
       lhs
                                     rhs
                                                  support
                                                             confidence
## [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
## [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
       lift.
## [1] 1.174419
## [2] 1.095661
##
       lhs
                                          rhs
                                                        support
                                                                  confidence
## [1] {domestic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
## [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
## [3] {fins=FALSE,domestic=FALSE}
                                       => {tail=FALSE} 0.2178218 0.3055556
## [4] {legs=TRUE,domestic=FALSE}
                                       => {tail=FALSE} 0.1782178 0.2727273
##
       lift
## [1] 1.398462
## [2] 1.258397
## [3] 1.186966
## [4] 1.059441
##
                                          rhs
                                                        support
                                                                  confidence
## [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
       lift
##
## [1] 1.371041
##
       lhs
                                      rhs
                                                    support
                                                              confidence
## [1] {hair=FALSE, feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
## [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
## [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
## [4] {hair=FALSE,legs=TRUE}
                                   => {tail=FALSE} 0.1188119 0.3333333
##
       lift
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
##
       lhs
                                                                  confidence
                                          rhs
                                                        support
## [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE}
                                       => {tail=FALSE} 0.1980198 0.5128205
## [3] {feathers=FALSE,milk=FALSE}
                                       => {tail=FALSE} 0.1980198 0.5000000
```

```
## [4] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
## [5] {hair=FALSE,feathers=FALSE}
                                       => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                       => {tail=FALSE} 0.2475248 0.3906250
## [7] {feathers=FALSE,legs=TRUE}
                                       => {tail=FALSE} 0.2079208 0.3620690
## [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
  [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
       lift.
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
## [7] 1.406499
## [8] 1.371041
## [9] 1.258397
##
       lhs
                                     rhs
                                                   support
                                                             confidence
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
## [2] {eggs=TRUE,fins=FALSE}
                                  => {tail=FALSE} 0.1980198 0.4347826
## [3] {eggs=TRUE,legs=TRUE}
                                  => {tail=FALSE} 0.1584158 0.4000000
## [4] {eggs=TRUE,aquatic=FALSE} => {tail=FALSE} 0.1089109 0.3793103
## [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
       lift
## [1] 1.992110
## [2] 1.688963
## [3] 1.553846
## [4] 1.473475
## [5] 1.469854
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
## [1] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
## [2] {fins=FALSE,catsize=FALSE}
                                      => {tail=FALSE} 0.1980198 0.4166667
## [3] {legs=TRUE,catsize=FALSE}
                                      => {tail=FALSE} 0.1584158 0.3902439
## [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
## [5] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
   [6] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
##
       lift.
## [1] 1.806798
## [2] 1.618590
## [3] 1.515947
## [4] 1.510684
## [5] 1.398462
## [6] 1.371041
       lhs
                                         rhs
                                                       support
                                                                 confidence
## [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
## [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
       lift
## [1] 3.301923
  [2] 2.373932
       "Número de reglas con consecuente negado"
##
                                                         support
## [1]
        {backbone=FALSE, venomous=FALSE} => {tail=FALSE} 0.1386139 1.0000000
## [2]
        {backbone=FALSE}
                                        => {tail=FALSE} 0.1683168 0.9444444
## [3]
        {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
## [4]
       {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
```

```
{feathers=FALSE,eggs=TRUE}
                                         => {tail=FALSE} 0.1980198 0.5128205
##
   [6]
        {feathers=FALSE, milk=FALSE}
                                           {tail=FALSE} 0.1980198 0.5000000
  [7]
        {feathers=FALSE, catsize=FALSE}
                                           {tail=FALSE} 0.1980198 0.4651163
##
  [8]
        {eggs=TRUE,fins=FALSE}
                                           {tail=FALSE} 0.1980198 0.4347826
   [9]
        {milk=FALSE,fins=FALSE}
                                            {tail=FALSE} 0.1980198 0.4255319
  [10] {hair=FALSE, feathers=FALSE}
                                           {tail=FALSE} 0.1584158 0.4210526
  [11] {fins=FALSE,catsize=FALSE}
                                           {tail=FALSE} 0.1980198 0.4166667
## [12] {eggs=TRUE,legs=TRUE}
                                           {tail=FALSE} 0.1584158 0.4000000
  [13] {milk=FALSE,legs=TRUE}
                                            {tail=FALSE} 0.1584158 0.4000000
  [14] {feathers=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.3906250
## [15] {legs=TRUE,catsize=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3902439
  [16] {airborne=FALSE,catsize=FALSE}
                                        => {tail=FALSE} 0.1386139 0.3888889
  [17] {eggs=TRUE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3793103
  [18] {eggs=TRUE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3783784
## [19] {hair=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3720930
## [20] {milk=FALSE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3684211
  [21] {milk=FALSE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3666667
  [22] {feathers=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.2079208 0.3620690
  [23] {domestic=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1782178 0.3600000
  [24] {feathers=FALSE,predator=FALSE} =>
                                            {tail=FALSE} 0.1188119 0.3529412
##
  [25] {aquatic=FALSE, catsize=FALSE}
                                           {tail=FALSE} 0.1188119 0.3529412
  [26] {hair=FALSE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3500000
## [27] {hair=FALSE,legs=TRUE}
                                           {tail=FALSE} 0.1188119 0.3333333
  [28] {feathers=FALSE,domestic=FALSE} =>
                                            {tail=FALSE} 0.2277228 0.3239437
  [29] {airborne=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.1881188 0.3166667
  [30] {fins=FALSE,domestic=FALSE}
                                           {tail=FALSE} 0.2178218 0.3055556
  [31] {predator=TRUE,fins=FALSE}
                                           {tail=FALSE} 0.1287129 0.3023256
  [32] {fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.2976190
  [33] {predator=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1089109 0.2820513
  [34] {airborne=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1485149 0.2777778
  [35] {legs=TRUE,domestic=FALSE}
                                         => {tail=FALSE} 0.1782178 0.2727273
##
  [36]
       {domestic=FALSE}
                                        => {tail=FALSE} 0.2277228 0.2613636
       {predator=TRUE}
                                        => {tail=FALSE} 0.1386139 0.2500000
   [38] {venomous=FALSE}
                                        => {tail=FALSE} 0.2178218 0.2365591
##
##
        lift
##
  Г17
       3.8846154
##
  [2]
       3.6688034
##
  [3]
       3.3019231
  [4]
        2.3739316
##
  [5]
##
        1.9921105
  [6]
        1.9423077
  [7]
##
        1.8067979
##
   [8]
        1.6889632
##
  [9]
        1.6530278
## [10] 1.6356275
## [11] 1.6185897
  [12] 1.5538462
  [13] 1.5538462
  [14] 1.5174279
## [15] 1.5159475
## [16] 1.5106838
## [17] 1.4734748
## [18] 1.4698545
## [19] 1.4454383
```

```
## [20] 1.4311741
  [21] 1.4243590
## [22] 1.4064987
## [23] 1.3984615
  [24] 1.3710407
## [25] 1.3710407
  [26] 1.3596154
## [27] 1.2948718
## [28] 1.2583965
## [29] 1.2301282
## [30] 1.1869658
## [31] 1.1744186
## [32] 1.1561355
## [33] 1.0956607
## [34] 1.0790598
## [35] 1.0594406
  [36] 1.0152972
  [37] 0.9711538
   [38] 0.9189413
##
##
        lhs
                            rhs
                                         support
                                                   confidence lift
## [1]
        {type=fish}
                         => {tail=TRUE} 0.1287129 1.0000000 1.3466667
                         => {tail=TRUE} 0.1980198 1.0000000
  [2]
        {type=bird}
                                                              1.3466667
## [3]
                         => {tail=TRUE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                              1.3466667
  [4]
        {fins=TRUE}
                         => {tail=TRUE} 0.1584158 0.9411765
##
                                                              1.2674510
##
  [5]
        {catsize=TRUE}
                         => {tail=TRUE} 0.3762376 0.8636364
                                                              1.1630303
  [6]
        {eggs=FALSE}
                         => {tail=TRUE} 0.3564356 0.8571429
                                                              1.1542857
  [7]
                         => {tail=TRUE} 0.3465347 0.8536585
##
        {milk=TRUE}
                                                              1.1495935
##
  [8]
        {type=mammal}
                         => {tail=TRUE} 0.3465347 0.8536585
                                                              1.1495935
## [9]
                         => {tail=TRUE} 0.1782178 0.7826087
        {legs=FALSE}
                                                               1.0539130
## [10] {hair=TRUE}
                         => {tail=TRUE} 0.3267327 0.7674419
                                                              1.0334884
## [11] {aquatic=FALSE}
                         => {tail=TRUE} 0.4851485 0.7538462
                                                               1.0151795
## [12] {airborne=TRUE}
                         => {tail=TRUE} 0.1782178 0.7500000
                                                              1.0100000
## [13] {predator=TRUE}
                         => {tail=TRUE} 0.4158416 0.7500000
                                                              1.0100000
## [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
                                                              0.9946970
   [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                                                              0.9875556
                         => {tail=TRUE} 0.4158416 0.7241379
## [16] {hair=FALSE}
                                                              0.9751724
## [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
## [18] {eggs=TRUE}
                         => {tail=TRUE} 0.3861386 0.6610169
                                                              0.8901695
  [19] {catsize=FALSE}
                         => {tail=TRUE} 0.3663366 0.6491228
                                                              0.8741520
##
  [20] {toothed=FALSE} => {tail=TRUE} 0.2277228 0.5750000
                                                              0.7743333
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
   [1] {eggs=TRUE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3793103
   [2] {milk=FALSE, aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3666667
##
   [3] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
  [1] 1.473475
##
##
   [2] 1.424359
##
   [3] 1.371041
##
                                      rhs
                                                   support
                                                              confidence
##
   [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
##
   [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
##
       lift
## [1] 1.174419
## [2] 1.095661
```

```
##
                                           rhs
                                                        support
                                                                  confidence
## [1] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
  [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
  [3] {fins=FALSE,domestic=FALSE}
                                       => {tail=FALSE} 0.2178218 0.3055556
##
   [4] {legs=TRUE,domestic=FALSE}
                                        => {tail=FALSE} 0.1782178 0.2727273
##
       lift
## [1] 1.398462
## [2] 1.258397
  [3] 1.186966
##
  [4] 1.059441
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
   [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
##
##
  [1] 1.371041
##
       lhs
                                       rhs
                                                    support
                                                              confidence
  [1] {hair=FALSE, feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
   [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
  [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
                                   => {tail=FALSE} 0.1188119 0.3333333
  [4] {hair=FALSE,legs=TRUE}
##
##
       lift
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {tail=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE}
                                        => {tail=FALSE} 0.1980198 0.5128205
## [3] {feathers=FALSE,milk=FALSE}
                                        => {tail=FALSE} 0.1980198 0.5000000
## [4] {feathers=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4651163
## [5] {hair=FALSE,feathers=FALSE}
                                        => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                        => {tail=FALSE} 0.2475248 0.3906250
## [7] {feathers=FALSE,legs=TRUE}
                                       => {tail=FALSE} 0.2079208 0.3620690
  [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
  [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
##
       lift
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
## [7] 1.406499
## [8] 1.371041
##
  [9] 1.258397
##
       lhs
                                      rhs
                                                             confidence
                                                   support
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
##
  [2] {eggs=TRUE,fins=FALSE}
                                  => {tail=FALSE} 0.1980198 0.4347826
  [3] {eggs=TRUE,legs=TRUE}
                                  => {tail=FALSE} 0.1584158 0.4000000
  [4] {eggs=TRUE,aquatic=FALSE} => {tail=FALSE} 0.1089109 0.3793103
  [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
       lift
## [1] 1.992110
## [2] 1.688963
## [3] 1.553846
```

```
## [4] 1.473475
  [5] 1.469854
##
##
       lhs
                                                       support
                                                                 confidence
## [1] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
##
  [2] {fins=FALSE, catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4166667
  [3] {legs=TRUE,catsize=FALSE}
                                       => {tail=FALSE} 0.1584158 0.3902439
  [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
  [5] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
##
   [6] {aquatic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
  [1] 1.806798
  [2] 1.618590
##
  [3] 1.515947
## [4] 1.510684
## [5] 1.398462
##
  [6] 1.371041
##
       lhs
                                                       support
                                                                  confidence
                                          rhs
   [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
   [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
##
       lift
##
  [1] 3.301923
  [2] 2.373932
##
  [1] "Número de reglas con consecuente negado"
##
                                                            support
##
  [1]
        {catsize=FALSE, type=bird}
                                         => {airborne=TRUE} 0.1287129
  [2]
        {feathers=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1287129
  [3]
        {type=bird}
                                         => {airborne=TRUE} 0.1584158
##
##
   [4]
        {feathers=TRUE}
                                         => {airborne=TRUE} 0.1584158
##
  [5]
        {toothed=FALSE,backbone=TRUE}
                                         => {airborne=TRUE} 0.1584158
  [6]
                                         => {airborne=TRUE} 0.1485149
        {predator=FALSE, toothed=FALSE}
## [7]
        {toothed=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1584158
##
  [8]
        {toothed=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [9]
        {aquatic=FALSE, toothed=FALSE}
                                         => {airborne=TRUE} 0.1683168
## [10] {toothed=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
  [11] {toothed=FALSE,legs=TRUE}
                                           {airborne=TRUE} 0.2178218
## [12] {eggs=TRUE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1683168
## [13] {eggs=TRUE,predator=FALSE}
                                         => {airborne=TRUE} 0.1485149
## [14] {milk=FALSE,predator=FALSE}
                                         => {airborne=TRUE} 0.1485149
## [15] {milk=FALSE,aquatic=FALSE}
                                           {airborne=TRUE} 0.1683168
## [16] {eggs=TRUE,breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [17] {milk=FALSE,breathes=TRUE}
                                           {airborne=TRUE} 0.2178218
## [18] {toothed=FALSE, venomous=FALSE}
                                         => {airborne=TRUE} 0.1980198
## [19] {toothed=FALSE}
                                         => {airborne=TRUE} 0.2178218
                                         => {airborne=TRUE} 0.2178218
## [20] {eggs=TRUE,legs=TRUE}
## [21] {milk=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [22] {predator=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1485149
## [23] {legs=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.2079208
## [24] {breathes=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.2079208
                                         => {airborne=TRUE} 0.1089109
## [25] {hair=FALSE,predator=FALSE}
## [26] {aquatic=FALSE, catsize=FALSE}
                                         => {airborne=TRUE} 0.1683168
## [27] {hair=FALSE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1287129
## [28] {hair=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.1782178
## [29] {hair=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.1782178
## [30] {eggs=TRUE,fins=FALSE}
                                         => {airborne=TRUE} 0.2178218
```

```
## [31] {milk=FALSE,fins=FALSE}
                                         => {airborne=TRUE} 0.2178218
                                           {airborne=TRUE} 0.2079208
  [32] {fins=FALSE,catsize=FALSE}
  [33] {predator=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1683168
  [34] {hair=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.1782178
##
  [35] {predator=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1683168
  [36] {predator=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.1683168
  [37] {eggs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [38] {eggs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
   [39]
       {tail=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
  [40] {milk=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [41] {milk=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.1881188
  [42] {milk=FALSE, venomous=FALSE}
                                           {airborne=TRUE} 0.1980198
       {predator=FALSE,domestic=FALSE} =>
  [43]
                                            {airborne=TRUE} 0.1287129
                                         => {airborne=TRUE} 0.1584158
## [44]
       {hair=FALSE,tail=TRUE}
## [45] {eggs=TRUE,backbone=TRUE}
                                         => {airborne=TRUE} 0.1584158
   [46]
        {milk=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [47]
       {venomous=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
       {eggs=TRUE, venomous=FALSE}
                                           {airborne=TRUE} 0.1980198
  [49] {backbone=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.1485149
   [50] {hair=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1782178
##
  [51] {breathes=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2376238
  [52] {aquatic=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1881188
  [53] {legs=TRUE,tail=TRUE}
                                           {airborne=TRUE} 0.1782178
       {breathes=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2376238
##
   Γ54]
   [55] {fins=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2376238
   [56] {fins=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1782178
   [57] {aquatic=FALSE}
                                         => {airborne=TRUE} 0.1881188
##
##
   [58]
        {venomous=FALSE}
                                         => {airborne=TRUE} 0.2178218
##
        confidence lift
##
  [1]
        0.9285714 3.9077381
##
   [2]
        0.9285714
                   3.9077381
##
   [3]
        0.8000000
                   3.3666667
##
   [4]
        0.8000000
                   3.3666667
   [5]
##
        0.7272727
                   3.0606061
   [6]
        0.7142857
##
                   3.0059524
##
   [7]
        0.6956522
                   2.9275362
  [8]
        0.6666667
                   2.8055556
  [9]
        0.6296296
                   2.6496914
##
  [10] 0.6129032
                   2.5793011
  [11] 0.6111111
                   2.5717593
  [12] 0.5862069
                   2.4669540
  [13] 0.5769231
                   2.4278846
  Γ14 ] 0.5769231
                   2.4278846
  [15] 0.5666667
                   2.3847222
  [16] 0.5641026
                   2.3739316
  [17] 0.5641026
                   2.3739316
  [18] 0.555556
                   2.3379630
  [19] 0.5500000
                   2.3145833
  [20] 0.5500000
                   2.3145833
  [21] 0.5500000
                   2.3145833
##
  [22] 0.5172414
                   2.1767241
## [23] 0.5121951
                   2.1554878
## [24] 0.5121951
                   2.1554878
## [25] 0.5000000 2.1041667
```

```
## [26] 0.5000000
                   2.1041667
   [27] 0.5000000
                   2.1041667
                    2.1041667
   [28] 0.5000000
   [29] 0.4864865
                    2.0472973
   [30] 0.4782609
                    2.0126812
##
   [31] 0.4680851
                    1.9698582
   [32] 0.4375000
                    1.8411458
   [33] 0.4358974
                    1.8344017
   [34] 0.4186047
                    1.7616279
   [35] 0.4146341
                    1.7449187
   [36] 0.4146341
                    1.7449187
   [37] 0.4130435
                    1.7382246
##
   [38] 0.4102564
                    1.7264957
   [39] 0.4054054
                    1.7060811
   [40] 0.4000000
                    1.6833333
   [41] 0.3958333
                    1.6657986
##
   [42] 0.3846154
                    1.6185897
   [43] 0.3823529
                    1.6090686
   [44] 0.3809524
                    1.6031746
   [45] 0.3809524
                    1.6031746
##
   [46] 0.3809524
                    1.6031746
   [47] 0.3800000
                    1.5991667
   [48] 0.3773585
                    1.5880503
   [49] 0.3750000
                    1.5781250
   [50] 0.3461538
                    1.4567308
   [51] 0.3287671
                    1.3835616
   [52] 0.3166667
                    1.3326389
##
   [53] 0.3157895
                    1.3289474
   [54] 0.3157895
                    1.3289474
                    1.3116883
   [55] 0.3116883
   [56] 0.3050847
                    1.2838983
##
   [57]
        0.2923077
                    1.2301282
##
   [58]
        0.2365591
                    0.9955197
##
        lhs
                                               support
                                                          confidence lift
##
   [1]
                             {airborne=FALSE} 0.1287129 1.0000000
        {type=fish}
##
   [2]
                          => {airborne=FALSE} 0.1683168 1.0000000
        {fins=TRUE}
                                                                     1.3116883
##
   [3]
        {breathes=FALSE}
                             {airborne=FALSE} 0.2079208 1.0000000
##
   [4]
                          => {airborne=FALSE} 0.2277228 1.0000000
        {legs=FALSE}
                                                                     1.3116883
   [5]
        {toothed=TRUE}
                             {airborne=FALSE} 0.5841584 0.9672131
##
                                                                     1.2686821
   [6]
                             {airborne=FALSE} 0.3960396 0.9523810
##
        {eggs=FALSE}
                                                                     1.2492270
   [7]
        {milk=TRUE}
                             {airborne=FALSE} 0.3861386 0.9512195
                                                                     1.2477035
   [8]
                             {airborne=FALSE} 0.3861386 0.9512195
##
        {type=mammal}
                                                                     1.2477035
##
   [9]
        {catsize=TRUE}
                          => {airborne=FALSE} 0.4059406 0.9318182
                                                                     1.2222550
                          => {airborne=FALSE} 0.4851485 0.8750000
   [10]
       {predator=TRUE}
                                                                     1.1477273
  [11]
       {aquatic=TRUE}
                          => {airborne=FALSE} 0.3069307 0.8611111
                                                                     1.1295094
##
   [12]
        {hair=TRUE}
                             {airborne=FALSE} 0.3663366 0.8604651
                                                                     1.1286620
   [13]
       {backbone=TRUE}
                             {airborne=FALSE} 0.6435644 0.7831325
                                                                     1.0272258
   [14] {tail=FALSE}
                             {airborne=FALSE} 0.1980198 0.7692308
                                                                     1.0089910
   [15] {tail=TRUE}
                             {airborne=FALSE} 0.5643564 0.7600000
                                                                     0.9968831
   [16]
        {aquatic=FALSE}
                             {airborne=FALSE} 0.4554455 0.7076923
                                                                     0.9282717
##
   [17]
        {hair=FALSE}
                          => {airborne=FALSE} 0.3960396 0.6896552
                                                                     0.9046126
## [18] {backbone=FALSE}
                             {airborne=FALSE} 0.1188119 0.6666667
                                                                     0.8744589
                          => {airborne=FALSE} 0.3762376 0.6333333
## [19] {milk=FALSE}
                                                                     0.8307359
## [20] {eggs=TRUE}
                          => {airborne=FALSE} 0.3663366 0.6271186
```

```
## [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.6222222 0.8161616
  [22] {toothed=FALSE} => {airborne=FALSE} 0.1782178 0.4500000 0.5902597
##
##
                                        rhs
                                                         support
                                                                   confidence
  [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
##
   [2] {eggs=TRUE,backbone=TRUE}
##
                                     => {airborne=TRUE} 0.1584158 0.3809524
   [3] {milk=FALSE,backbone=TRUE}
                                     => {airborne=TRUE} 0.1584158 0.3809524
  [4] {backbone=TRUE.catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift.
## [1] 3.060606
##
  [2] 1.603175
  [3] 1.603175
##
  [4] 1.578125
##
       lhs
                                    rhs
                                                     support
                                                               confidence
## [1] {toothed=FALSE,tail=TRUE} => {airborne=TRUE} 0.1584158 0.6956522
## [2] {eggs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4102564
  [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4000000
## [5] {hair=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.3809524
                                 => {airborne=TRUE} 0.1782178 0.3157895
## [6] {legs=TRUE,tail=TRUE}
  [7] {fins=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1782178 0.3050847
##
       lift
## [1] 2.927536
## [2] 1.726496
## [3] 1.706081
## [4] 1.683333
## [5] 1.603175
##
  [6] 1.328947
##
   [7] 1.283898
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
  [2] {eggs=TRUE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5862069
  [3] {milk=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5666667
  [4] {aquatic=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
                                     => {airborne=TRUE} 0.1287129 0.5000000
  [5] {hair=FALSE,aquatic=FALSE}
   [6] {aquatic=FALSE,legs=TRUE}
                                     => {airborne=TRUE} 0.1881188 0.3166667
##
##
       lift
## [1] 2.649691
## [2] 2.466954
  [3] 2.384722
##
  [4] 2.104167
  [5] 2.104167
  [6] 1.332639
##
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
## [2] {hair=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1287129 0.5000000
                                    => {airborne=TRUE} 0.1782178 0.5000000
## [3] {hair=FALSE,legs=TRUE}
## [4] {hair=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.4864865
## [5] {hair=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.1782178 0.4186047
  [6] {hair=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.3809524
  [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
##
       lift
## [1] 2.104167
## [2] 2.104167
## [3] 2.104167
```

```
## [4] 2.047297
  [5] 1.761628
  [6] 1.603175
  [7] 1.456731
##
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
##
  [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
  [2] {milk=FALSE,aquatic=FALSE}
                                    => {airborne=TRUE} 0.1683168 0.5666667
  [3] {milk=FALSE,breathes=TRUE}
                                    => {airborne=TRUE} 0.2178218 0.5641026
  [4] {milk=FALSE,legs=TRUE}
                                    => {airborne=TRUE} 0.2178218 0.5500000
  [5] {milk=FALSE,fins=FALSE}
                                    => {airborne=TRUE} 0.2178218 0.4680851
  [6] {milk=FALSE,tail=TRUE}
                                    => {airborne=TRUE} 0.1584158 0.4000000
                                   => {airborne=TRUE} 0.1881188 0.3958333
   [7] {milk=FALSE, catsize=FALSE}
   [8] {milk=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
##
   [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
       lift.
##
  [1] 2.427885
##
   [2] 2.384722
  [3] 2.373932
  [4] 2.314583
   [5] 1.969858
##
  [6] 1.683333
  [7] 1.665799
##
  [8] 1.618590
##
   [9] 1.603175
##
       lhs
                                      rhs
                                                      support
                                                                 confidence
  [1] {eggs=TRUE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1683168 0.5862069
   [2] {eggs=TRUE,predator=FALSE}
                                  => {airborne=TRUE} 0.1485149 0.5769231
   [3] {eggs=TRUE,breathes=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5641026
  [4] {eggs=TRUE,legs=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5500000
  [5] {eggs=TRUE,fins=FALSE}
                                   => {airborne=TRUE} 0.2178218 0.4782609
   [6] {eggs=TRUE,catsize=FALSE}
                                   => {airborne=TRUE} 0.1881188 0.4130435
   [7] {eggs=TRUE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.4102564
   [8] {eggs=TRUE,backbone=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
   [9] {eggs=TRUE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
       lift
## [1] 2.466954
  [2] 2.427885
  [3] 2.373932
##
   [4] 2.314583
##
  [5] 2.012681
  [6] 1.738225
   [7] 1.726496
##
   [8] 1.603175
##
   [9] 1.588050
##
       lhs
                                           rhs
                                                           support
  [1] {predator=FALSE,toothed=FALSE}
                                        => {airborne=TRUE} 0.1485149
##
   [2] {eggs=TRUE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [3] {milk=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [4] {predator=FALSE, catsize=FALSE}
                                        => {airborne=TRUE} 0.1485149
   [5] {hair=FALSE, predator=FALSE}
                                        => {airborne=TRUE} 0.1089109
  [6] {predator=FALSE,legs=TRUE}
                                        => {airborne=TRUE} 0.1683168
## [7] {predator=FALSE,breathes=TRUE}
                                        => {airborne=TRUE} 0.1683168
## [8] {predator=FALSE,fins=FALSE}
                                        => {airborne=TRUE} 0.1683168
## [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
```

```
confidence lift
##
  [1] 0.7142857
##
                 3.005952
   [2] 0.5769231
                  2.427885
   [3] 0.5769231
                  2.427885
   [4] 0.5172414
                  2.176724
   [5] 0.5000000
                  2.104167
##
   [6] 0.4358974
                  1.834402
   [7] 0.4146341
                  1.744919
   [8] 0.4146341
                  1.744919
##
   [9] 0.3823529
                  1.609069
##
       lhs
                                          rhs
                                                                     confidence
                                                           support
                                         {airborne=TRUE} 0.1584158 0.7272727
##
   [1] {toothed=FALSE,backbone=TRUE}
   [2] {predator=FALSE, toothed=FALSE} =>
                                          {airborne=TRUE} 0.1485149 0.7142857
   [3] {toothed=FALSE,tail=TRUE}
                                          {airborne=TRUE} 0.1584158 0.6956522
  [4] {toothed=FALSE,breathes=TRUE}
                                          {airborne=TRUE} 0.2178218 0.6666667
   [5] {aquatic=FALSE, toothed=FALSE}
                                          {airborne=TRUE} 0.1683168 0.6296296
   [6] {toothed=FALSE,catsize=FALSE}
                                          {airborne=TRUE} 0.1881188 0.6129032
   [7] {toothed=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6111111
   [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
##
       lift
##
  [1] 3.060606
  [2] 3.005952
##
  [3] 2.927536
   [4] 2.805556
  [5] 2.649691
  [6] 2.579301
   [7] 2.571759
##
   [8] 2.337963
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                          support
                                                                    confidence
##
  [1]
        {milk=TRUE, toothed=TRUE}
                                           {eggs=FALSE} 0.3960396 1.0000000
##
   [2]
        {milk=TRUE,aquatic=FALSE}
                                           {eggs=FALSE} 0.3465347 1.0000000
##
   [3]
        {toothed=TRUE, type=mammal}
                                         => {eggs=FALSE} 0.3960396 1.0000000
   [4]
        {aquatic=FALSE, type=mammal}
##
                                         => {eggs=FALSE} 0.3465347 1.0000000
   [5]
        {hair=TRUE, toothed=TRUE}
                                            {eggs=FALSE} 0.3762376 1.0000000
##
        {milk=TRUE}
##
   [6]
                                           {eggs=FALSE} 0.3960396 0.9756098
##
  [7]
        {type=mammal}
                                            {eggs=FALSE} 0.3960396 0.9756098
  [8]
        {hair=TRUE,backbone=TRUE}
                                            {eggs=FALSE} 0.3762376 0.9743590
##
        {hair=TRUE,airborne=FALSE}
                                            {eggs=FALSE} 0.3564356 0.9729730
   [9]
  [10] {hair=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3168317 0.9696970
  [11] {hair=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2871287 0.9666667
  [12] {hair=TRUE,predator=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.9500000
  [13] {aquatic=FALSE, toothed=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.9210526
  [14] {toothed=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.8857143
  [15] {toothed=TRUE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.8809524
  [16] {toothed=TRUE,breathes=TRUE}
                                           {eggs=FALSE} 0.3960396 0.8510638
  [17] {toothed=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.8409091
  [18] {aquatic=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2574257 0.8387097
  [19] {feathers=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.8157895
  [20] {breathes=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.7948718
  [21] {predator=FALSE,toothed=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.7916667
## [22] {legs=TRUE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2772277 0.7567568
## [23] {airborne=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.3069307 0.7560976
## [24] {predator=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.1188119 0.7500000
```

```
## [25] {fins=FALSE,catsize=TRUE}
                                         => {eggs=FALSE} 0.2673267 0.7500000
   [26] {airborne=FALSE,aquatic=FALSE}
                                            {eggs=FALSE} 0.3366337 0.7391304
  [27] {feathers=FALSE,aquatic=FALSE}
                                           {eggs=FALSE} 0.3564356 0.7058824
   [28] {toothed=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.7017544
   [29] {airborne=FALSE,breathes=TRUE}
                                           {eggs=FALSE} 0.3861386 0.6964286
  [30] {feathers=FALSE, breathes=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.6833333
  [31] {toothed=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.6730769
                                           {eggs=FALSE} 0.3564356 0.6666667
  [32] {airborne=FALSE,legs=TRUE}
   [33] {aquatic=FALSE,backbone=TRUE}
                                            {eggs=FALSE} 0.3465347 0.6603774
   [34] {feathers=FALSE,legs=TRUE}
                                           {eggs=FALSE} 0.3762376 0.6551724
   [35] {feathers=FALSE,tail=TRUE}
                                           {eggs=FALSE} 0.3564356 0.6545455
   [36] {feathers=FALSE,backbone=TRUE}
                                           {eggs=FALSE} 0.4059406 0.6507937
   [37]
       {aquatic=FALSE,tail=TRUE}
                                           {eggs=FALSE} 0.3069307 0.6326531
   [38] {aquatic=FALSE,predator=TRUE}
                                           {eggs=FALSE} 0.1683168 0.6296296
   [39] {airborne=FALSE,predator=FALSE} =>
                                           {eggs=FALSE} 0.1683168 0.6071429
   [40] {airborne=FALSE,backbone=TRUE}
                                            {eggs=FALSE} 0.3861386 0.6000000
   [41] {airborne=FALSE,fins=FALSE}
                                            {eggs=FALSE} 0.3564356 0.6000000
   [42] {airborne=FALSE,tail=TRUE}
                                           {eggs=FALSE} 0.3366337 0.5964912
   [43] {feathers=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3762376 0.5937500
   [44] {backbone=TRUE, breathes=TRUE}
                                           {eggs=FALSE} 0.3960396 0.5797101
##
  [45] {legs=TRUE,tail=TRUE}
                                           {eggs=FALSE} 0.3267327 0.5789474
  [46] {backbone=TRUE,legs=TRUE}
                                           {eggs=FALSE} 0.3663366 0.5781250
   [47] {aquatic=FALSE, venomous=FALSE}
                                            {eggs=FALSE} 0.3465347 0.5737705
       {breathes=TRUE,tail=TRUE}
   Г481
                                           {eggs=FALSE} 0.3465347 0.5737705
   [49] {predator=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.2178218 0.5641026
   [50] {backbone=TRUE,fins=FALSE}
                                         => {eggs=FALSE} 0.3663366 0.5606061
   [51] {fins=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3267327 0.5593220
##
   [52] {feathers=FALSE,predator=FALSE}
                                        => {eggs=FALSE} 0.1881188 0.5588235
   [53] {feathers=FALSE,airborne=FALSE}
                                           {eggs=FALSE} 0.3960396 0.5479452
  [54] {feathers=FALSE, venomous=FALSE} =>
                                           {eggs=FALSE} 0.3960396 0.5479452
        {airborne=FALSE, venomous=FALSE}
                                            {eggs=FALSE} 0.3762376 0.5352113
##
   [56]
        {breathes=TRUE, venomous=FALSE}
                                           {eggs=FALSE} 0.3960396 0.5333333
       {predator=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.5277778
   [58] {predator=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.1683168 0.5151515
   [59] {backbone=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5063291
##
   [60] {venomous=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.5000000
   [61] {backbone=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.4939759
   [62] {venomous=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.4675325
##
##
        lift.
##
  [1]
       2.404762
   [2]
        2.404762
   [3]
##
        2.404762
##
   [4]
        2.404762
##
   [5]
        2.404762
##
  [6]
        2.346109
   [7]
##
        2.346109
##
   [8]
        2.343101
##
   [9]
        2.339768
   [10] 2.331890
       2.324603
   Γ11]
##
  [12] 2.284524
## [13] 2.214912
## [14] 2.129932
## [15] 2.118481
```

```
## [16] 2.046606
   [17] 2.022186
   [18] 2.016897
   [19] 1.961779
   [20] 1.911477
  [21] 1.903770
   [22] 1.819820
## [23] 1.818235
   [24] 1.803571
   [25] 1.803571
   [26] 1.777433
   [27] 1.697479
   [28] 1.687552
   [29] 1.674745
   [30] 1.643254
   [31] 1.618590
   [32] 1.603175
   [33] 1.588050
   [34] 1.575534
   [35] 1.574026
   [36] 1.565004
##
   [37] 1.521380
  [38] 1.514109
   [39] 1.460034
   [40] 1.442857
   [41] 1.442857
   [42] 1.434419
   [43] 1.427827
  [44] 1.394065
   [45] 1.392231
   [46] 1.390253
##
   [47] 1.379781
   [48] 1.379781
   [49] 1.356532
   [50] 1.348124
   [51] 1.345036
##
   [52] 1.343838
   [53] 1.317678
##
   [54] 1.317678
   [55] 1.287056
##
   [56] 1.282540
   [57] 1.269180
   [58] 1.238817
##
   [59] 1.217601
   [60] 1.202381
##
   [61] 1.187894
   [62] 1.124304
##
##
        lhs
                             rhs
                                         support
                                                    confidence lift
##
   [1]
        {type=fish}
                          => {eggs=TRUE} 0.1287129 1.0000000
                                                               1.7118644
##
   [2]
        {type=bird}
                          => {eggs=TRUE} 0.1980198 1.0000000
                                                               1.7118644
##
   [3]
                          => {eggs=TRUE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                               1.7118644
##
   [4]
        {toothed=FALSE}
                          => {eggs=TRUE} 0.3861386 0.9750000
##
  [5]
        {breathes=FALSE} => {eggs=TRUE} 0.1980198 0.9523810
                                                               1.6303471
## [6]
        {hair=FALSE}
                          => {eggs=TRUE} 0.5346535 0.9310345 1.5938048
```

```
## [7]
        {airborne=TRUE}
                         => {eggs=TRUE} 0.2178218 0.9166667
                                                               1.5692090
##
  [8]
        {aquatic=TRUE}
                         => {eggs=TRUE} 0.2970297 0.8333333
                                                               1.4265537
        {legs=FALSE}
                         => {eggs=TRUE} 0.1881188 0.8260870
  [9]
                                                               1.4141489
                         => {eggs=TRUE} 0.1980198 0.7692308
##
  [10] {tail=FALSE}
                                                              1.3168188
  [11] {fins=TRUE}
                         => {eggs=TRUE} 0.1287129 0.7647059
                                                              1.3090728
  [12] {predator=TRUE}
                         => {eggs=TRUE} 0.3267327 0.5892857
                                                              1.0087772
  [13] {catsize=TRUE}
                         => {eggs=TRUE} 0.1287129 0.2954545
                                                              0.5057781
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
##
  [1] {hair=TRUE,predator=TRUE}
                                      => {eggs=FALSE} 0.1881188 0.9500000
   [2] {aquatic=FALSE,predator=TRUE} => {eggs=FALSE} 0.1683168 0.6296296
   [3] {predator=TRUE,breathes=TRUE} => {eggs=FALSE} 0.2178218 0.5641026
##
       lift
## [1] 2.284524
  [2] 1.514109
  [3] 1.356532
##
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
## [1] {hair=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2871287 0.9666667
  [2] {toothed=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.8857143
  [3] {aquatic=FALSE, catsize=TRUE}
                                      => {eggs=FALSE} 0.2574257 0.8387097
                                      => {eggs=FALSE} 0.3069307 0.8157895
  [4] {feathers=FALSE,catsize=TRUE}
## [5] {breathes=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.7948718
## [6] {legs=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2772277 0.7567568
  [7] {airborne=FALSE, catsize=TRUE} => {eggs=FALSE} 0.3069307 0.7560976
  [8] {predator=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.1188119 0.7500000
   [9] {fins=FALSE,catsize=TRUE}
##
                                      => {eggs=FALSE} 0.2673267 0.7500000
       lift
## [1] 2.324603
##
  [2] 2.129932
## [3] 2.016897
## [4] 1.961779
## [5] 1.911477
##
  [6] 1.819820
## [7] 1.818235
## [8] 1.803571
   [9] 1.803571
##
   [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                         support
                                                                    confidence
## [1]
                                         => {legs=FALSE} 0.1287129 1.0000000
        {type=fish}
  [2]
        {hair=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1485149 1.0000000
##
  [3]
        {eggs=TRUE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
  [4]
        {milk=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
        {toothed=TRUE, breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
##
  [5]
##
   [6]
        {breathes=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1386139 1.0000000
##
  [7]
        {backbone=TRUE, breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
## [8]
        {fins=TRUE}
                                         => {legs=FALSE} 0.1584158 0.9411765
## [9]
        {hair=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1782178 0.7826087
## [10] {breathes=FALSE}
                                         => {legs=FALSE} 0.1584158 0.7619048
## [11] {milk=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1584158 0.7619048
## [12] {eggs=TRUE,toothed=TRUE}
                                         => {legs=FALSE} 0.1485149 0.7500000
## [13] {aquatic=TRUE, toothed=TRUE}
                                         => {legs=FALSE} 0.1683168 0.7391304
## [14] {aquatic=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.6153846
## [15] {feathers=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.6000000
## [16] {airborne=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
## [17] {hair=FALSE, feathers=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5789474
```

```
## [18] {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
  [19] {hair=FALSE,aquatic=TRUE}
                                           {legs=FALSE} 0.1683168 0.5312500
  [20] {milk=FALSE,airborne=FALSE}
                                           {legs=FALSE} 0.1980198 0.5263158
  [21] {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
##
  [22] {feathers=FALSE,milk=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5000000
  [23] {feathers=FALSE,eggs=TRUE}
                                         => {legs=FALSE} 0.1881188 0.4871795
##
  [24] {toothed=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.4615385
  [25] {hair=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1584158 0.4444444
   [26] {airborne=FALSE, catsize=FALSE}
                                           {legs=FALSE} 0.1584158 0.4444444
   [27] {hair=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1782178 0.4285714
  [28] {milk=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1386139 0.4117647
   [29] {hair=FALSE,backbone=TRUE}
                                           {legs=FALSE} 0.1782178 0.4090909
                                         => {legs=FALSE} 0.1485149 0.4054054
       {predator=TRUE, toothed=TRUE}
   [30]
       {milk=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1584158 0.4000000
  [32]
                                           {legs=FALSE} 0.1287129 0.3939394
       {eggs=TRUE,predator=TRUE}
        {hair=FALSE,domestic=FALSE}
                                            {legs=FALSE} 0.2079208 0.3888889
   [33]
       {eggs=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1485149 0.3846154
##
   [34]
   [35] {milk=FALSE,backbone=TRUE}
                                           {legs=FALSE} 0.1584158 0.3809524
   [36] {feathers=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.3720930
   [37] {feathers=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3617021
##
  [38] {eggs=TRUE,backbone=TRUE}
                                         => {legs=FALSE} 0.1485149 0.3571429
  [39] {airborne=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
  [40] {toothed=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3461538
   [41] {milk=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.1881188 0.3454545
  [42] {predator=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1386139 0.3333333
  [43] {eggs=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3333333
   [44] {feathers=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3272727
  [45] {tail=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3243243
  [46] {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
                                         => {legs=FALSE} 0.1881188 0.3220339
  [47] {airborne=FALSE, toothed=TRUE}
  [48]
        {airborne=FALSE,tail=TRUE}
                                            {legs=FALSE} 0.1782178 0.3157895
   [49]
       {feathers=FALSE,airborne=FALSE} =>
                                            {legs=FALSE} 0.2277228 0.3150685
   [50] {feathers=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.2178218 0.3098592
                                         => {legs=FALSE} 0.1683168 0.3035714
   [51] {predator=TRUE}
        {feathers=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3015873
##
   [53]
       {backbone=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
   [54] {domestic=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1485149 0.3000000
   [55] {tail=TRUE,domestic=FALSE}
##
                                         => {legs=FALSE} 0.1683168 0.2615385
   [56] {backbone=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.2535211
##
##
        lift
##
  [1]
        4.391304
   [2]
##
        4.391304
##
   [3]
        4.391304
##
   [4]
        4.391304
##
  [5]
        4.391304
   [6]
##
        4.391304
        4.391304
##
   [7]
##
   [8]
        4.132992
   [9]
        3.436673
   [10]
       3.345756
##
##
   [11]
       3.345756
## [12] 3.293478
## [13] 3.245747
## [14] 2.702341
```

```
## [15] 2.634783
   [16] 2.549790
   [17] 2.542334
   [18] 2.415217
   [19] 2.332880
   [20] 2.311213
   [21] 2.254994
  [22] 2.195652
   [23] 2.139353
   [24] 2.026756
   [25] 1.951691
   [26] 1.951691
   [27] 1.881988
   [28] 1.808184
   [29] 1.796443
   [30] 1.780259
   [31] 1.756522
   [32] 1.729908
   [33] 1.707729
   [34] 1.688963
##
   [35] 1.672878
   [36] 1.633974
   [37] 1.588344
   [38] 1.568323
   [39] 1.523514
   [40] 1.520067
   [41] 1.516996
   [42] 1.463768
   [43] 1.463768
   [44] 1.437154
   [45] 1.424207
##
   [46] 1.420716
   [47] 1.414149
   [48] 1.386728
   [49] 1.383562
   [50] 1.360686
##
   [51] 1.333075
   [52] 1.324362
##
   [53] 1.317391
##
   [54] 1.317391
   [55] 1.148495
   [56]
       1.113288
##
                                                    confidence lift
##
        lhs
                             rhs
                                          support
##
   [1]
        {type=bird}
                          => {legs=TRUE} 0.1980198 1.0000000
                                                               1.2948718
   [2]
        {feathers=TRUE}
                          => {legs=TRUE} 0.1980198 1.0000000
                                                               1.2948718
   [3]
##
        {airborne=TRUE}
                          => {legs=TRUE} 0.2376238 1.0000000
                                                                1.2948718
   [4]
##
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                                1.2647585
   [5]
##
        {milk=TRUE}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
   [6]
        {type=mammal}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
##
   [7]
        {domestic=TRUE}
                          => {legs=TRUE} 0.1188119 0.9230769
                                                                1.1952663
                          => {legs=TRUE} 0.5940594 0.9230769
##
   [8]
        {aquatic=FALSE}
                                                                1.1952663
        {eggs=FALSE}
                          => {legs=TRUE} 0.3762376 0.9047619
## [10] {toothed=FALSE}
                          => {legs=TRUE} 0.3564356 0.9000000
                                                               1.1653846
## [11] {predator=FALSE} => {legs=TRUE} 0.3861386 0.8666667
```

```
## [12] {catsize=TRUE}
                          => {legs=TRUE} 0.3663366 0.8409091
                                                               1.0888695
                                                               1.0458580
## [13] {tail=FALSE}
                          => {legs=TRUE} 0.2079208 0.8076923
  [14] {backbone=FALSE} => {legs=TRUE} 0.1386139 0.7777778
                                                               1.0071225
                          => {legs=TRUE} 0.5643564 0.7600000
  [15] {tail=TRUE}
                                                               0.9841026
  [16] {catsize=FALSE}
                         => {legs=TRUE} 0.4059406 0.7192982
                                                               0.9313990
  [17] {airborne=FALSE} => {legs=TRUE} 0.5346535 0.7012987
                                                               0.9080919
## [18] {toothed=TRUE}
                          => {legs=TRUE} 0.4158416 0.6885246
                                                               0.8915511
                          => {legs=TRUE} 0.3960396 0.6779661
## [19] {eggs=TRUE}
                                                               0.8778792
  [20] {milk=FALSE}
                          => {legs=TRUE} 0.3960396 0.6666667
                                                               0.8632479
##
   [21] {aquatic=TRUE}
                          => {legs=TRUE} 0.1782178 0.5000000
                                                               0.6474359
##
        lhs
                                       rhs
                                                     support
                                                               confidence
##
  [1]
        {breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
##
   [2]
        {aquatic=TRUE, tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.6153846
##
  [3]
        {hair=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1782178 0.4285714
## [4]
        {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
##
  [5]
        {eggs=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1485149 0.3846154
##
   [6]
        {predator=TRUE,tail=TRUE}
                                   => {legs=FALSE} 0.1386139 0.3333333
   [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
        {tail=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3243243
##
   [8]
   [9]
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
##
   [10] {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
        lift
        4.391304
## [1]
##
   [2]
        2.702341
##
  [3]
        1.881988
  [4]
        1.756522
   [5]
##
        1.688963
##
   [6]
        1.463768
   [7]
##
        1.437154
##
  [8]
        1.424207
##
  [9]
        1.386728
##
   [10] 1.148495
##
       lhs
                                                                  confidence
                                                        support
  [1] {toothed=TRUE,catsize=FALSE}
##
                                       => {legs=FALSE} 0.1188119 0.4615385
   [2] {airborne=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.4444444
  [3] {feathers=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
  [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
  [5] {backbone=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3000000
   [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
##
##
       lift
  [1] 2.026756
  [2] 1.951691
##
   [3] 1.633974
##
  [4] 1.424207
## [5] 1.317391
  [6] 1.317391
##
        lhs
##
                                            rhs
                                                          support
                                                                    confidence
##
  [1]
        {airborne=FALSE, aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
  [2]
        {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
##
  [3]
        {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
  [4]
##
        {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
  [5]
        {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
## [6]
        {airborne=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
## [7]
        {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
```

```
{airborne=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
        {airborne=FALSE,tail=TRUE}
  [9]
                                         => {legs=FALSE} 0.1782178 0.3157895
  [10] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
        lift
## [1]
        2.549790
## [2]
       2.415217
## [3]
        2.311213
## [4]
       2.254994
## [5]
        1.951691
## [6]
        1.523514
## [7]
        1.420716
  [8]
##
        1.414149
        1.386728
##
  [9]
## [10] 1.383562
##
       lhs
                                         rhs
                                                      support
                                                                confidence
## [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
  [2] {hair=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1782178 0.7826087
## [3] {milk=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1584158 0.7619048
## [4] {eggs=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.7500000
## [5] {aquatic=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
## [6] {toothed=TRUE,catsize=FALSE}
                                     => {legs=FALSE} 0.1188119 0.4615385
## [7] {predator=TRUE,toothed=TRUE}
                                     => {legs=FALSE} 0.1485149 0.4054054
## [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
## [9] {airborne=FALSE,toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
       lift
## [1] 4.391304
## [2] 3.436673
## [3] 3.345756
## [4] 3.293478
## [5] 3.245747
## [6] 2.026756
## [7] 1.780259
## [8] 1.520067
## [9] 1.414149
##
       lhs
                                      rhs
                                                   support
                                                             confidence
## [1] {eggs=TRUE,fins=TRUE}
                                  => {legs=FALSE} 0.1287129 1.0000000
## [2] {eggs=TRUE,toothed=TRUE}
                                  => {legs=FALSE} 0.1485149 0.7500000
## [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
## [4] {feathers=FALSE,eggs=TRUE} => {legs=FALSE} 0.1881188 0.4871795
## [5] {eggs=TRUE,predator=TRUE}
                                  => {legs=FALSE} 0.1287129 0.3939394
                                  => {legs=FALSE} 0.1485149 0.3846154
## [6] {eggs=TRUE,tail=TRUE}
  [7] {eggs=TRUE,backbone=TRUE} => {legs=FALSE} 0.1485149 0.3571429
   [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
##
       lift
## [1] 4.391304
## [2] 3.293478
## [3] 2.254994
## [4] 2.139353
## [5] 1.729908
## [6] 1.688963
## [7] 1.568323
## [8] 1.463768
##
       lhs
                                                    support
                                                              confidence
                                       rhs
## [1] {milk=FALSE,fins=TRUE}
                                    => {legs=FALSE} 0.1287129 1.0000000
```

```
## [2] {milk=FALSE,toothed=TRUE}
                                   => {legs=FALSE} 0.1584158 0.7619048
## [3] {milk=FALSE,airborne=FALSE} => {legs=FALSE} 0.1980198 0.5263158
  [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
  [5] {milk=FALSE,predator=TRUE} => {legs=FALSE} 0.1386139 0.4117647
  [6] {milk=FALSE,tail=TRUE}
                                   => {legs=FALSE} 0.1584158 0.4000000
  [7] {milk=FALSE,backbone=TRUE} => {legs=FALSE} 0.1584158 0.3809524
  [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
       lift
## [1] 4.391304
##
  [2] 3.345756
## [3] 2.311213
  [4] 2.195652
##
  [5] 1.808184
  [6] 1.756522
##
## [7] 1.672878
## [8] 1.516996
##
       lhs
                                                      support
                                                                confidence
                                         rhs
  [1] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
  [2] {aquatic=TRUE,tail=TRUE}
                                      => {legs=FALSE} 0.1584158 0.6153846
  [3] {feathers=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.6000000
  [4] {airborne=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.5806452
  [5] {hair=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1683168 0.5312500
##
       lift
## [1] 3.245747
  [2] 2.702341
  [3] 2.634783
  [4] 2.549790
##
   [5] 2.332880
   [1] "Número de reglas con consecuente negado"
##
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
##
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
   [2] {aquatic=FALSE,legs=TRUE}
                                      => {domestic=TRUE} 0.1188119 0.2000000
  [3] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
  [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
      {backbone=TRUE, breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
   [5]
##
       lift
## [1] 1.612482
## [2] 1.553846
  [3] 1.335337
##
  [4] 1.294872
  [5] 1.238573
##
        lhs
                                              support
                                                        confidence lift
## [1]
        {aquatic=TRUE}
                         => {domestic=FALSE} 0.3465347 0.9722222
                                                                   1.1158460
##
  [2]
                         => {domestic=FALSE} 0.5346535 0.9642857
        {predator=TRUE}
                                                                   1.1067370
##
  [3]
        {legs=FALSE}
                         => {domestic=FALSE} 0.2178218 0.9565217
                                                                   1.0978261
## [4]
        {breathes=FALSE} => {domestic=FALSE} 0.1980198 0.9523810
                                                                   1.0930736
##
  [5]
        {backbone=FALSE} => {domestic=FALSE} 0.1683168 0.9444444
                                                                   1.0839646
##
  [6]
        {fins=TRUE}
                         => {domestic=FALSE} 0.1584158 0.9411765
                                                                   1.0802139
##
  [7]
        {hair=FALSE}
                         => {domestic=FALSE} 0.5346535 0.9310345
                                                                   1.0685737
##
  [8]
        {type=fish}
                         => {domestic=FALSE} 0.1188119 0.9230769
                                                                   1.0594406
##
  [9]
                         => {domestic=FALSE} 0.5445545 0.9166667
        {milk=FALSE}
                                                                   1.0520833
## [10] {eggs=TRUE}
                         => {domestic=FALSE} 0.5346535 0.9152542
                         => {domestic=FALSE} 0.3564356 0.9000000
## [11] {toothed=FALSE}
                                                                   1.0329545
## [12] {airborne=FALSE} => {domestic=FALSE} 0.6732673 0.8831169 1.0135773
```

```
## [13] {catsize=FALSE}
                         => {domestic=FALSE} 0.4950495 0.8771930 1.0067783
  [14] {feathers=FALSE} => {domestic=FALSE} 0.7029703 0.8765432
                                                                   1.0060325
## [15] {catsize=TRUE}
                         => {domestic=FALSE} 0.3762376 0.8636364
                                                                   0.9912190
## [16] {backbone=TRUE}
                         => {domestic=FALSE} 0.7029703 0.8554217
                                                                   0.9817908
  [17] {legs=TRUE}
                         => {domestic=FALSE} 0.6534653 0.8461538
                                                                   0.9711538
  [18] {airborne=TRUE}
                         => {domestic=FALSE} 0.1980198 0.8333333
                                                                   0.9564394
##
  [19] {eggs=FALSE}
                         => {domestic=FALSE} 0.3366337 0.8095238
                                                                   0.9291126
  [20] {milk=TRUE}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                   0.9237805
##
  [21] {type=mammal}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                   0.9237805
##
       lhs
                                         rhs
                                                         support
                                                                    confidence
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
   [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
   [3] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
   [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
##
       lift.
##
  [1] 1.612482
##
   [2] 1.335337
  [3] 1.294872
   [4] 1.238573
##
##
       lhs
                                                     support
                                                               confidence
##
  [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
       lift
  [1] 1.553846
##
   [2] 1.335337
   [1] "Número de reglas con consecuente negado"
##
                                         rhs
                                                         support
                                                                   confidence
##
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
   [2] {aquatic=FALSE,legs=TRUE}
                                     => {domestic=TRUE} 0.1188119 0.2000000
  [3] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
   [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
##
   [5] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
  [1] 1.612482
##
   [2] 1.553846
##
  [3] 1.335337
## [4] 1.294872
##
  [5] 1.238573
##
        lhs
                            rhs
                                              support
                                                        confidence lift
##
  [1]
        {aquatic=TRUE}
                         => {domestic=FALSE} 0.3465347 0.9722222
                                                                   1.1158460
                         => {domestic=FALSE} 0.5346535 0.9642857
  [2]
        {predator=TRUE}
                                                                   1.1067370
  [3]
        {legs=FALSE}
                         => {domestic=FALSE} 0.2178218 0.9565217
##
                                                                   1.0978261
##
   [4]
        {breathes=FALSE}
                         => {domestic=FALSE} 0.1980198 0.9523810
                                                                   1.0930736
##
  [5]
        {backbone=FALSE} => {domestic=FALSE} 0.1683168 0.9444444
                                                                   1.0839646
## [6]
        {fins=TRUE}
                         => {domestic=FALSE} 0.1584158 0.9411765
                                                                   1.0802139
## [7]
        {hair=FALSE}
                         => {domestic=FALSE} 0.5346535 0.9310345
                                                                   1.0685737
        {type=fish}
##
  [8]
                         => {domestic=FALSE} 0.1188119 0.9230769
                                                                   1.0594406
##
  [9]
        {milk=FALSE}
                         => {domestic=FALSE} 0.5445545 0.9166667
                                                                   1.0520833
  [10] {eggs=TRUE}
                         => {domestic=FALSE} 0.5346535 0.9152542
                                                                   1.0504622
  [11] {toothed=FALSE}
                         => {domestic=FALSE} 0.3564356 0.9000000
                                                                   1.0329545
## [12] {airborne=FALSE}
                         => {domestic=FALSE} 0.6732673 0.8831169
                                                                   1.0135773
## [13] {catsize=FALSE}
                         => {domestic=FALSE} 0.4950495 0.8771930
## [14] {feathers=FALSE} => {domestic=FALSE} 0.7029703 0.8765432
                                                                   1.0060325
## [15] {catsize=TRUE}
                         => {domestic=FALSE} 0.3762376 0.8636364
```

```
## [16] {backbone=TRUE}
                         => {domestic=FALSE} 0.7029703 0.8554217
                                                                   0.9817908
                                                                   0.9711538
  [17] {legs=TRUE}
                         => {domestic=FALSE} 0.6534653 0.8461538
                         => {domestic=FALSE} 0.1980198 0.8333333
  [18] {airborne=TRUE}
                                                                   0.9564394
                         => {domestic=FALSE} 0.3366337 0.8095238
  [19] {eggs=FALSE}
                                                                   0.9291126
   [20] {milk=TRUE}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                   0.9237805
##
   [21] {type=mammal}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                   0.9237805
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
##
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
   [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
   [3] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
   [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
## [1] 1.612482
  [2] 1.335337
##
  [3] 1.294872
##
##
   [4] 1.238573
##
       lhs
                                     rhs
                                                     support
                                                               confidence
   [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
##
       lift.
##
  [1] 1.553846
  [2] 1.335337
##
   [1] "Número de reglas con consecuente negado"
##
                                                             support
##
  [1]
        {toothed=FALSE,tail=FALSE}
                                           {backbone=FALSE} 0.1683168
   [2]
        {feathers=FALSE, toothed=FALSE}
                                           {backbone=FALSE} 0.1782178
   [3]
        {eggs=TRUE,tail=FALSE}
                                           {backbone=FALSE} 0.1683168
##
##
   [4]
        {milk=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
  [5]
##
        {hair=FALSE,tail=FALSE}
                                         => {backbone=FALSE} 0.1287129
##
  [6]
        {tail=FALSE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1584158
##
  [7]
        {tail=FALSE,domestic=FALSE}
                                           {backbone=FALSE} 0.1584158
##
  [8]
        {aquatic=FALSE,tail=FALSE}
                                           {backbone=FALSE} 0.1089109
  [9]
        {fins=FALSE,tail=FALSE}
                                           {backbone=FALSE} 0.1683168
  [10] {airborne=FALSE, toothed=FALSE}
                                         => {backbone=FALSE} 0.1188119
   [11] {toothed=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
## [12] {toothed=FALSE,domestic=FALSE}
                                           {backbone=FALSE} 0.1683168
## [13] {milk=FALSE,toothed=FALSE}
                                           {backbone=FALSE} 0.1782178
## [14] {toothed=FALSE}
                                           {backbone=FALSE} 0.1782178
## [15] {feathers=FALSE,milk=FALSE}
                                            {backbone=FALSE} 0.1782178
  [16] {feathers=FALSE,eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
  [17] {milk=FALSE,aquatic=FALSE}
                                           {backbone=FALSE} 0.1188119
  [18] {feathers=FALSE,catsize=FALSE}
                                           {backbone=FALSE} 0.1683168
## [19] {milk=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
                                           {backbone=FALSE} 0.1089109
## [20] {eggs=TRUE,aquatic=FALSE}
## [21] {eggs=TRUE,fins=FALSE}
                                         => {backbone=FALSE} 0.1683168
## [22] {hair=FALSE,feathers=FALSE}
                                           {backbone=FALSE} 0.1386139
## [23] {milk=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
## [24] {fins=FALSE,catsize=FALSE}
                                           {backbone=FALSE} 0.1683168
  [25] {aquatic=FALSE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1188119
  [26] {milk=FALSE,legs=TRUE}
                                           {backbone=FALSE} 0.1386139
## [27] {eggs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
## [28] {hair=FALSE,fins=FALSE}
                                           {backbone=FALSE} 0.1386139
## [29] {eggs=TRUE,legs=TRUE}
                                         => {backbone=FALSE} 0.1287129
## [30] {domestic=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
```

```
## [31] {legs=TRUE,catsize=FALSE}
                                             {backbone=FALSE} 0.1287129
   [32] {milk=FALSE,airborne=FALSE}
                                             {backbone=FALSE} 0.1188119
   [33] {milk=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
   [34] {airborne=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1089109
##
   [35]
       {eggs=TRUE,airborne=FALSE}
                                             {backbone=FALSE} 0.1089109
       {eggs=TRUE,domestic=FALSE}
##
   [36]
                                             {backbone=FALSE} 0.1584158
   [37]
       {eggs=TRUE}
                                             {backbone=FALSE} 0.1683168
   [38]
        {feathers=FALSE,fins=FALSE}
                                             {backbone=FALSE} 0.1782178
   [39]
        {hair=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1386139
   [40] {feathers=FALSE,legs=TRUE}
                                             {backbone=FALSE} 0.1386139
   [41] {feathers=FALSE,domestic=FALSE} =>
                                             {backbone=FALSE} 0.1683168
   [42] {fins=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
##
   [43] {feathers=FALSE, aquatic=FALSE}
                                             {backbone=FALSE} 0.1188119
   [44] {aquatic=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1089109
   [45] {legs=TRUE,domestic=FALSE}
                                          => {backbone=FALSE} 0.1287129
##
   [46] {aquatic=FALSE}
                                          => {backbone=FALSE} 0.1188119
##
        confidence lift
##
   [1]
        1.0000000
                   5.611111
   [2]
        0.9000000
                   5.050000
##
##
   [3]
        0.8500000
                   4.769444
##
   [4]
        0.8500000
                    4.769444
   [5]
        0.8125000
                    4.559028
##
                   4.488889
##
   [6]
        0.8000000
##
   [7]
        0.6956522
                    3.903382
##
   [8]
        0.6875000
                   3.857639
   [9]
        0.6800000
                   3.815556
   [10]
        0.6666667
                    3.740741
##
   [11] 0.5483871
                    3.077061
   [12] 0.4722222
                    2.649691
   [13] 0.4615385
                    2.589744
   [14] 0.4500000
                    2.525000
##
   [15] 0.4500000
                    2.525000
   [16] 0.4358974
                    2.445869
   [17]
        0.4000000
                    2.244444
   [18]
        0.3953488
                    2.218346
##
   [19] 0.3829787
                    2.148936
   [20] 0.3793103
                    2.128352
   [21] 0.3695652
                    2.073671
   [22] 0.3684211
                    2.067251
##
   [23] 0.3541667
                    1.987269
   [24] 0.3541667
                    1.987269
   [25] 0.3529412
                    1.980392
   [26] 0.3500000
                    1.963889
   [27] 0.3478261
                    1.951691
                    1.826873
   [28] 0.3255814
   [29] 0.3250000
                    1.823611
##
   [30] 0.3200000
                    1.795556
   [31] 0.3170732
                    1.779133
   [32] 0.3157895
                    1.771930
   [33]
        0.3090909
                    1.734343
   [34]
                    1.714506
##
        0.3055556
  [35] 0.2972973
                    1.668168
  [36] 0.2962963
                    1.662551
## [37] 0.2881356
                   1.616761
```

```
[38] 0.2812500
                   1.578125
   [39] 0.2592593
                   1.454733
   [40] 0.2413793
                   1.354406
   [41] 0.2394366
                   1.343505
   [42] 0.2361111
                   1.324846
   [43] 0.2352941
                   1.320261
##
   [44] 0.2075472
                   1.164570
##
   [45] 0.1969697
                   1.105219
##
   [46] 0.1846154
                   1.035897
##
        lhs
                             rhs
                                             support
                                                        confidence lift
##
  [1]
        {type=fish}
                            {backbone=TRUE} 0.1287129 1.0000000
                                                                   1.2168675
   [2]
##
        {fins=TRUE}
                          => {backbone=TRUE} 0.1683168 1.0000000
                                                                   1.2168675
        {type=bird}
##
   [3]
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                   1.2168675
##
   [4]
        {feathers=TRUE}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                   1.2168675
  [5]
        {milk=TRUE}
                             {backbone=TRUE} 0.4059406 1.0000000
##
                                                                   1.2168675
##
   [6]
        {type=mammal}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                   1.2168675
##
   [7]
        {toothed=TRUE}
                             {backbone=TRUE} 0.6039604 1.0000000
                                                                   1.2168675
##
   [8]
        {tail=TRUE}
                          => {backbone=TRUE} 0.7326733 0.9866667
                                                                   1,2006426
                          => {backbone=TRUE} 0.4257426 0.9772727
##
   [9]
        {catsize=TRUE}
                                                                   1.1892114
   [10] {domestic=TRUE}
                             {backbone=TRUE} 0.1188119 0.9230769
                                                                   1.1232623
##
  [11] {breathes=TRUE}
                             {backbone=TRUE} 0.6831683 0.8625000
                                                                   1.0495482
  [12] {legs=FALSE}
                             {backbone=TRUE} 0.1881188 0.8260870
                                                                   1.0052383
  [13] {legs=TRUE}
                             {backbone=TRUE} 0.6336634 0.8205128
                                                                   0.9984554
##
##
   [14] {aquatic=FALSE}
                             {backbone=TRUE} 0.5247525 0.8153846
                                                                   0.9922150
   [15] {predator=FALSE} =>
                             {backbone=TRUE} 0.3564356 0.8000000
                                                                   0.9734940
   [16] {feathers=FALSE} => {backbone=TRUE} 0.6237624 0.7777778
                                                                   0.9464525
   [17] {airborne=TRUE}
                          => {backbone=TRUE} 0.1782178 0.7500000
                                                                   0.9126506
##
   [18] {eggs=TRUE}
                          => {backbone=TRUE} 0.4158416 0.7118644
                                                                   0.8662446
                          => {backbone=TRUE} 0.3960396 0.7017544
   [19] {catsize=FALSE}
                                                                   0.8539421
   [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                   0.8112450
##
   [21] {toothed=FALSE} => {backbone=TRUE} 0.2178218 0.5500000
                                                                   0.6692771
##
       lhs
                                      rhs
                                                        support
                                                                  confidence
   [1] {milk=FALSE,legs=TRUE}
                                   => {backbone=FALSE} 0.1386139 0.3500000
   [2] {eggs=TRUE,legs=TRUE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
   [3] {legs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1287129 0.3170732
##
   [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
##
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
       lift
   [1] 1.963889
##
##
   [2] 1.823611
   [3] 1.779133
   [4] 1.354406
##
##
   [5] 1.105219
##
       lhs
                                          rhs
                                                            support
  [1] {aquatic=FALSE,tail=FALSE}
                                          {backbone=FALSE} 0.1089109
   [2] {milk=FALSE,aquatic=FALSE}
                                          {backbone=FALSE} 0.1188119
##
   [3] {eggs=TRUE,aquatic=FALSE}
                                          {backbone=FALSE} 0.1089109
   [4] {aquatic=FALSE, catsize=FALSE}
                                          {backbone=FALSE} 0.1188119
   [5] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
##
   [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
       confidence lift
##
## [1] 0.6875000 3.857639
## [2] 0.4000000
                  2.244444
## [3] 0.3793103 2.128352
```

```
[4] 0.3529412
                  1.980392
   [5] 0.2352941
                  1.320261
##
   [6] 0.2075472 1.164570
##
       lhs
                                           rhs
                                                             support
##
   [1] {feathers=FALSE, toothed=FALSE}
                                           {backbone=FALSE} 0.1782178
   [2] {feathers=FALSE,milk=FALSE}
                                        => {backbone=FALSE} 0.1782178
   [3] {feathers=FALSE,eggs=TRUE}
                                        => {backbone=FALSE} 0.1683168
   [4] {feathers=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
   [5] {hair=FALSE, feathers=FALSE}
                                           {backbone=FALSE} 0.1386139
   [6] {feathers=FALSE,fins=FALSE}
                                        => {backbone=FALSE} 0.1782178
  [7] {feathers=FALSE,legs=TRUE}
                                        => {backbone=FALSE} 0.1386139
   [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
##
   [9] {feathers=FALSE, aquatic=FALSE}
                                        => {backbone=FALSE} 0.1188119
##
       confidence lift
## [1] 0.9000000 5.050000
   [2] 0.4500000
                  2.525000
   [3] 0.4358974
                  2.445869
   [4] 0.3953488
                  2.218346
  [5] 0.3684211
                  2.067251
   [6] 0.2812500
                  1.578125
##
   [7] 0.2413793
                  1.354406
  [8] 0.2394366
                  1.343505
##
  [9] 0.2352941
                  1.320261
##
                                      rhs
                                                        support
                                                                  confidence
  [1] {eggs=TRUE,tail=FALSE}
##
                                   => {backbone=FALSE} 0.1683168 0.8500000
  [2] {feathers=FALSE,eggs=TRUE} => {backbone=FALSE} 0.1683168 0.4358974
   [3] {eggs=TRUE,aquatic=FALSE}
                                      {backbone=FALSE} 0.1089109 0.3793103
                                   =>
##
   [4] {eggs=TRUE,fins=FALSE}
                                      {backbone=FALSE} 0.1683168 0.3695652
   [5] {eggs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1584158 0.3478261
   [6] {eggs=TRUE,legs=TRUE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
   [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
##
   [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
       lift
  [1] 4.769444
##
   [2] 2.445869
##
##
   [3] 2.128352
   [4] 2.073671
  [5] 1.951691
##
   [6] 1.823611
##
  [7] 1.668168
   [8] 1.662551
##
        lhs
                                           rhs
                                                             support
##
  [1]
        {tail=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
##
   [2]
                                        => {backbone=FALSE} 0.1683168
        {toothed=FALSE,catsize=FALSE}
##
  [3]
        {feathers=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
  [4]
##
        {milk=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
   [5]
        {fins=FALSE, catsize=FALSE}
                                           {backbone=FALSE} 0.1683168
##
   [6]
        {aquatic=FALSE,catsize=FALSE}
                                           {backbone=FALSE} 0.1188119
##
   [7]
        {eggs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
##
   [8]
        {domestic=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
##
   [9]
        {legs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1287129
##
   [10] {airborne=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1089109
##
        confidence lift
## [1]
        0.8000000 4.488889
```

```
[2]
        0.5483871
                   3.077061
##
   [3]
        0.3953488
                   2.218346
##
   [4]
        0.3541667
                   1.987269
   [5]
##
        0.3541667
                   1.987269
##
   [6]
        0.3529412
                   1.980392
##
   [7]
        0.3478261
                   1.951691
   [8]
        0.3200000
                   1.795556
   [9]
##
        0.3170732
                   1.779133
##
   [10] 0.3055556
                   1.714506
##
       lhs
                                          rhs
                                                            support
   [1] {toothed=FALSE,tail=FALSE}
                                          {backbone=FALSE} 0.1683168
##
   [2] {feathers=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1782178
   [3] {airborne=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1188119
   [4] {toothed=FALSE,catsize=FALSE}
                                       =>
                                          {backbone=FALSE} 0.1683168
   [5] {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
##
   [6] {milk=FALSE, toothed=FALSE}
                                        => {backbone=FALSE} 0.1782178
##
       confidence lift
   [1] 1.0000000
                  5.611111
##
   [2] 0.9000000
                  5.050000
   [3] 0.6666667
                  3.740741
##
   [4] 0.5483871
                  3.077061
   [5] 0.4722222
                  2.649691
   [6] 0.4615385
                  2.589744
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                             rhs
                                               support
                                                         confidence lift
##
   [1]
        {milk=TRUE}
                            {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
##
   [2]
                             {venomous=FALSE} 0.4059406 1.0000000
        {type=mammal}
                                                                     1.0860215
##
   [3]
        {catsize=TRUE}
                             {venomous=FALSE} 0.4257426 0.9772727
                                                                     1.0613392
##
   [4]
        {predator=FALSE}
                             {venomous=FALSE} 0.4257426 0.9555556
                                                                     1.0377539
##
   [5]
        {hair=TRUE}
                          => {venomous=FALSE} 0.4059406 0.9534884
                                                                     1.0355089
##
   [6]
        {eggs=FALSE}
                             {venomous=FALSE} 0.3960396 0.9523810
                                                                     1.0343062
##
   [7]
        {backbone=TRUE}
                             {venomous=FALSE} 0.7821782 0.9518072
                                                                     1.0336831
##
   [8]
        {legs=TRUE}
                          => {venomous=FALSE} 0.7326733 0.9487179
                                                                     1.0303281
        {tail=TRUE}
##
   [9]
                          => {venomous=FALSE} 0.7029703 0.9466667
                                                                     1.0281004
        {fins=TRUE}
                             {venomous=FALSE} 0.1584158 0.9411765
   [10]
                                                                     1.0221379
##
   [11] {aquatic=FALSE}
                             {venomous=FALSE} 0.6039604 0.9384615
                                                                     1.0191894
   [12] {breathes=TRUE}
                             {venomous=FALSE} 0.7425743 0.9375000
                                                                     1.0181452
   [13] {toothed=TRUE}
                             {venomous=FALSE} 0.5643564 0.9344262
##
                                                                     1.0148070
                             {venomous=FALSE} 0.1188119 0.9230769
   [14]
       {domestic=TRUE}
                                                                     1.0024814
##
   [15] {type=fish}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                     1.0024814
   [16] {airborne=FALSE}
                            {venomous=FALSE} 0.7029703 0.9220779
                                                                     1.0013965
   [17] {domestic=FALSE}
                             {venomous=FALSE} 0.8019802 0.9204545
                         =>
                                                                     0.9996334
   [18] {feathers=FALSE}
                             {venomous=FALSE} 0.7227723 0.9012346
                                                                     0.9787601
   [19] {toothed=FALSE}
                          => {venomous=FALSE} 0.3564356 0.9000000
                                                                     0.9774194
   [20] {eggs=TRUE}
                          => {venomous=FALSE} 0.5247525 0.8983051
                                                                     0.9755786
##
   [21]
        {hair=FALSE}
                          => {venomous=FALSE} 0.5148515 0.8965517
                                                                     0.9736745
##
   [22]
       {predator=TRUE}
                             {venomous=FALSE} 0.4950495 0.8928571
                                                                     0.9696621
   [23]
       {catsize=FALSE}
                             {venomous=FALSE} 0.4950495 0.8771930
                                                                     0.9526504
   [24] {milk=FALSE}
                          => {venomous=FALSE} 0.5148515 0.8666667
                                                                     0.9412186
   [25] {breathes=FALSE}
                         => {venomous=FALSE} 0.1782178 0.8571429
                                                                     0.9308756
##
   [26] {legs=FALSE}
                          => {venomous=FALSE} 0.1881188 0.8260870
                                                                     0.8971482
   [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
##
  [1] "Número de reglas con consecuente negado"
##
        lhs
                             rhs
                                               support
                                                         confidence lift
```

```
1.0860215
##
   [1]
        {milk=TRUE}
                             {venomous=FALSE} 0.4059406 1.0000000
##
   [2]
                             {venomous=FALSE} 0.4059406 1.0000000
                                                                     1.0860215
        {type=mammal}
                             {venomous=FALSE} 0.4257426 0.9772727
##
   [3]
        {catsize=TRUE}
                                                                     1.0613392
   [4]
                             {venomous=FALSE} 0.4257426 0.9555556
##
        {predator=FALSE}
                                                                     1.0377539
##
   [5]
        {hair=TRUE}
                             {venomous=FALSE} 0.4059406 0.9534884
                                                                     1.0355089
                                                                     1.0343062
##
   [6]
        {eggs=FALSE}
                             {venomous=FALSE} 0.3960396 0.9523810
##
   [7]
        {backbone=TRUE}
                             {venomous=FALSE} 0.7821782 0.9518072
                                                                     1.0336831
##
   [8]
        {legs=TRUE}
                             {venomous=FALSE} 0.7326733 0.9487179
                                                                     1.0303281
##
   [9]
        {tail=TRUE}
                             {venomous=FALSE} 0.7029703 0.9466667
                                                                     1.0281004
##
   [10]
       {fins=TRUE}
                             {venomous=FALSE} 0.1584158 0.9411765
                                                                     1.0221379
       {aquatic=FALSE}
                             {venomous=FALSE} 0.6039604 0.9384615
                                                                     1.0191894
   [11]
   [12]
        {breathes=TRUE}
                             {venomous=FALSE} 0.7425743 0.9375000
                                                                     1.0181452
##
   [13]
        {toothed=TRUE}
                             {venomous=FALSE} 0.5643564 0.9344262
                                                                     1.0148070
##
   [14]
       {domestic=TRUE}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                     1.0024814
   [15]
       {type=fish}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                     1.0024814
        {airborne=FALSE}
                             {venomous=FALSE} 0.7029703 0.9220779
                                                                     1.0013965
   [16]
##
        {domestic=FALSE}
                             {venomous=FALSE} 0.8019802 0.9204545
   [17]
                                                                     0.9996334
       {feathers=FALSE}
                             {venomous=FALSE} 0.7227723 0.9012346
                                                                     0.9787601
   [19] {toothed=FALSE}
                             {venomous=FALSE} 0.3564356 0.9000000
                                                                     0.9774194
   [20]
       {eggs=TRUE}
                             {venomous=FALSE} 0.5247525 0.8983051
                                                                     0.9755786
##
   [21]
       {hair=FALSE}
                             {venomous=FALSE} 0.5148515 0.8965517
                                                                     0.9736745
                             {venomous=FALSE} 0.4950495 0.8928571
   [22]
       {predator=TRUE}
                                                                     0.9696621
##
   [23]
       {catsize=FALSE}
                             {venomous=FALSE} 0.4950495 0.8771930
                                                                     0.9526504
##
   [24]
       {milk=FALSE}
                             {venomous=FALSE} 0.5148515 0.8666667
                                                                     0.9412186
##
   [25] {breathes=FALSE}
                             {venomous=FALSE} 0.1782178 0.8571429
                                                                     0.9308756
   [26] {legs=FALSE}
                            {venomous=FALSE} 0.1881188 0.8260870
                                                                     0.8971482
                             {venomous=FALSE} 0.1386139 0.7777778
##
   [27] {backbone=FALSE}
                                                                     0.8446834
##
       "Número de reglas con consecuente negado"
##
                                               support
                                                         confidence lift
        {\tt \{milk=TRUE\}}
##
   [1]
                             {venomous=FALSE} 0.4059406 1.0000000
                                                                     1.0860215
##
   [2]
        {type=mammal}
                             {venomous=FALSE} 0.4059406 1.0000000
                                                                     1.0860215
##
   [3]
        {catsize=TRUE}
                             {venomous=FALSE} 0.4257426 0.9772727
                                                                     1.0613392
##
   [4]
        {predator=FALSE}
                             {venomous=FALSE} 0.4257426 0.9555556
                                                                     1.0377539
   [5]
##
        {hair=TRUE}
                             {venomous=FALSE} 0.4059406 0.9534884
                                                                     1.0355089
   [6]
        {eggs=FALSE}
                             {venomous=FALSE} 0.3960396 0.9523810
##
                                                                     1.0343062
        {backbone=TRUE}
##
   [7]
                             {venomous=FALSE} 0.7821782 0.9518072
                                                                     1.0336831
##
   [8]
        {legs=TRUE}
                             {venomous=FALSE} 0.7326733 0.9487179
                                                                     1.0303281
##
   [9]
        {tail=TRUE}
                             {venomous=FALSE} 0.7029703 0.9466667
                                                                     1.0281004
       {fins=TRUE}
                             {venomous=FALSE} 0.1584158 0.9411765
##
   [10]
                                                                     1.0221379
##
       {aquatic=FALSE}
                             {venomous=FALSE} 0.6039604 0.9384615
                                                                     1.0191894
   [11]
   [12]
       {breathes=TRUE}
                             {venomous=FALSE} 0.7425743 0.9375000
                                                                     1.0181452
       {toothed=TRUE}
                             {venomous=FALSE} 0.5643564 0.9344262
   [13]
                                                                     1.0148070
##
   Γ14٦
       {domestic=TRUE}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                     1.0024814
       {type=fish}
                             {venomous=FALSE} 0.1188119 0.9230769
##
   [15]
                                                                     1.0024814
   [16]
       {airborne=FALSE}
                             {venomous=FALSE} 0.7029703 0.9220779
                                                                     1.0013965
   [17]
        {domestic=FALSE}
                             {venomous=FALSE} 0.8019802 0.9204545
                                                                     0.9996334
##
   [18]
        {feathers=FALSE}
                             {venomous=FALSE} 0.7227723 0.9012346
                                                                     0.9787601
   [19]
       {toothed=FALSE}
                             {venomous=FALSE} 0.3564356 0.9000000
                                                                     0.9774194
   [20]
       {eggs=TRUE}
                          => {venomous=FALSE} 0.5247525 0.8983051
                                                                     0.9755786
   [21]
        {hair=FALSE}
                             {venomous=FALSE} 0.5148515 0.8965517
                                                                     0.9736745
##
   [22]
        {predator=TRUE}
                             {venomous=FALSE} 0.4950495 0.8928571
                                                                     0.9696621
   [23]
       {catsize=FALSE}
                             {venomous=FALSE} 0.4950495 0.8771930
                                                                     0.9526504
  [24] {milk=FALSE}
                          => {venomous=FALSE} 0.5148515 0.8666667
                                                                     0.9412186
## [25] {breathes=FALSE} => {venomous=FALSE} 0.1782178 0.8571429
```

```
[26] {legs=FALSE}
                          => {venomous=FALSE} 0.1881188 0.8260870
                                                                    0.8971482
   [27] {backbone=FALSE}
                             {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
##
       "Número de reglas con consecuente negado"
##
        lhs
                             rhs
                                              support
                                                         confidence lift
##
   [1]
        {milk=TRUE}
                             {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
   [2]
##
        {type=mammal}
                          => {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
##
   [3]
        {catsize=TRUE}
                             {venomous=FALSE} 0.4257426 0.9772727
                                                                    1.0613392
##
  [4]
        {predator=FALSE}
                             {venomous=FALSE} 0.4257426 0.9555556
                                                                    1.0377539
##
   [5]
        {hair=TRUE}
                             {venomous=FALSE} 0.4059406 0.9534884
                                                                    1.0355089
##
   [6]
        {eggs=FALSE}
                             {venomous=FALSE} 0.3960396 0.9523810
                                                                    1.0343062
   [7]
        {backbone=TRUE}
                             {venomous=FALSE} 0.7821782 0.9518072
                                                                    1.0336831
   [8]
##
        {legs=TRUE}
                             {venomous=FALSE} 0.7326733 0.9487179
                                                                    1.0303281
##
   [9]
        {tail=TRUE}
                             {venomous=FALSE} 0.7029703 0.9466667
                                                                    1.0281004
##
  [10]
       {fins=TRUE}
                             {venomous=FALSE} 0.1584158 0.9411765
                                                                    1.0221379
  [11]
        {aquatic=FALSE}
                             {venomous=FALSE} 0.6039604 0.9384615
                                                                    1.0191894
   [12]
        {breathes=TRUE}
                             {venomous=FALSE} 0.7425743 0.9375000
                                                                    1.0181452
##
   [13]
        {toothed=TRUE}
                             {venomous=FALSE} 0.5643564 0.9344262
                                                                    1.0148070
       {domestic=TRUE}
                         => {venomous=FALSE} 0.1188119 0.9230769
   Γ14٦
                                                                    1.0024814
                          => {venomous=FALSE} 0.1188119 0.9230769
   [15] {type=fish}
                                                                    1.0024814
   [16] {airborne=FALSE}
                             {venomous=FALSE} 0.7029703 0.9220779
                                                                    1.0013965
##
  [17] {domestic=FALSE}
                             {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
                             {venomous=FALSE} 0.7227723 0.9012346
  [18] {feathers=FALSE}
                                                                    0.9787601
  [19] {toothed=FALSE}
                             {venomous=FALSE} 0.3564356 0.9000000
                                                                    0.9774194
##
   [20]
       {eggs=TRUE}
                             {venomous=FALSE} 0.5247525 0.8983051
                                                                    0.9755786
##
   [21]
       {hair=FALSE}
                             {venomous=FALSE} 0.5148515 0.8965517
                                                                    0.9736745
   [22] {predator=TRUE}
                          => {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
   [23] {catsize=FALSE}
                             {venomous=FALSE} 0.4950495 0.8771930
                                                                    0.9526504
   [24]
       {milk=FALSE}
                             {venomous=FALSE} 0.5148515 0.8666667
                                                                    0.9412186
   [25] {breathes=FALSE} => {venomous=FALSE} 0.1782178 0.8571429
##
                                                                    0.9308756
   [26] {legs=FALSE}
                          => {venomous=FALSE} 0.1881188 0.8260870
                                                                    0.8971482
   [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
##
   [1] "Número de reglas con consecuente negado"
##
                                                              support
        {toothed=FALSE,tail=FALSE}
##
   [1]
                                            {backbone=FALSE} 0.1683168
##
   [2]
        {feathers=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
   [3]
##
        {eggs=TRUE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
   [4]
        {milk=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
  [5]
        {hair=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1287129
##
   [6]
        {tail=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
##
        {tail=FALSE,domestic=FALSE}
##
   [7]
                                            {backbone=FALSE} 0.1584158
        {aquatic=FALSE,tail=FALSE}
   [8]
                                            {backbone=FALSE} 0.1089109
   [9]
        {fins=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
   [10] {airborne=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1188119
   [11] {toothed=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
  [12] {toothed=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
        {milk=FALSE,toothed=FALSE}
  [13]
                                            {backbone=FALSE} 0.1782178
  [14]
       {toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
  [15] {feathers=FALSE,milk=FALSE}
                                            {backbone=FALSE} 0.1782178
   [16] {feathers=FALSE,eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
   [17] {milk=FALSE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
##
  [18] {feathers=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
## [19] {milk=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
## [20] {eggs=TRUE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1089109
## [21] {eggs=TRUE,fins=FALSE}
                                            {backbone=FALSE} 0.1683168
```

```
## [22] {hair=FALSE,feathers=FALSE}
                                         => {backbone=FALSE} 0.1386139
  [23] {milk=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
  [24] {fins=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
  [25] {aquatic=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1188119
##
  [26] {milk=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
##
  [27]
       {eggs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
       {hair=FALSE,fins=FALSE}
  Г281
                                            {backbone=FALSE} 0.1386139
       {eggs=TRUE,legs=TRUE}
  [29]
                                            {backbone=FALSE} 0.1287129
   [30]
       {domestic=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
   [31] {legs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1287129
   [32] {milk=FALSE,airborne=FALSE}
                                            {backbone=FALSE} 0.1188119
   [33] {milk=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
   [34]
       {airborne=FALSE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1089109
       {eggs=TRUE,airborne=FALSE}
                                         => {backbone=FALSE} 0.1089109
       {eggs=TRUE,domestic=FALSE}
                                         => {backbone=FALSE} 0.1584158
   [36]
   [37]
        {eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
   [38]
        {feathers=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
       {hair=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1386139
                                            {backbone=FALSE} 0.1386139
   [40] {feathers=FALSE,legs=TRUE}
   [41] {feathers=FALSE,domestic=FALSE} =>
                                            {backbone=FALSE} 0.1683168
##
  [42] {fins=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
  [43] {feathers=FALSE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
  [44] {aquatic=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1089109
       {legs=TRUE,domestic=FALSE}
##
   Γ451
                                            {backbone=FALSE} 0.1287129
##
   [46] {aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
##
        confidence lift
##
   [1]
        1.0000000
                   5.611111
##
   [2]
        0.9000000
                   5.050000
##
   [3]
        0.8500000
                   4.769444
                   4.769444
##
  [4]
        0.8500000
##
   [5]
        0.8125000
                   4.559028
##
   [6]
        0.8000000
                   4.488889
##
   [7]
        0.6956522
                   3.903382
   [8]
##
        0.6875000
                   3.857639
   [9]
        0.6800000
                   3.815556
                   3.740741
##
  [10] 0.6666667
  [11] 0.5483871
                   3.077061
  [12] 0.4722222
                   2.649691
  [13] 0.4615385
                   2.589744
  [14] 0.4500000
                   2.525000
  [15] 0.4500000
                   2.525000
   [16] 0.4358974
                   2.445869
   [17] 0.4000000
                   2.244444
  [18] 0.3953488
                   2.218346
  [19] 0.3829787
                   2.148936
  [20] 0.3793103
                   2.128352
##
   [21] 0.3695652
                   2.073671
  [22] 0.3684211
                   2.067251
  [23] 0.3541667
                   1.987269
  [24]
        0.3541667
                   1.987269
##
  [25]
       0.3529412
                   1.980392
## [26] 0.3500000
                   1.963889
## [27] 0.3478261
                   1.951691
## [28] 0.3255814
                  1.826873
```

```
## [29] 0.3250000
                   1.823611
  [30] 0.3200000
                   1.795556
  [31] 0.3170732
                   1.779133
  [32] 0.3157895
                   1.771930
   [33] 0.3090909
                   1.734343
  [34] 0.3055556
                   1.714506
  [35] 0.2972973
                   1.668168
  [36] 0.2962963
                   1.662551
   [37] 0.2881356
                   1.616761
   [38] 0.2812500
                   1.578125
  [39] 0.2592593
                   1.454733
   [40] 0.2413793
                   1.354406
   [41] 0.2394366
                   1.343505
                   1.324846
  [42] 0.2361111
  [43] 0.2352941
                   1.320261
   [44] 0.2075472
                   1.164570
   [45] 0.1969697
                   1.105219
   [46] 0.1846154
                   1.035897
##
        lhs
                                             support
                                                        confidence lift
##
  [1]
        {type=fish}
                            {backbone=TRUE} 0.1287129 1.0000000
##
  [2]
        {fins=TRUE}
                          => {backbone=TRUE} 0.1683168 1.0000000
                                                                   1.2168675
  [3]
                          => {backbone=TRUE} 0.1980198 1.0000000
        {type=bird}
  [4]
                             {backbone=TRUE} 0.1980198 1.0000000
##
        {feathers=TRUE}
                                                                   1.2168675
##
  [5]
        {milk=TRUE}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                   1.2168675
##
  [6]
        {type=mammal}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                   1.2168675
  [7]
        {toothed=TRUE}
                          => {backbone=TRUE} 0.6039604 1.0000000
                                                                   1.2168675
  [8]
        {tail=TRUE}
                          => {backbone=TRUE} 0.7326733 0.9866667
##
                                                                   1.2006426
   [9]
        {catsize=TRUE}
                          => {backbone=TRUE} 0.4257426 0.9772727
                                                                   1.1892114
## [10] {domestic=TRUE}
                         => {backbone=TRUE} 0.1188119 0.9230769
                                                                   1.1232623
                                                                   1.0495482
       {breathes=TRUE}
                         => {backbone=TRUE} 0.6831683 0.8625000
## [11]
## [12]
        {legs=FALSE}
                          => {backbone=TRUE} 0.1881188 0.8260870
                                                                   1.0052383
##
  [13]
       {legs=TRUE}
                          => {backbone=TRUE} 0.6336634 0.8205128
                                                                   0.9984554
  [14] {aquatic=FALSE}
                         => {backbone=TRUE} 0.5247525 0.8153846
                                                                   0.9922150
  [15] {predator=FALSE} => {backbone=TRUE} 0.3564356 0.8000000
                                                                   0.9734940
   [16] {feathers=FALSE} =>
                             {backbone=TRUE} 0.6237624 0.7777778
                                                                   0.9464525
##
  [17] {airborne=TRUE}
                         => {backbone=TRUE} 0.1782178 0.7500000
                                                                   0.9126506
  [18] {eggs=TRUE}
                          => {backbone=TRUE} 0.4158416 0.7118644
                         => {backbone=TRUE} 0.3960396 0.7017544
  [19] {catsize=FALSE}
                                                                   0.8539421
   [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                   0.8112450
##
   [21] {toothed=FALSE} => {backbone=TRUE} 0.2178218 0.5500000
                                                                   0.6692771
##
       lhs
                                      rhs
                                                        support
                                                                  confidence
  [1] {milk=FALSE,legs=TRUE}
                                   => {backbone=FALSE} 0.1386139 0.3500000
##
   [2] {eggs=TRUE,legs=TRUE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
   [3] {legs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1287129 0.3170732
  [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
##
       lift
##
  [1] 1.963889
  [2] 1.823611
   [3] 1.779133
##
   [4] 1.354406
##
  [5] 1.105219
##
       lhs
                                          rhs
                                                            support
## [1] {aquatic=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1089109
```

```
## [2] {milk=FALSE,aquatic=FALSE}
                                      => {backbone=FALSE} 0.1188119
                                      => {backbone=FALSE} 0.1089109
## [3] {eggs=TRUE,aquatic=FALSE}
  [4] {aquatic=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1188119
  [5] {feathers=FALSE, aquatic=FALSE} => {backbone=FALSE} 0.1188119
##
   [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
##
       confidence lift
  [1] 0.6875000 3.857639
## [2] 0.4000000
                  2.244444
  [3] 0.3793103
                  2.128352
  [4] 0.3529412
                  1.980392
  [5] 0.2352941
                  1.320261
  [6] 0.2075472
##
                  1.164570
##
       lhs
                                           rhs
                                                            support
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
                                       => {backbone=FALSE} 0.1782178
## [2] {feathers=FALSE,milk=FALSE}
  [3] {feathers=FALSE,eggs=TRUE}
                                        => {backbone=FALSE} 0.1683168
  [4] {feathers=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
## [5] {hair=FALSE,feathers=FALSE}
                                       => {backbone=FALSE} 0.1386139
## [6] {feathers=FALSE,fins=FALSE}
                                       => {backbone=FALSE} 0.1782178
  [7] {feathers=FALSE,legs=TRUE}
                                        => {backbone=FALSE} 0.1386139
## [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
  [9] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
       confidence lift
##
## [1] 0.9000000 5.050000
  [2] 0.4500000 2.525000
  [3] 0.4358974
                  2.445869
## [4] 0.3953488
                  2.218346
  [5] 0.3684211
                  2.067251
## [6] 0.2812500
                  1.578125
## [7] 0.2413793
                  1.354406
## [8] 0.2394366
                  1.343505
##
  [9] 0.2352941
                  1.320261
##
       lhs
                                                       support
                                                                 confidence
## [1] {eggs=TRUE,tail=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.8500000
  [2] {feathers=FALSE,eggs=TRUE} => {backbone=FALSE} 0.1683168 0.4358974
## [3] {eggs=TRUE,aquatic=FALSE}
                                  => {backbone=FALSE} 0.1089109 0.3793103
## [4] {eggs=TRUE,fins=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.3695652
                                  => {backbone=FALSE} 0.1584158 0.3478261
## [5] {eggs=TRUE,catsize=FALSE}
## [6] {eggs=TRUE,legs=TRUE}
                                  => {backbone=FALSE} 0.1287129 0.3250000
  [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
   [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
       lift
## [1] 4.769444
## [2] 2.445869
## [3] 2.128352
## [4] 2.073671
## [5] 1.951691
  [6] 1.823611
  [7] 1.668168
##
  [8] 1.662551
##
        lhs
                                          rhs
                                                            support
## [1]
        {tail=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1584158
        {toothed=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1683168
## [2]
## [3]
        {feathers=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1683168
```

```
[4]
        {milk=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
                                        => {backbone=FALSE} 0.1683168
##
  [5]
        {fins=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1188119
  [6]
        {aquatic=FALSE, catsize=FALSE}
  [7]
        {eggs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
##
##
   [8]
        {domestic=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
        {legs=TRUE,catsize=FALSE}
##
   [9]
                                        => {backbone=FALSE} 0.1287129
   [10] {airborne=FALSE.catsize=FALSE} => {backbone=FALSE} 0.1089109
##
        confidence lift
##
  [1]
        0.8000000 4.488889
   [2]
##
        0.5483871
                   3.077061
  [3]
        0.3953488
                   2.218346
   [4]
##
        0.3541667
                   1.987269
##
   [5]
        0.3541667
                   1.987269
##
   [6]
        0.3529412
                   1.980392
  [7]
##
        0.3478261
                   1.951691
##
   [8]
        0.3200000
                   1.795556
##
   [9]
        0.3170732
                   1.779133
   [10] 0.3055556
                   1.714506
##
       lhs
                                          rhs
                                                            support
##
  [1] {toothed=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1683168
  [2] {feathers=FALSE, toothed=FALSE} => {backbone=FALSE} 0.1782178
  [3] {airborne=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1188119
  [4] {toothed=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
   [5] {toothed=FALSE.domestic=FALSE} => {backbone=FALSE} 0.1683168
##
   [6] {milk=FALSE, toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
       confidence lift
##
  [1] 1.0000000 5.611111
   [2] 0.9000000
                  5.050000
  [3] 0.6666667
                  3.740741
## [4] 0.5483871
                  3.077061
  [5] 0.4722222
                  2.649691
   [6] 0.4615385
                  2.589744
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                             support
##
   [1]
        {catsize=FALSE, type=bird}
                                            {airborne=TRUE} 0.1287129
##
  [2]
        {feathers=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1287129
##
  [3]
        {type=bird}
                                            {airborne=TRUE} 0.1584158
## [4]
        {feathers=TRUE}
                                         => {airborne=TRUE} 0.1584158
  [5]
        {toothed=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
##
##
  [6]
        {predator=FALSE, toothed=FALSE}
                                            {airborne=TRUE} 0.1485149
  [7]
        {toothed=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [8]
        {toothed=FALSE, breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
##
##
  [9]
        {aquatic=FALSE, toothed=FALSE}
                                         => {airborne=TRUE} 0.1683168
                                         => {airborne=TRUE} 0.1881188
  [10] {toothed=FALSE,catsize=FALSE}
## [11] {toothed=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [12]
       {eggs=TRUE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1683168
  [13] {eggs=TRUE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
  [14] {milk=FALSE,predator=FALSE}
                                         => {airborne=TRUE} 0.1485149
## [15] {milk=FALSE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1683168
## [16] {eggs=TRUE,breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [17] {milk=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [18] {toothed=FALSE, venomous=FALSE}
                                         => {airborne=TRUE} 0.1980198
## [19] {toothed=FALSE}
                                         => {airborne=TRUE} 0.2178218
## [20] {eggs=TRUE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
```

```
## [21] {milk=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
                                            {airborne=TRUE} 0.1485149
  [22] {predator=FALSE, catsize=FALSE}
  [23] {legs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
  [24] {breathes=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
##
  [25] {hair=FALSE,predator=FALSE}
                                            {airborne=TRUE} 0.1089109
##
  [26] {aquatic=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1683168
  [27]
       {hair=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1287129
  [28]
       {hair=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1782178
   [29]
        {hair=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1782178
   [30] {eggs=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2178218
   [31] {milk=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.2178218
   [32] {fins=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
   [33]
       {predator=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1683168
                                         => {airborne=TRUE} 0.1782178
  [34]
       {hair=FALSE,fins=FALSE}
                                         => {airborne=TRUE} 0.1683168
  [35]
       {predator=FALSE,breathes=TRUE}
        {predator=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1683168
   [37]
        {eggs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
   [38] {eggs=TRUE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
  [39] {tail=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
   [40] {milk=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
##
  [41] {milk=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [42] {milk=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [43] {predator=FALSE,domestic=FALSE} =>
                                            {airborne=TRUE} 0.1287129
   [44] {hair=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [45] {eggs=TRUE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [46] {milk=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [47] {venomous=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [48] {eggs=TRUE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [49] {backbone=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1485149
  [50] {hair=FALSE, venomous=FALSE}
                                         => {airborne=TRUE} 0.1782178
   [51]
        {breathes=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2376238
##
   [52]
        {aquatic=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1881188
   [53]
       {legs=TRUE,tail=TRUE}
                                           {airborne=TRUE} 0.1782178
   [54] {breathes=TRUE,fins=FALSE}
                                           {airborne=TRUE} 0.2376238
   [55] {fins=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2376238
##
   [56] {fins=FALSE,tail=TRUE}
                                           {airborne=TRUE} 0.1782178
   [57]
       {aquatic=FALSE}
                                           {airborne=TRUE} 0.1881188
##
   [58] {venomous=FALSE}
                                         => {airborne=TRUE} 0.2178218
##
        confidence lift
##
  [1]
        0.9285714 3.9077381
   [2]
        0.9285714
                   3.9077381
   [3]
        0.8000000
                   3.3666667
##
##
   [4]
        0.8000000
                   3.3666667
##
   [5]
        0.7272727
                   3.0606061
##
  [6]
        0.7142857
                   3.0059524
  [7]
##
        0.6956522
                   2.9275362
##
   [8]
        0.6666667
                   2.8055556
   [9]
        0.6296296
                   2.6496914
  [10]
       0.6129032
                   2.5793011
   [11]
        0.6111111
                   2.5717593
##
  [12] 0.5862069
                   2.4669540
## [13] 0.5769231
                   2.4278846
## [14] 0.5769231
                   2.4278846
## [15] 0.5666667
                   2.3847222
```

```
## [16] 0.5641026
                   2.3739316
   [17] 0.5641026
                   2.3739316
                   2.3379630
   [18] 0.5555556
   [19] 0.5500000
                   2.3145833
   [20] 0.5500000
                    2.3145833
   [21] 0.5500000
                   2.3145833
   [22] 0.5172414
                    2.1767241
   [23] 0.5121951
                    2.1554878
   [24] 0.5121951
                    2.1554878
   [25] 0.5000000
                    2.1041667
   [26] 0.5000000
                    2.1041667
   [27] 0.5000000
                    2.1041667
   [28] 0.5000000
                    2.1041667
                    2.0472973
   [29] 0.4864865
   [30] 0.4782609
                    2.0126812
   [31] 0.4680851
                    1.9698582
   [32] 0.4375000
                    1.8411458
   [33] 0.4358974
                    1.8344017
   [34] 0.4186047
                    1.7616279
   [35] 0.4146341
                    1.7449187
##
   [36] 0.4146341
                    1.7449187
   [37] 0.4130435
                    1.7382246
   [38] 0.4102564
                    1.7264957
   [39] 0.4054054
                    1.7060811
   [40] 0.4000000
                    1.6833333
   [41] 0.3958333
                    1.6657986
   [42] 0.3846154
                    1.6185897
##
   [43] 0.3823529
                    1.6090686
   [44] 0.3809524
                    1.6031746
   [45] 0.3809524
                    1.6031746
   [46] 0.3809524
                    1.6031746
##
   [47] 0.3800000
                    1.5991667
   [48] 0.3773585
                    1.5880503
   [49] 0.3750000
                    1.5781250
   [50] 0.3461538
                    1.4567308
##
   [51] 0.3287671
                    1.3835616
   [52] 0.3166667
                    1.3326389
   [53] 0.3157895
##
                    1.3289474
   [54] 0.3157895
                    1.3289474
##
   [55] 0.3116883
                    1.3116883
   [56] 0.3050847
                    1.2838983
        0.2923077
                    1.2301282
   [57]
##
   Γ581
        0.2365591
                   0.9955197
##
        lhs
                             rhs
                                               support
                                                          confidence lift
##
  [1]
        {type=fish}
                          => {airborne=FALSE} 0.1287129 1.0000000 1.3116883
   [2]
        {fins=TRUE}
                          => {airborne=FALSE} 0.1683168 1.0000000
##
                                                                     1.3116883
##
   [3]
        {breathes=FALSE} =>
                             {airborne=FALSE} 0.2079208 1.0000000
                                                                     1.3116883
   [4]
##
        {legs=FALSE}
                             {airborne=FALSE} 0.2277228 1.0000000
                                                                     1.3116883
##
   [5]
        {toothed=TRUE}
                          => {airborne=FALSE} 0.5841584 0.9672131
                                                                     1.2686821
##
   [6]
        {eggs=FALSE}
                             {airborne=FALSE} 0.3960396 0.9523810
                                                                     1.2492270
   [7]
##
        {milk=TRUE}
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                     1.2477035
##
   [8]
        {type=mammal}
                          => {airborne=FALSE} 0.3861386 0.9512195
                          => {airborne=FALSE} 0.4059406 0.9318182
## [9]
        {catsize=TRUE}
                                                                     1.2222550
## [10] {predator=TRUE}
                          => {airborne=FALSE} 0.4851485 0.8750000 1.1477273
```

```
## [11] {aquatic=TRUE}
                         => {airborne=FALSE} 0.3069307 0.8611111 1.1295094
                         => {airborne=FALSE} 0.3663366 0.8604651
## [12] {hair=TRUE}
                                                                   1.1286620
                         => {airborne=FALSE} 0.6435644 0.7831325
## [13] {backbone=TRUE}
                                                                   1.0272258
                         => {airborne=FALSE} 0.1980198 0.7692308
## [14] {tail=FALSE}
                                                                   1.0089910
## [15] {tail=TRUE}
                         => {airborne=FALSE} 0.5643564 0.7600000
                                                                   0.9968831
                                                                   0.9282717
## [16] {aquatic=FALSE}
                         => {airborne=FALSE} 0.4554455 0.7076923
                         => {airborne=FALSE} 0.3960396 0.6896552
## [17] {hair=FALSE}
                                                                   0.9046126
## [18] {backbone=FALSE} => {airborne=FALSE} 0.1188119 0.6666667
                                                                   0.8744589
## [19] {milk=FALSE}
                         => {airborne=FALSE} 0.3762376 0.6333333
                                                                   0.8307359
## [20] {eggs=TRUE}
                         => {airborne=FALSE} 0.3663366 0.6271186
                                                                   0.8225842
## [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.6222222
                                                                   0.8161616
## [22] {toothed=FALSE} => {airborne=FALSE} 0.1782178 0.4500000
                                                                   0.5902597
##
       lhs
                                        rhs
                                                         support
                                                                   confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
                                     => {airborne=TRUE} 0.1584158 0.3809524
## [2] {eggs=TRUE,backbone=TRUE}
## [3] {milk=FALSE,backbone=TRUE}
                                     => {airborne=TRUE} 0.1584158 0.3809524
##
  [4] {backbone=TRUE, catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift
## [1] 3.060606
## [2] 1.603175
## [3] 1.603175
## [4] 1.578125
##
       lhs
                                    rhs
                                                     support
                                                               confidence
## [1] {toothed=FALSE,tail=TRUE} => {airborne=TRUE} 0.1584158 0.6956522
## [2] {eggs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4102564
## [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4000000
## [5] {hair=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.3809524
                                 => {airborne=TRUE} 0.1782178 0.3157895
## [6] {legs=TRUE,tail=TRUE}
## [7] {fins=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1782178 0.3050847
##
       lift
## [1] 2.927536
## [2] 1.726496
## [3] 1.706081
## [4] 1.683333
## [5] 1.603175
## [6] 1.328947
## [7] 1.283898
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
## [2] {eggs=TRUE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5862069
## [3] {milk=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5666667
## [4] {aquatic=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
## [5] {hair=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1287129 0.5000000
## [6] {aquatic=FALSE,legs=TRUE}
                                     => {airborne=TRUE} 0.1881188 0.3166667
##
       lift
## [1] 2.649691
## [2] 2.466954
## [3] 2.384722
## [4] 2.104167
## [5] 2.104167
## [6] 1.332639
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
```

```
## [2] {hair=FALSE,aquatic=FALSE} => {airborne=TRUE} 0.1287129 0.5000000
                                   => {airborne=TRUE} 0.1782178 0.5000000
## [3] {hair=FALSE,legs=TRUE}
## [4] {hair=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.4864865
## [5] {hair=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.1782178 0.4186047
## [6] {hair=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.3809524
  [7] {hair=FALSE,venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
       lift
## [1] 2.104167
## [2] 2.104167
## [3] 2.104167
## [4] 2.047297
## [5] 1.761628
## [6] 1.603175
## [7] 1.456731
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
  [2] {milk=FALSE,aquatic=FALSE} => {airborne=TRUE} 0.1683168 0.5666667
## [3] {milk=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5641026
                                   => {airborne=TRUE} 0.2178218 0.5500000
## [4] {milk=FALSE,legs=TRUE}
## [5] {milk=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.2178218 0.4680851
## [6] {milk=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.4000000
## [7] {milk=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1881188 0.3958333
## [8] {milk=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
## [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
       lift
## [1] 2.427885
## [2] 2.384722
## [3] 2.373932
## [4] 2.314583
## [5] 1.969858
## [6] 1.683333
## [7] 1.665799
## [8] 1.618590
## [9] 1.603175
##
                                     rhs
                                                      support
                                                                confidence
## [1] {eggs=TRUE,aquatic=FALSE}
                                 => {airborne=TRUE} 0.1683168 0.5862069
## [2] {eggs=TRUE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
## [3] {eggs=TRUE,breathes=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5641026
## [4] {eggs=TRUE,legs=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5500000
                                  => {airborne=TRUE} 0.2178218 0.4782609
## [5] {eggs=TRUE,fins=FALSE}
                                  => {airborne=TRUE} 0.1881188 0.4130435
## [6] {eggs=TRUE,catsize=FALSE}
## [7] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
  [8] {eggs=TRUE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
   [9] {eggs=TRUE,venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
##
       lift
## [1] 2.466954
## [2] 2.427885
## [3] 2.373932
## [4] 2.314583
## [5] 2.012681
## [6] 1.738225
## [7] 1.726496
## [8] 1.603175
## [9] 1.588050
```

```
##
                                           rhs
                                                            support
                                        => {airborne=TRUE} 0.1485149
##
  [1] {predator=FALSE, toothed=FALSE}
  [2] {eggs=TRUE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [3] {milk=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [4] {predator=FALSE, catsize=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [5] {hair=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1089109
  [6] {predator=FALSE,legs=TRUE}
                                        => {airborne=TRUE} 0.1683168
  [7] {predator=FALSE,breathes=TRUE}
                                        => {airborne=TRUE} 0.1683168
   [8] {predator=FALSE,fins=FALSE}
                                        => {airborne=TRUE} 0.1683168
##
   [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
       confidence lift
##
  [1] 0.7142857
                  3.005952
   [2] 0.5769231
                  2,427885
                  2.427885
  [3] 0.5769231
## [4] 0.5172414
                  2.176724
  [5] 0.5000000
                  2.104167
  [6] 0.4358974
                  1.834402
  [7] 0.4146341
                  1.744919
  [8] 0.4146341
                  1.744919
  [9] 0.3823529
                  1.609069
##
       lhs
                                                                     confidence
                                          rhs
                                                           support
## [1] {toothed=FALSE,backbone=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.7272727
## [2] {predator=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1485149 0.7142857
## [3] {toothed=FALSE,tail=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.6956522
## [4] {toothed=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6666667
  [5] {aquatic=FALSE, toothed=FALSE}
                                       => {airborne=TRUE} 0.1683168 0.6296296
   [6] {toothed=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1881188 0.6129032
  [7] {toothed=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6111111
  [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
       lift
## [1] 3.060606
   [2] 3.005952
  [3] 2.927536
  [4] 2.805556
   [5] 2.649691
##
  [6] 2.579301
## [7] 2.571759
## [8] 2.337963
##
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                              support
##
  [1]
        {type=fish}
                                         => {airborne=FALSE} 0.1287129
  [2]
        {fins=TRUE}
##
                                           {airborne=FALSE} 0.1683168
##
   [3]
        {breathes=FALSE}
                                         => {airborne=FALSE} 0.2079208
##
  [4]
        {legs=FALSE}
                                         => {airborne=FALSE} 0.2277228
##
  [5]
        {aquatic=TRUE, toothed=TRUE}
                                         => {airborne=FALSE} 0.2277228
  [6]
##
        {feathers=FALSE, aquatic=TRUE}
                                            {airborne=FALSE} 0.2970297
##
  [7]
        {milk=TRUE,predator=TRUE}
                                            {airborne=FALSE} 0.2178218
  [8]
        {predator=TRUE, type=mammal}
                                         => {airborne=FALSE} 0.2178218
  [9]
        {eggs=FALSE,predator=TRUE}
                                         => {airborne=FALSE} 0.2277228
  [10] {hair=TRUE,predator=TRUE}
                                           {airborne=FALSE} 0.1980198
## [11] {feathers=FALSE,catsize=TRUE}
                                         => {airborne=FALSE} 0.3762376
## [12] {predator=TRUE,toothed=TRUE}
                                         => {airborne=FALSE} 0.3663366
## [13] {hair=FALSE,toothed=TRUE}
                                         => {airborne=FALSE} 0.2277228
## [14] {eggs=TRUE,toothed=TRUE}
                                            {airborne=FALSE} 0.1980198
```

```
## [15] {milk=FALSE,toothed=TRUE}
                                         => {airborne=FALSE} 0.2079208
                                           {airborne=FALSE} 0.4554455
  [16] {feathers=FALSE,predator=TRUE}
  [17] {feathers=FALSE,backbone=TRUE}
                                           {airborne=FALSE} 0.6039604
## [18] {toothed=TRUE}
                                           {airborne=FALSE} 0.5841584
  [19] {predator=TRUE, catsize=TRUE}
                                            {airborne=FALSE} 0.2673267
## [20] {feathers=FALSE,tail=TRUE}
                                         => {airborne=FALSE} 0.5247525
## [21] {eggs=FALSE}
                                           {airborne=FALSE} 0.3960396
## [22] {milk=TRUE}
                                           {airborne=FALSE} 0.3861386
  [23] {type=mammal}
                                            {airborne=FALSE} 0.3861386
  [24] {hair=FALSE, feathers=FALSE}
                                           {airborne=FALSE} 0.3564356
  [25] {catsize=TRUE}
                                         => {airborne=FALSE} 0.4059406
  [26] {predator=TRUE,tail=FALSE}
                                           {airborne=FALSE} 0.1287129
## [27] {feathers=FALSE, venomous=FALSE} =>
                                           {airborne=FALSE} 0.6633663
## [28] {feathers=FALSE,domestic=FALSE} =>
                                           {airborne=FALSE} 0.6336634
                                         => {airborne=FALSE} 0.4851485
## [29] {predator=TRUE}
  [30] {aquatic=TRUE}
                                           {airborne=FALSE} 0.3069307
  [31]
##
       {hair=TRUE}
                                           {airborne=FALSE} 0.3663366
       {venomous=FALSE,tail=FALSE}
                                           {airborne=FALSE} 0.1782178
  [33] {backbone=TRUE,domestic=FALSE}
                                           {airborne=FALSE} 0.5544554
  [34] {backbone=TRUE}
                                            {airborne=FALSE} 0.6435644
##
  [35] {tail=FALSE}
                                           {airborne=FALSE} 0.1980198
  [36] {tail=TRUE}
                                           {airborne=FALSE} 0.5643564
                                           {airborne=FALSE} 0.4554455
## [37] {aquatic=FALSE}
                                            {airborne=FALSE} 0.3960396
  [38]
       {hair=FALSE}
## [39] {backbone=FALSE}
                                         => {airborne=FALSE} 0.1188119
  [40] {milk=FALSE}
                                         => {airborne=FALSE} 0.3762376
  [41] {eggs=TRUE}
                                         => {airborne=FALSE} 0.3663366
##
   [42] {predator=FALSE}
                                         => {airborne=FALSE} 0.2772277
##
   [43] {toothed=FALSE}
                                        => {airborne=FALSE} 0.1782178
##
        confidence lift
## [1]
        1.0000000 1.3116883
##
   [2]
        1.0000000
                   1.3116883
##
  [3]
        1.0000000
                   1.3116883
  [4]
##
        1.0000000
                   1.3116883
##
   [5]
        1.0000000
                   1.3116883
##
  [6]
        1.0000000
                   1.3116883
  [7]
        1.0000000
                   1.3116883
## [8]
        1.0000000
                   1.3116883
## [9]
        1.0000000
                   1.3116883
## [10] 1.0000000
                   1.3116883
  [11] 1.0000000
                   1.3116883
## [12] 1.0000000
                   1.3116883
## [13] 1.0000000
                   1.3116883
## [14] 1.000000
                   1.3116883
## [15] 1.0000000
                   1.3116883
## [16] 0.9787234
                   1.2837800
  [17] 0.9682540
                   1.2700474
  [18] 0.9672131
                   1.2686821
  [19] 0.9642857
                   1.2648423
## [20] 0.9636364
                   1.2639906
## [21] 0.9523810
                   1.2492270
## [22] 0.9512195
                   1.2477035
## [23] 0.9512195
                   1.2477035
## [24] 0.9473684
                  1.2426521
```

```
## [25] 0.9318182
                   1.2222550
  [26] 0.9285714
                   1.2179963
  [27] 0.9178082
                   1.2038783
  [28] 0.9014085
                   1.1823669
  [29] 0.8750000
                   1.1477273
  [30] 0.8611111
                   1.1295094
  [31] 0.8604651
                   1.1286620
  [32] 0.8181818
                   1.0731995
   [33] 0.7887324
                   1.0345711
  [34] 0.7831325
                   1.0272258
  [35] 0.7692308
                   1.0089910
  [36] 0.7600000
                   0.9968831
                   0.9282717
  [37] 0.7076923
  [38] 0.6896552
                   0.9046126
  [39] 0.6666667
                   0.8744589
  [40] 0.6333333
                   0.8307359
  [41] 0.6271186
                   0.8225842
   [42] 0.6222222
                   0.8161616
##
   [43] 0.4500000
                   0.5902597
##
       lhs
                                            support
                                                      confidence lift
                        => {airborne=TRUE} 0.1584158 0.8000000 3.3666667
##
  [1] {type=bird}
                        => {airborne=TRUE} 0.1584158 0.8000000
  [2] {feathers=TRUE}
                        => {airborne=TRUE} 0.2178218 0.5500000
   [3] {toothed=FALSE}
                                                                 2.3145833
   [4] {aquatic=FALSE} => {airborne=TRUE} 0.1881188 0.2923077
                                                                 1.2301282
##
   [5] {venomous=FALSE} => {airborne=TRUE} 0.2178218 0.2365591
                                                                 0.9955197
                                           rhs
                                                            support
##
   [1] {feathers=FALSE, venomous=FALSE} => {airborne=FALSE} 0.6633663
##
   [2] {venomous=FALSE,tail=FALSE}
                                        => {airborne=FALSE} 0.1782178
##
       confidence lift
  [1] 0.9178082 1.203878
##
   [2] 0.8181818 1.073200
##
   [1] "Número de reglas con consecuente negado"
##
                                                        support
                                                                   confidence
                                           {fins=TRUE} 0.1287129 1.0000000
##
  [1]
        {type=fish}
##
   [2]
        {toothed=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
##
   [3]
        {breathes=FALSE, tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.9285714
  ۲4٦
        {backbone=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
  [5]
        {aquatic=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8888889
##
        {toothed=TRUE,legs=FALSE}
  [6]
                                            {fins=TRUE} 0.1584158 0.8421053
##
##
  [7]
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
        {legs=FALSE,tail=TRUE}
  [8]
                                           {fins=TRUE} 0.1485149 0.8333333
        {breathes=FALSE,legs=FALSE}
                                           {fins=TRUE} 0.1287129 0.8125000
  [9]
  [10] {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
  [11] {aquatic=TRUE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.7391304
## [12] {predator=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1188119 0.7058824
                                           {fins=TRUE} 0.1188119 0.6666667
## [13]
       {breathes=FALSE, venomous=FALSE} =>
  [14]
       {hair=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1485149 0.6521739
  [15] {aquatic=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6500000
  [16] {eggs=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6500000
  [17] {breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6190476
                                         => {fins=TRUE} 0.1287129 0.6190476
## [18] {milk=FALSE,toothed=TRUE}
## [19] {aquatic=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.6153846
## [20] {feathers=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
## [21] {aquatic=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
```

```
## [22] {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
                                         => {fins=TRUE} 0.1584158 0.5000000
  [23] {aquatic=TRUE, venomous=FALSE}
  [24] {hair=FALSE, feathers=FALSE}
                                           {fins=TRUE} 0.1485149 0.3947368
  [25] {hair=FALSE,airborne=FALSE}
                                           {fins=TRUE} 0.1485149 0.3750000
  [26] {hair=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1485149 0.3571429
## [27]
       {predator=TRUE, toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3513514
  [28] {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
  [29] {milk=FALSE,airborne=FALSE}
                                           {fins=TRUE} 0.1287129 0.3421053
  [30] {hair=FALSE,backbone=TRUE}
                                            {fins=TRUE} 0.1485149 0.3409091
  [31] {eggs=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.3333333
  [32] {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
                                           {fins=TRUE} 0.1287129 0.3250000
  [33] {milk=FALSE,tail=TRUE}
  [34] {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
  [35] {eggs=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [36] {milk=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [37]
        {toothed=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.3076923
  [38]
                                         => {fins=TRUE} 0.1584158 0.3076923
       {toothed=TRUE,domestic=FALSE}
  [39] {hair=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1089109 0.3055556
  [40] {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
## [41] {airborne=FALSE, toothed=TRUE}
                                           {fins=TRUE} 0.1683168 0.2881356
## [42] {predator=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1188119 0.2857143
## [43] {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [44] {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
  [45] {feathers=FALSE,predator=TRUE}
                                           {fins=TRUE} 0.1287129 0.2765957
  [46] {predator=TRUE, backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
  [47] {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
  [48] {hair=FALSE, venomous=FALSE}
                                           {fins=TRUE} 0.1386139 0.2692308
## [49] {airborne=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2653061
## [50] {airborne=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2615385
## [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
  [52]
       {hair=FALSE}
                                           {fins=TRUE} 0.1485149 0.2586207
##
  [53]
       {predator=TRUE, venomous=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2400000
  [54] {airborne=FALSE,domestic=FALSE} =>
                                           {fins=TRUE} 0.1584158 0.2352941
  [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
   [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
##
  [57] {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
  [58] {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
  [59] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
       {feathers=FALSE,domestic=FALSE}
                                            {fins=TRUE} 0.1584158 0.2253521
  [60]
  [61] {backbone=TRUE,domestic=FALSE}
##
                                         => {fins=TRUE} 0.1584158 0.2253521
  [62] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
   [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [64] {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
   [65] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
##
   [66] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
## [1]
        5.941176
##
   [2]
        5.516807
##
   [3]
        5.516807
##
   [4]
        5.516807
   [5]
##
        5.281046
##
  [6]
        5.003096
## [7]
        5.003096
## [8]
        4.950980
```

- ## [9] 4.827206
- ## [10] 4.690402
- ## [11] 4.391304
- ## [12] 4.193772
- ... [12] 1.100772
- ## [13] 3.960784
- ## [14] 3.874680
- ## [15] 3.861765
- ## [16] 3.861765
- ## [17] 3.677871
- ## [18] 3.677871
- ## [19] 3.656109
- ## [19] 3.030103
- ## [20] 3.366667
- ## [21] 3.366667
- ## [22] 3.258065
- ## [23] 2.970588
- ## [24] 2.345201
- ## [25] 2.227941
- ## [26] 2.121849
- ## [27] 2.087440
- ## [28] 2.087440
- ## [29] 2.032508
- ## [30] 2.025401
- ## [30] 2.023401
- ## [31] 1.980392
- ## [32] 1.980392
- ## [33] 1.930882
- ## [34] 1.930882
- ## [35] 1.838936
- ## [36] 1.838936
- ## [37] 1.828054
- ## [38] 1.828054
- ## [39] 1.815359 ## [40] 1.728342
- ## [41] 1.711864
- ## [42] 1.697479
- ## [43] 1.667699
- ## [44] 1.667699
- ## [45] 1.643304
- ## [46] 1.643304
- ## [47] 1.603175
- ## [48] 1.599548
- ## [49] 1.576230
- ## [50] 1.553846
- ## [51] 1.540305
- ## [52] 1.536511
- ## [53] 1.425882
- ## [54] 1.397924
- ## [55] 1.383562
- ## [56] 1.371041
- ## [57] 1.371041
- ## [58] 1.345172
- ## [59] 1.338857
- ## [60] 1.338857
- ## [61] 1.338857
- ## [62] 1.320261

```
[63] 1.302176
##
   [64] 1.296257
   [65] 1.284579
##
   [66] 1.100218
##
        lhs
                             rhs
                                          support
                                                     confidence lift
##
  [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000
                                                                1.2023810
##
  [2]
        {type=bird}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
  [3]
        {feathers=TRUE}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
  [4]
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
                                                                1.2023810
##
  [5]
        {toothed=FALSE}
                          => {fins=FALSE} 0.3960396 1.0000000
                                                                1.2023810
  [6]
        {legs=TRUE}
                          => {fins=FALSE} 0.7623762 0.9871795
                                                                1.1869658
  [7]
                          => {fins=FALSE} 0.4059406 0.9534884
##
        {hair=TRUE}
                                                                1.1464563
##
  [8]
        {breathes=TRUE}
                          => {fins=FALSE} 0.7524752 0.9500000
                                                                1.1422619
##
  [9]
        {domestic=TRUE}
                          => {fins=FALSE} 0.1188119 0.9230769
                                                                1.1098901
       {predator=FALSE} => {fins=FALSE} 0.4059406 0.9111111
## [10]
                                                                1.0955026
   [11]
        {eggs=FALSE}
                          => {fins=FALSE} 0.3762376 0.9047619
                                                                1.0878685
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
##
  [12] {milk=TRUE}
  [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
  [14] {catsize=FALSE}
                          => {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
  [15] {venomous=FALSE}
                         => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
## [16] {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                0.9837662
## [17] {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                0.9837662
                          => {fins=FALSE} 0.6534653 0.7951807
## [18] {backbone=TRUE}
                                                                0.9561102
  [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
## [20] {tail=TRUE}
                          => {fins=FALSE} 0.5841584 0.7866667
                                                                0.9458730
  [21] {eggs=TRUE}
                          => {fins=FALSE} 0.4554455 0.7796610
                                                                0.9374496
  [22] {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                0.9369202
## [23] {predator=TRUE}
                          => {fins=FALSE} 0.4257426 0.7678571
                                                                0.9232568
## [24] {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
                                                                0.8914204
  [25] {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115
                                                                0.8672912
##
  [26] {aquatic=TRUE}
                          => {fins=FALSE} 0.1881188 0.5277778
                                                                0.6345899
##
        lhs
                                             rhs
                                                         support
                                                                    confidence
##
  [1]
        {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
  [2]
##
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
##
   [3]
        {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
##
   [4]
                                         => {fins=TRUE} 0.1584158 0.2807018
        {toothed=TRUE, venomous=FALSE}
##
  [5]
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
  [6]
        {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
##
  [7]
        {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
##
                                         => {fins=TRUE} 0.1188119 0.2264151
##
  [8]
        {eggs=TRUE, venomous=FALSE}
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
        lift
## [1]
        4.690402
  [2]
        3.960784
##
##
   [3]
        2.970588
##
  [4]
        1.667699
##
  [5]
        1.599548
##
   [6]
        1.425882
   [7]
##
        1.371041
## [8]
        1.345172
## [9]
        1.338857
## [10] 1.302176
```

```
## [11] 1.100218
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
  [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
  [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
  [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
  [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
## [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
  [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
  [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
   [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
       lift
## [1] 1.828054
## [2] 1.540305
## [3] 1.397924
  [4] 1.371041
##
  [5] 1.338857
  [6] 1.338857
##
  [7] 1.320261
   [8] 1.296257
##
   [9] 1.100218
##
        lhs
                                           rhs
                                                                  confidence
                                                        support
##
  [1]
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
##
   [2]
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
##
  [3]
        {aquatic=TRUE, backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
  [4]
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
   [5]
        {eggs=TRUE,backbone=TRUE}
##
                                        => {fins=TRUE} 0.1287129 0.3095238
##
   [6]
        {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
  [7]
##
        {predator=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
  [8]
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
##
  [9]
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
   [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
   [11] {backbone=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
        lift
   [1]
        5.516807
##
##
   [2]
        5.003096
##
  [3]
        3.366667
##
  ۲4٦
        2.025401
   [5]
##
        1.838936
##
  [6]
        1.838936
  [7]
        1.643304
   [8]
##
        1.603175
##
   [9]
        1.553846
##
   [10] 1.338857
##
  [11] 1.284579
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
## [1]
        {feathers=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
  [2]
        {hair=FALSE, feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
##
  [3]
        {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
##
   [4]
        {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
   [5]
##
        {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
##
  [6]
        {feathers=FALSE, predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
## [7]
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
## [8]
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
```

```
{feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
        lift
## [1]
        3.366667
##
  [2]
        2.345201
  [3]
##
        1.980392
## [4]
        1.930882
## [5]
        1.728342
##
  [6]
        1.643304
  [7]
##
        1.603175
## [8]
        1.383562
  [9]
##
        1.338857
##
  Γ107
       1.302176
##
        lhs
                                       rhs
                                                   support
                                                              confidence
## [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
## [2]
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.8333333
## [3]
        {aquatic=TRUE, tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
## [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
                                    => {fins=TRUE} 0.1287129 0.3333333
## [5]
        {eggs=TRUE,tail=TRUE}
## [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
## [7]
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
## [8]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
        {predator=TRUE, tail=TRUE} => {fins=TRUE} 0.1188119 0.2857143
## [9]
## [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
## [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
  [12] {backbone=TRUE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
        lift
## [1]
        5.516807
## [2]
        4.950980
## [3]
        3.656109
## [4]
        2.121849
##
  [5]
        1.980392
##
  [6]
        1.930882
## [7]
        1.828054
##
  [8]
        1.728342
## [9]
        1.697479
## [10] 1.667699
## [11] 1.371041
## [12] 1.284579
##
       lhs
                                                             confidence
                                                  support
                                      rhs
                                   => {fins=TRUE} 0.1287129 0.6500000
## [1] {eggs=TRUE,toothed=TRUE}
## [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
## [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
## [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
## [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
##
  [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
       lift
## [1] 3.861765
## [2] 2.087440
## [3] 1.980392
## [4] 1.980392
## [5] 1.838936
## [6] 1.345172
```

```
[7] 1.320261
##
        lhs
                                                         support
                                            rhs
                                                                   confidence
##
  [1]
        {airborne=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
                                         => {fins=TRUE} 0.1485149 0.3750000
  [2]
        {hair=FALSE,airborne=FALSE}
##
##
   [3]
        {eggs=TRUE,airborne=FALSE}
                                            {fins=TRUE} 0.1287129 0.3513514
   [4]
##
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
##
  [5]
        {airborne=FALSE.toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
##
  [6]
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
   [7]
        {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
##
   [8]
        {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
  [9]
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
       {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
##
       {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
        lift
## [1]
        3.258065
##
   [2]
        2.227941
   [3]
##
        2.087440
   [4]
        2.032508
##
   [5]
##
        1.711864
##
   [6]
        1.667699
##
   [7]
        1.576230
  [8]
##
        1.553846
  [9]
##
        1.397924
##
  [10] 1.383562
  [11] 1.338857
##
##
       lhs
                                                       support
                                                                 confidence
  [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
##
   [2] {predator=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
  [3] {hair=FALSE,predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
## [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
  [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
   [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
   [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
   [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
       lift
##
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
##
  [4] 1.697479
##
  [5] 1.643304
  [6] 1.643304
  [7] 1.576230
##
##
   [8] 1.425882
##
       lhs
                                       rhs
                                                    support
                                                              confidence
## [1] {hair=FALSE,toothed=TRUE}
                                    => {fins=TRUE} 0.1485149 0.6521739
  [2] {hair=FALSE,feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
  [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
  [4] {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
  [5] {hair=FALSE,backbone=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3409091
   [6] {hair=FALSE, predator=TRUE}
                                   => {fins=TRUE} 0.1089109 0.3055556
   [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
##
   [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
       lift
## [1] 3.874680
```

```
## [2] 2.345201
  [3] 2.227941
  [4] 2.121849
  [5] 2.025401
   [6] 1.815359
##
  [7] 1.599548
##
  [8] 1.540305
##
        lhs
                                          rhs
                                                       support
                                                                 confidence
## [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
        {toothed=TRUE,legs=FALSE}
##
   [2]
                                       => {fins=TRUE} 0.1584158 0.8421053
  [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
  [4]
##
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
##
   [5]
        {eggs=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
##
  [6]
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
  [7]
                                       => {fins=TRUE} 0.1287129 0.3513514
##
        {predator=TRUE, toothed=TRUE}
##
  [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
##
  [9]
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
   [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
   [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
##
        lift
##
  [1]
        5.516807
  [2]
        5.003096
## [3]
        4.391304
   [4]
##
        3.874680
##
  [5]
        3.861765
  [6]
        3.677871
   [7]
##
        2.087440
##
   [8]
        1.828054
  [9]
##
        1.828054
## [10] 1.711864
##
  [11] 1.667699
##
       lhs
                                                      support
                                         rhs
                                                                confidence
  [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
  [2] {aquatic=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
   [3] {aquatic=TRUE, breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
## [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
## [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
## [6] {aquatic=TRUE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
   [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
##
## [1] 5.281046
##
  [2] 4.391304
  [3] 3.861765
## [4] 3.656109
## [5] 3.366667
##
  [6] 3.366667
##
  [7] 3.258065
  [8] 2.970588
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                          support
                                                                    confidence
## [1]
        {backbone=FALSE, venomous=FALSE} => {tail=FALSE} 0.1386139 1.0000000
## [2]
        {backbone=FALSE}
                                         => {tail=FALSE} 0.1683168 0.9444444
## [3]
        {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
```

```
[4]
        {airborne=FALSE, toothed=FALSE}
                                        => {tail=FALSE} 0.1089109 0.6111111
##
   [5]
                                           {tail=FALSE} 0.1980198 0.5128205
        {feathers=FALSE,eggs=TRUE}
                                           {tail=FALSE} 0.1980198 0.5000000
  [6]
        {feathers=FALSE,milk=FALSE}
  [7]
        {feathers=FALSE, catsize=FALSE}
                                           {tail=FALSE} 0.1980198 0.4651163
##
        {eggs=TRUE,fins=FALSE}
##
   [8]
                                            {tail=FALSE} 0.1980198 0.4347826
##
  [9]
        {milk=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.1980198 0.4255319
  [10] {hair=FALSE, feathers=FALSE}
                                           {tail=FALSE} 0.1584158 0.4210526
## [11] {fins=FALSE,catsize=FALSE}
                                           {tail=FALSE} 0.1980198 0.4166667
  [12] {eggs=TRUE,legs=TRUE}
                                            {tail=FALSE} 0.1584158 0.4000000
  [13] {milk=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
  [14] {feathers=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.3906250
  [15] {legs=TRUE,catsize=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3902439
  [16] {airborne=FALSE, catsize=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3888889
  [17] {eggs=TRUE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3793103
## [18] {eggs=TRUE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3783784
  [19] {hair=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3720930
  [20] {milk=FALSE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3684211
   [21] {milk=FALSE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3666667
                                         => {tail=FALSE} 0.2079208 0.3620690
  [22] {feathers=FALSE,legs=TRUE}
  [23] {domestic=FALSE,catsize=FALSE}
                                            {tail=FALSE} 0.1782178 0.3600000
  [24] {feathers=FALSE,predator=FALSE} =>
                                           {tail=FALSE} 0.1188119 0.3529412
  [25] {aquatic=FALSE, catsize=FALSE}
                                            {tail=FALSE} 0.1188119 0.3529412
                                           {tail=FALSE} 0.1386139 0.3500000
  [26] {hair=FALSE,airborne=FALSE}
  [27] {hair=FALSE,legs=TRUE}
                                            {tail=FALSE} 0.1188119 0.3333333
  [28] {feathers=FALSE,domestic=FALSE} =>
                                           {tail=FALSE} 0.2277228 0.3239437
  [29] {airborne=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.1881188 0.3166667
  [30] {fins=FALSE,domestic=FALSE}
                                           {tail=FALSE} 0.2178218 0.3055556
  [31] {predator=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1287129 0.3023256
  [32] {fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.2976190
  [33] {predator=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1089109 0.2820513
  [34] {airborne=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1485149 0.2777778
   [35]
       {legs=TRUE,domestic=FALSE}
                                         => {tail=FALSE} 0.1782178 0.2727273
   [36] {domestic=FALSE}
                                         => {tail=FALSE} 0.2277228 0.2613636
##
   [37] {predator=TRUE}
                                         => {tail=FALSE} 0.1386139 0.2500000
##
   [38]
        {venomous=FALSE}
                                         => {tail=FALSE} 0.2178218 0.2365591
##
        lift
##
  [1]
       3.8846154
##
  [2]
       3.6688034
  [3]
##
        3.3019231
  [4]
##
        2.3739316
  [5]
        1.9921105
   [6]
##
        1.9423077
##
   [7]
        1.8067979
##
   [8]
        1.6889632
  [9]
        1.6530278
## [10] 1.6356275
##
  [11] 1.6185897
  [12] 1.5538462
  [13] 1.5538462
  [14] 1.5174279
## [15] 1.5159475
## [16] 1.5106838
## [17] 1.4734748
## [18] 1.4698545
```

```
## [19] 1.4454383
## [20] 1.4311741
## [21] 1.4243590
## [22] 1.4064987
  [23] 1.3984615
## [24] 1.3710407
## [25] 1.3710407
## [26] 1.3596154
## [27] 1.2948718
## [28] 1.2583965
## [29] 1.2301282
## [30] 1.1869658
## [31] 1.1744186
## [32] 1.1561355
## [33] 1.0956607
## [34] 1.0790598
  [35] 1.0594406
  [36] 1.0152972
  [37] 0.9711538
##
   [38] 0.9189413
##
        lhs
                                         support
                                                   confidence lift
                            rhs
## [1]
                         => {tail=TRUE} 0.1287129 1.0000000
        {type=fish}
                                                              1.3466667
  [2]
                         => {tail=TRUE} 0.1980198 1.0000000
##
        {type=bird}
                                                               1.3466667
                         => {tail=TRUE} 0.1980198 1.0000000
##
  [3]
        {feathers=TRUE}
                                                               1.3466667
## [4]
        {fins=TRUE}
                         => {tail=TRUE} 0.1584158 0.9411765
                                                               1.2674510
  [5]
        {catsize=TRUE}
                         => {tail=TRUE} 0.3762376 0.8636364
                                                               1.1630303
  [6]
                         => {tail=TRUE} 0.3564356 0.8571429
##
        {eggs=FALSE}
                                                               1.1542857
##
  [7]
        {milk=TRUE}
                         => {tail=TRUE} 0.3465347 0.8536585
                                                               1.1495935
## [8]
                         => {tail=TRUE} 0.3465347 0.8536585
        {type=mammal}
                                                               1.1495935
## [9]
        {legs=FALSE}
                         => {tail=TRUE} 0.1782178 0.7826087
                                                               1.0539130
## [10] {hair=TRUE}
                         => {tail=TRUE} 0.3267327 0.7674419
                                                               1.0334884
## [11] {aquatic=FALSE}
                         => {tail=TRUE} 0.4851485 0.7538462
                                                               1.0151795
## [12] {airborne=TRUE}
                         => {tail=TRUE} 0.1782178 0.7500000
                                                               1.0100000
## [13] {predator=TRUE}
                         => {tail=TRUE} 0.4158416 0.7500000
                                                               1.0100000
  [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
                                                               0.9946970
## [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                                                              0.9875556
## [16] {hair=FALSE}
                         => {tail=TRUE} 0.4158416 0.7241379
                                                               0.9751724
## [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
                                                              0.9144033
                         => {tail=TRUE} 0.3861386 0.6610169
## [18] {eggs=TRUE}
                                                              0.8901695
                         => {tail=TRUE} 0.3663366 0.6491228
  [19] {catsize=FALSE}
                                                              0.8741520
  [20] {toothed=FALSE} => {tail=TRUE} 0.2277228 0.5750000
                                                              0.7743333
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
## [1] {eggs=TRUE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3793103
   [2] {milk=FALSE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3666667
  [3] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.473475
  [2] 1.424359
##
   [3] 1.371041
##
                                      rhs
                                                   support
                                                              confidence
  [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
   [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
##
       lift
## [1] 1.174419
```

```
## [2] 1.095661
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
## [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
  [3] {fins=FALSE,domestic=FALSE}
                                        => {tail=FALSE} 0.2178218 0.3055556
  [4] {legs=TRUE,domestic=FALSE}
                                       => {tail=FALSE} 0.1782178 0.2727273
##
       lift
## [1] 1.398462
## [2] 1.258397
## [3] 1.186966
  [4] 1.059441
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
##
   [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.371041
##
       lhs
                                       rhs
                                                    support
                                                              confidence
## [1] {hair=FALSE,feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
  [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
  [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
  [4] {hair=FALSE,legs=TRUE}
                                   => {tail=FALSE} 0.1188119 0.3333333
##
       lift
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {tail=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE}
                                        => {tail=FALSE} 0.1980198 0.5128205
## [3] {feathers=FALSE,milk=FALSE}
                                        => {tail=FALSE} 0.1980198 0.5000000
## [4] {feathers=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4651163
## [5] {hair=FALSE,feathers=FALSE}
                                        => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                        => {tail=FALSE} 0.2475248 0.3906250
## [7] {feathers=FALSE,legs=TRUE}
                                        => {tail=FALSE} 0.2079208 0.3620690
## [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
   [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
##
       lift.
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
## [7] 1.406499
## [8] 1.371041
## [9] 1.258397
##
       lhs
                                      rhs
                                                   support
                                                             confidence
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
  [2] {eggs=TRUE,fins=FALSE}
                                  => {tail=FALSE} 0.1980198 0.4347826
  [3] {eggs=TRUE,legs=TRUE}
                                  => {tail=FALSE} 0.1584158 0.4000000
   [4] {eggs=TRUE,aquatic=FALSE} => {tail=FALSE} 0.1089109 0.3793103
##
   [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
       lift
## [1] 1.992110
## [2] 1.688963
```

```
## [3] 1.553846
   [4] 1.473475
##
   [5] 1.469854
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
##
  [1] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
  [2] {fins=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4166667
  [3] {legs=TRUE,catsize=FALSE}
                                       => {tail=FALSE} 0.1584158 0.3902439
  [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
   [5] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
   [6] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
##
       lift
##
  [1] 1.806798
   [2] 1.618590
  [3] 1.515947
## [4] 1.510684
   [5] 1.398462
##
   [6] 1.371041
##
       lhs
                                                       support
                                                                  confidence
  [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
   [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
       lift
## [1] 3.301923
  [2] 2.373932
##
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
  Г17
        {toothed=FALSE,tail=FALSE}
                                           {backbone=FALSE} 0.1683168
##
  [2]
        {feathers=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
   [3]
        {eggs=TRUE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
  [4]
        {milk=FALSE,tail=FALSE}
                                           {backbone=FALSE} 0.1683168
## [5]
        {hair=FALSE,tail=FALSE}
                                           {backbone=FALSE} 0.1287129
## [6]
        {tail=FALSE,catsize=FALSE}
                                           {backbone=FALSE} 0.1584158
##
  [7]
        {tail=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
  [8]
        {aquatic=FALSE,tail=FALSE}
                                           {backbone=FALSE} 0.1089109
                                         => {backbone=FALSE} 0.1683168
  [9]
        {fins=FALSE,tail=FALSE}
   [10] {airborne=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1188119
                                           {backbone=FALSE} 0.1683168
## [11] {toothed=FALSE,catsize=FALSE}
## [12] {toothed=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
## [13] {milk=FALSE,toothed=FALSE}
                                           {backbone=FALSE} 0.1782178
## [14] {toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
## [15] {feathers=FALSE,milk=FALSE}
                                           {backbone=FALSE} 0.1782178
  [16] {feathers=FALSE,eggs=TRUE}
                                           {backbone=FALSE} 0.1683168
  [17] {milk=FALSE,aquatic=FALSE}
                                           {backbone=FALSE} 0.1188119
## [18] {feathers=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
## [19] {milk=FALSE,fins=FALSE}
                                           {backbone=FALSE} 0.1782178
## [20] {eggs=TRUE,aquatic=FALSE}
                                         => {backbone=FALSE} 0.1089109
## [21] {eggs=TRUE,fins=FALSE}
                                           {backbone=FALSE} 0.1683168
## [22] {hair=FALSE,feathers=FALSE}
                                            {backbone=FALSE} 0.1386139
## [23] {milk=FALSE,catsize=FALSE}
                                           {backbone=FALSE} 0.1683168
## [24] {fins=FALSE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1683168
## [25] {aquatic=FALSE, catsize=FALSE}
                                           {backbone=FALSE} 0.1188119
## [26] {milk=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
## [27] {eggs=TRUE,catsize=FALSE}
                                           {backbone=FALSE} 0.1584158
## [28] {hair=FALSE,fins=FALSE}
                                         => {backbone=FALSE} 0.1386139
## [29] {eggs=TRUE,legs=TRUE}
                                           {backbone=FALSE} 0.1287129
```

```
## [30] {domestic=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1584158
                                             {backbone=FALSE} 0.1287129
   [31] {legs=TRUE,catsize=FALSE}
                                             {backbone=FALSE} 0.1188119
   [32] {milk=FALSE,airborne=FALSE}
   [33] {milk=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
##
   [34]
       {airborne=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1089109
##
   [35]
       {eggs=TRUE,airborne=FALSE}
                                             {backbone=FALSE} 0.1089109
   [36]
       {eggs=TRUE,domestic=FALSE}
                                             {backbone=FALSE} 0.1584158
        {eggs=TRUE}
   [37]
                                             {backbone=FALSE} 0.1683168
##
   [38]
        {feathers=FALSE,fins=FALSE}
                                             {backbone=FALSE} 0.1782178
   [39]
        {hair=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1386139
   [40] {feathers=FALSE,legs=TRUE}
                                             {backbone=FALSE} 0.1386139
   [41]
       {feathers=FALSE,domestic=FALSE} =>
                                             {backbone=FALSE} 0.1683168
##
   [42]
       {fins=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
   [43] {feathers=FALSE, aquatic=FALSE}
                                             {backbone=FALSE} 0.1188119
   [44]
       {aquatic=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1089109
   [45]
        {legs=TRUE,domestic=FALSE}
                                          =>
                                             {backbone=FALSE} 0.1287129
   [46]
##
        {aquatic=FALSE}
                                             {backbone=FALSE} 0.1188119
##
        confidence lift
        1.0000000
##
   [1]
                   5.611111
##
   [2]
        0.9000000
                   5.050000
##
   [3]
        0.8500000
                   4.769444
   [4]
        0.8500000
                    4.769444
##
   [5]
##
        0.8125000
                    4.559028
##
   [6]
        0.8000000
                    4.488889
##
   [7]
        0.6956522
                   3.903382
   [8]
        0.6875000
                   3.857639
   [9]
        0.6800000
##
                   3.815556
##
   [10] 0.6666667
                    3.740741
   [11] 0.5483871
                    3.077061
   [12] 0.4722222
                    2.649691
   [13] 0.4615385
                    2.589744
##
   [14] 0.4500000
                    2.525000
   [15] 0.4500000
                    2.525000
   [16] 0.4358974
                    2.445869
        0.4000000
                    2.244444
   [17]
##
   [18] 0.3953488
                   2.218346
   [19] 0.3829787
                    2.148936
   [20] 0.3793103
                    2.128352
   [21] 0.3695652
                    2.073671
##
   [22] 0.3684211
                    2.067251
   [23] 0.3541667
                    1.987269
   [24] 0.3541667
                    1.987269
   [25] 0.3529412
                    1.980392
##
   [26] 0.3500000
                    1.963889
   [27] 0.3478261
                    1.951691
   [28] 0.3255814
                    1.826873
##
   [29] 0.3250000
                    1.823611
   [30] 0.3200000
                    1.795556
   [31] 0.3170732
                    1.779133
   [32]
        0.3157895
                    1.771930
##
   [33] 0.3090909
                    1.734343
   [34] 0.3055556
                    1.714506
  [35] 0.2972973
                    1.668168
## [36] 0.2962963
                   1.662551
```

```
[37] 0.2881356
                   1.616761
##
   [38] 0.2812500
                   1.578125
   [39] 0.2592593
                   1.454733
   [40] 0.2413793
                   1.354406
##
   [41] 0.2394366
                   1.343505
   [42] 0.2361111
                   1.324846
##
   [43] 0.2352941
                   1.320261
   [44] 0.2075472
                   1.164570
   [45] 0.1969697
                   1.105219
##
   [46] 0.1846154
                   1.035897
##
        lhs
                                                        confidence lift
                             rhs
                                              support
                             {backbone=TRUE} 0.1287129 1.0000000
##
   [1]
        {type=fish}
                                                                   1.2168675
##
   [2]
        {fins=TRUE}
                             {backbone=TRUE} 0.1683168 1.0000000
                                                                   1.2168675
##
   [3]
        {type=bird}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                    1.2168675
   [4]
##
        {feathers=TRUE}
                          =>
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                    1.2168675
##
   [5]
        {milk=TRUE}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                    1.2168675
##
   [6]
                             {backbone=TRUE} 0.4059406 1.0000000
        {type=mammal}
                                                                    1.2168675
   [7]
        {toothed=TRUE}
                             {backbone=TRUE} 0.6039604 1.0000000
##
                                                                    1.2168675
                             {backbone=TRUE} 0.7326733 0.9866667
##
   [8]
        {tail=TRUE}
                                                                    1.2006426
##
   [9]
        {catsize=TRUE}
                             {backbone=TRUE} 0.4257426 0.9772727
                                                                    1.1892114
##
   Γ107
       {domestic=TRUE}
                             {backbone=TRUE} 0.1188119 0.9230769
                                                                    1.1232623
                             {backbone=TRUE} 0.6831683 0.8625000
   [11]
       {breathes=TRUE}
                                                                    1.0495482
   [12] {legs=FALSE}
                             {backbone=TRUE} 0.1881188 0.8260870
                                                                    1.0052383
##
##
   [13] {legs=TRUE}
                             {backbone=TRUE} 0.6336634 0.8205128
                                                                    0.9984554
##
   [14] {aquatic=FALSE}
                             {backbone=TRUE} 0.5247525 0.8153846
                                                                    0.9922150
   [15] {predator=FALSE} =>
                             {backbone=TRUE} 0.3564356 0.8000000
                                                                    0.9734940
                             {backbone=TRUE} 0.6237624 0.7777778
   [16] {feathers=FALSE} =>
                                                                    0.9464525
##
   [17] {airborne=TRUE}
                             {backbone=TRUE} 0.1782178 0.7500000
                                                                    0.9126506
                          => {backbone=TRUE} 0.4158416 0.7118644
##
   [18] {eggs=TRUE}
                                                                    0.8662446
   [19] {catsize=FALSE}
                          => {backbone=TRUE} 0.3960396 0.7017544
                                                                    0.8539421
##
   [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                    0.8112450
##
   [21] {toothed=FALSE}
                        => {backbone=TRUE} 0.2178218 0.5500000
                                                                    0.6692771
##
       lhs
                                                        support
                                                                   confidence
##
   [1] {milk=FALSE,legs=TRUE}
                                      {backbone=FALSE} 0.1386139 0.3500000
   [2] {eggs=TRUE,legs=TRUE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
##
   [3] {legs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1287129 0.3170732
   [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
##
       lift.
   [1] 1.963889
##
   [2] 1.823611
   [3] 1.779133
##
   [4] 1.354406
##
   [5] 1.105219
##
       lhs
                                                            support
##
   [1] {aquatic=FALSE,tail=FALSE}
                                          {backbone=FALSE} 0.1089109
##
   [2] {milk=FALSE,aquatic=FALSE}
                                          {backbone=FALSE} 0.1188119
   [3] {eggs=TRUE,aquatic=FALSE}
                                          {backbone=FALSE} 0.1089109
   [4] {aquatic=FALSE, catsize=FALSE}
                                          {backbone=FALSE} 0.1188119
      {feathers=FALSE,aquatic=FALSE} =>
                                          {backbone=FALSE} 0.1188119
##
##
   [6]
       {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
##
       confidence lift
##
  [1] 0.6875000 3.857639
## [2] 0.4000000 2.244444
```

```
[3] 0.3793103
                  2.128352
   [4] 0.3529412
                  1.980392
   [5] 0.2352941
                  1.320261
##
   [6] 0.2075472
                  1.164570
##
       lhs
                                            rhs
                                                             support
##
  [1] {feathers=FALSE, toothed=FALSE}
                                           {backbone=FALSE} 0.1782178
                                        =>
  [2] {feathers=FALSE,milk=FALSE}
                                        => {backbone=FALSE} 0.1782178
   [3] {feathers=FALSE,eggs=TRUE}
                                        => {backbone=FALSE} 0.1683168
   [4] {feathers=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
   [5] {hair=FALSE, feathers=FALSE}
                                           {backbone=FALSE} 0.1386139
  [6] {feathers=FALSE,fins=FALSE}
                                        => {backbone=FALSE} 0.1782178
   [7] {feathers=FALSE,legs=TRUE}
                                        => {backbone=FALSE} 0.1386139
   [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
##
                                        => {backbone=FALSE} 0.1188119
##
   [9] {feathers=FALSE, aquatic=FALSE}
       confidence lift
##
##
   [1] 0.9000000 5.050000
##
   [2] 0.4500000
                  2.525000
   [3] 0.4358974
                  2.445869
  [4] 0.3953488
                  2.218346
   [5] 0.3684211
                  2.067251
##
   [6] 0.2812500
                  1.578125
   [7] 0.2413793
                  1.354406
   [8] 0.2394366
                  1.343505
##
   [9] 0.2352941
                  1.320261
##
       lhs
                                      rhs
                                                        support
                                                                  confidence
  [1] {eggs=TRUE,tail=FALSE}
                                   => {backbone=FALSE} 0.1683168 0.8500000
   [2] {feathers=FALSE,eggs=TRUE}
                                      {backbone=FALSE} 0.1683168 0.4358974
   [3] {eggs=TRUE,aquatic=FALSE}
                                      {backbone=FALSE} 0.1089109 0.3793103
   [4] {eggs=TRUE,fins=FALSE}
                                      {backbone=FALSE} 0.1683168 0.3695652
  [5] {eggs=TRUE,catsize=FALSE}
                                      {backbone=FALSE} 0.1584158 0.3478261
   [6] {eggs=TRUE,legs=TRUE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
   [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
##
   [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
       lift
   [1] 4.769444
##
##
   [2] 2.445869
   [3] 2.128352
  [4] 2.073671
##
   [5] 1.951691
##
   [6] 1.823611
   [7] 1.668168
   [8] 1.662551
##
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {tail=FALSE,catsize=FALSE}
                                           {backbone=FALSE} 0.1584158
##
  [2]
        {toothed=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
  [3]
##
        {feathers=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
   [4]
        {milk=FALSE,catsize=FALSE}
                                           {backbone=FALSE} 0.1683168
##
   [5]
        {fins=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
   [6]
        {aquatic=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1188119
##
   [7]
        {eggs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
##
   [8]
        {domestic=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
##
   [9]
        {legs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1287129
##
  [10] {airborne=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1089109
##
        confidence lift
```

```
[1]
        0.8000000
                   4.488889
##
   [2]
        0.5483871
                   3.077061
##
   [3]
        0.3953488
                   2.218346
   [4]
##
        0.3541667
                   1.987269
##
   [5]
        0.3541667
                   1.987269
   [6]
        0.3529412
                   1.980392
##
   [7]
        0.3478261
                   1.951691
##
   [8]
        0.3200000
                   1.795556
##
   [9]
        0.3170732
                   1.779133
##
   [10] 0.3055556
                   1.714506
##
       lhs
                                          rhs
                                                            support
##
   [1] {toothed=FALSE,tail=FALSE}
                                          {backbone=FALSE} 0.1683168
   [2] {feathers=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1782178
   [3] {airborne=FALSE,toothed=FALSE} =>
                                          {backbone=FALSE} 0.1188119
   [4] {toothed=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
   [5] {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
##
   [6] {milk=FALSE, toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
##
       confidence lift
   [1] 1.0000000 5.611111
##
   [2] 0.9000000
                  5.050000
##
   [3] 0.6666667
                  3.740741
   [4] 0.5483871
                  3.077061
   [5] 0.4722222
                  2.649691
##
##
   [6] 0.4615385
                  2.589744
##
   Г1]
      "Número de reglas con consecuente negado"
##
                                          rhs
                                                          support
                                                                     confidence
   [1] {aquatic=FALSE,backbone=TRUE} =>
                                         {domestic=TRUE} 0.1089109 0.2075472
##
   [2] {aquatic=FALSE,legs=TRUE}
##
                                      => {domestic=TRUE} 0.1188119 0.2000000
   [3] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
   [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
##
   [5] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
##
   [1] 1.612482
   [2] 1.553846
   [3] 1.335337
##
   [4] 1.294872
##
   [5] 1.238573
##
        lhs
                             rhs
                                               support
                                                         confidence lift
                             {domestic=FALSE} 0.3465347 0.9722222
##
   [1]
        {aquatic=TRUE}
                                                                     1.1158460
##
   [2]
        {predator=TRUE}
                          => {domestic=FALSE} 0.5346535 0.9642857
                                                                     1.1067370
   [3]
        {legs=FALSE}
                          => {domestic=FALSE} 0.2178218 0.9565217
                                                                     1.0978261
   [4]
                             {domestic=FALSE} 0.1980198 0.9523810
##
        {breathes=FALSE} =>
                                                                     1.0930736
##
   [5]
        {backbone=FALSE}
                             {domestic=FALSE} 0.1683168 0.9444444
                                                                     1.0839646
##
   [6]
                             {domestic=FALSE} 0.1584158 0.9411765
        {fins=TRUE}
                                                                     1.0802139
##
   [7]
        {hair=FALSE}
                          => {domestic=FALSE} 0.5346535 0.9310345
                                                                     1.0685737
   [8]
##
        {type=fish}
                             {domestic=FALSE} 0.1188119 0.9230769
                                                                     1.0594406
##
   [9]
        {milk=FALSE}
                             {domestic=FALSE} 0.5445545 0.9166667
                                                                     1.0520833
##
   [10] {eggs=TRUE}
                             {domestic=FALSE} 0.5346535 0.9152542
                                                                     1.0504622
   [11] {toothed=FALSE}
                             {domestic=FALSE} 0.3564356 0.9000000
                                                                     1.0329545
   [12]
       {airborne=FALSE}
                         =>
                             {domestic=FALSE} 0.6732673 0.8831169
                                                                     1.0135773
##
   [13]
       {catsize=FALSE}
                          => {domestic=FALSE} 0.4950495 0.8771930
                                                                     1.0067783
  [14] {feathers=FALSE} => {domestic=FALSE} 0.7029703 0.8765432
                                                                     1.0060325
## [15] {catsize=TRUE}
                          => {domestic=FALSE} 0.3762376 0.8636364
                                                                     0.9912190
## [16] {backbone=TRUE}
                         => {domestic=FALSE} 0.7029703 0.8554217
```

```
## [17] {legs=TRUE}
                         => {domestic=FALSE} 0.6534653 0.8461538
                                                                   0.9711538
                            {domestic=FALSE} 0.1980198 0.8333333
  [18] {airborne=TRUE}
                                                                   0.9564394
  [19] {eggs=FALSE}
                         => {domestic=FALSE} 0.3366337 0.8095238
                         => {domestic=FALSE} 0.3267327 0.8048780
  [20] {milk=TRUE}
                                                                   0.9237805
##
   [21] {type=mammal}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                   0.9237805
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
   [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
   [3] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
   [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
##
       lift
##
   [1] 1.612482
##
   [2] 1.335337
  [3] 1.294872
  [4] 1.238573
##
##
       lhs
                                                     support
                                                               confidence
   [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
##
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
       lift
##
  [1] 1.553846
##
   [2] 1.335337
##
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                            support
##
  Г17
        {aquatic=TRUE, catsize=TRUE}
                                         => {predator=TRUE} 0.1188119
   [2]
        {breathes=FALSE,domestic=FALSE} =>
                                           {predator=TRUE} 0.1683168
  [3]
        {aquatic=TRUE,fins=FALSE}
                                         => {predator=TRUE} 0.1584158
   [4]
##
        {airborne=FALSE,aquatic=TRUE}
                                           {predator=TRUE} 0.2574257
##
   [5]
        {aquatic=TRUE,legs=TRUE}
                                         => {predator=TRUE} 0.1485149
  [6]
##
        {feathers=FALSE, aquatic=TRUE}
                                           {predator=TRUE} 0.2475248
  [7]
        {fins=TRUE,domestic=FALSE}
                                           {predator=TRUE} 0.1287129
## [8]
        {aquatic=TRUE,breathes=TRUE}
                                            {predator=TRUE} 0.1287129
##
  [9]
        {breathes=FALSE}
                                            {predator=TRUE} 0.1683168
  [10] {aquatic=TRUE}
                                            {predator=TRUE} 0.2871287
  [11] {backbone=TRUE,legs=FALSE}
                                            {predator=TRUE} 0.1485149
   [12] {hair=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1782178
## [13] {legs=FALSE,domestic=FALSE}
                                           {predator=TRUE} 0.1683168
## [14] {fins=TRUE}
                                            {predator=TRUE} 0.1287129
## [15] {milk=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1584158
## [16] {eggs=TRUE,toothed=TRUE}
                                            {predator=TRUE} 0.1485149
  [17] {hair=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2871287
  [18] {hair=FALSE, feathers=FALSE}
                                           {predator=TRUE} 0.2673267
  [19] {milk=FALSE,airborne=FALSE}
                                           {predator=TRUE} 0.2673267
## [20] {eggs=TRUE,airborne=FALSE}
                                         => {predator=TRUE} 0.2574257
## [21] {airborne=FALSE,domestic=FALSE} => {predator=TRUE} 0.4653465
## [22] {domestic=FALSE,catsize=TRUE}
                                         => {predator=TRUE} 0.2574257
## [23] {toothed=TRUE,domestic=FALSE}
                                           {predator=TRUE} 0.3465347
## [24] {airborne=FALSE,toothed=FALSE}
                                           {predator=TRUE} 0.1188119
## [25] {hair=FALSE,domestic=FALSE}
                                           {predator=TRUE} 0.3564356
## [26] {catsize=TRUE}
                                         => {predator=TRUE} 0.2772277
## [27] {feathers=FALSE,domestic=FALSE}
                                        => {predator=TRUE} 0.4455446
## [28] {backbone=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4455446
## [29] {tail=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4059406
## [30] {feathers=FALSE,milk=FALSE}
                                         => {predator=TRUE} 0.2475248
## [31] {eggs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.2079208
```

```
## [32] {feathers=FALSE,eggs=TRUE}
                                          => {predator=TRUE} 0.2376238
   [33] {feathers=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.3762376
   [34] {milk=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.2376238
  [35] {feathers=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.3267327
   [36] {eggs=TRUE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
       {milk=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
       {eggs=TRUE,tail=TRUE}
   [38]
                                            {predator=TRUE} 0.2277228
  [39]
       {backbone=TRUE}
                                             {predator=TRUE} 0.4653465
##
   [40]
       {eggs=FALSE}
                                             {predator=TRUE} 0.2277228
   [41]
       {venomous=FALSE,tail=FALSE}
                                            {predator=TRUE} 0.1188119
   [42]
       {legs=TRUE}
                                            {predator=TRUE} 0.3861386
   [43]
        {hair=TRUE}
                                            {predator=TRUE} 0.1980198
##
   [44]
       {aquatic=FALSE}
                                         => {predator=TRUE} 0.2673267
##
        confidence lift
##
  [1]
        0.9230769
                   1.6648352
##
   [2]
        0.8500000
                    1.5330357
   [3]
##
        0.8421053
                    1.5187970
   [4]
        0.8387097
                    1.5126728
   [5]
##
        0.8333333
                    1.5029762
   [6]
        0.8333333
                    1.5029762
##
   [7]
        0.8125000
                    1.4654018
  [8]
        0.8125000
                    1.4654018
##
  [9]
        0.8095238
                    1.4600340
   [10] 0.8055556
                    1.4528770
  [11] 0.7894737
                    1.4238722
   [12] 0.7826087
                    1.4114907
   [13] 0.7727273
                    1.3936688
   [14] 0.7647059
                    1.3792017
  [15] 0.7619048
                    1.3741497
  [16] 0.7500000
                    1.3526786
   [17] 0.7250000
                    1.3075893
   [18] 0.7105263
                    1.2814850
   [19] 0.7105263
                    1.2814850
   [20] 0.7027027
                    1.2673745
   [21] 0.6911765
                    1.2465861
   [22] 0.6842105
                    1.2340226
  [23] 0.6730769
                    1.2139423
  [24] 0.6666667
                    1.2023810
   [25] 0.6666667
                    1.2023810
   [26] 0.6363636
                    1.1477273
   [27] 0.6338028
                    1.1431087
   [28] 0.6338028
                    1.1431087
   [29] 0.6307692
                    1.1376374
   [30] 0.6250000
                    1.1272321
  [31] 0.6176471
                    1.1139706
   [32] 0.6153846
                    1.1098901
##
   [33] 0.6031746
                    1.0878685
   [34] 0.6000000
                    1.0821429
   [35] 0.6000000
                    1.0821429
   [36]
        0.5952381
                    1.0735544
   [37]
##
        0.5952381
                    1.0735544
  [38] 0.5897436
                    1.0636447
## [39] 0.5662651
                    1.0212995
```

## [40] 0.5476190 0.9876701

```
## [41] 0.5454545 0.9837662
  [42] 0.5000000
                   0.9017857
  [43] 0.4651163
                   0.8388704
  [44] 0.4153846
                   0.7491758
                                              support
                                                        confidence lift
        {domestic=TRUE}
## [1]
                         => {predator=FALSE} 0.1089109 0.8461538 1.8991453
                         => {predator=FALSE} 0.1683168 0.7083333
  [2]
        {airborne=TRUE}
## [3]
        {type=bird}
                         => {predator=FALSE} 0.1089109 0.5500000
                                                                   1.2344444
## [4]
        {feathers=TRUE}
                         => {predator=FALSE} 0.1089109 0.5500000
                                                                   1.2344444
##
  [5]
        {toothed=FALSE}
                         => {predator=FALSE} 0.2079208 0.5250000
                                                                   1.1783333
  [6]
        {catsize=FALSE}
                         => {predator=FALSE} 0.2871287 0.5087719
                                                                   1.1419103
## [7]
                         => {predator=FALSE} 0.1881188 0.4634146
        {milk=TRUE}
                                                                   1.0401084
##
  [8]
        {type=mammal}
                         => {predator=FALSE} 0.1881188 0.4634146 1.0401084
## [9]
        {tail=FALSE}
                         => {predator=FALSE} 0.1188119 0.4615385 1.0358974
                         => {predator=FALSE} 0.1881188 0.4523810
## [10] {eggs=FALSE}
                                                                   1.0153439
  [11] {eggs=TRUE}
                         => {predator=FALSE} 0.2574257 0.4406780
                                                                   0.9890772
  [12] {milk=FALSE}
                         => {predator=FALSE} 0.2574257 0.4333333
                                                                   0.9725926
  [13] {domestic=FALSE} => {predator=FALSE} 0.3366337 0.3863636
                         => {predator=FALSE} 0.2178218 0.3793103
  [14] {hair=FALSE}
                                                                   0.8513410
   [15] {catsize=TRUE}
                         => {predator=FALSE} 0.1584158 0.3636364
                                                                   0.8161616
##
       lhs
                                          rhs
                                                          support
                                                                    confidence
  [1] {airborne=FALSE,toothed=FALSE} => {predator=TRUE} 0.1188119 0.6666667
##
##
       lift.
   [1] 1.202381
##
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
   [1] {venomous=FALSE,tail=FALSE} => {predator=TRUE} 0.1188119 0.5454545
##
       lift
   [1] 0.9837662
##
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
##
   [1] {eggs=FALSE,domestic=FALSE} => {predator=TRUE} 0.2079208 0.6176471
##
       lift
##
  [1] 1.113971
##
       lhs
                                                      support
                                                                confidence
  [1] {eggs=TRUE,toothed=TRUE}
                                  => {predator=TRUE} 0.1485149 0.7500000
   [2] {eggs=TRUE,airborne=FALSE} => {predator=TRUE} 0.2574257 0.7027027
   [3] {feathers=FALSE,eggs=TRUE} => {predator=TRUE} 0.2376238 0.6153846
## [4] {eggs=TRUE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
  [5] {eggs=TRUE,tail=TRUE}
                                  => {predator=TRUE} 0.2277228 0.5897436
##
##
       lift
## [1] 1.352679
  [2] 1.267375
  [3] 1.109890
  [4] 1.073554
##
  [5] 1.063645
##
       lhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,toothed=TRUE}
                                   => {predator=TRUE} 0.1584158 0.7619048
  [2] {milk=FALSE,airborne=FALSE} => {predator=TRUE} 0.2673267 0.7105263
  [3] {feathers=FALSE,milk=FALSE} => {predator=TRUE} 0.2475248 0.6250000
  [4] {milk=FALSE,tail=TRUE}
                                   => {predator=TRUE} 0.2376238 0.6000000
  [5] {milk=FALSE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
##
       lift
## [1] 1.374150
## [2] 1.281485
## [3] 1.127232
```

```
[4] 1.082143
   [5] 1.073554
##
##
        lhs
                                                              support
##
        {breathes=FALSE,domestic=FALSE} =>
   [1]
                                            {predator=TRUE} 0.1683168
##
   [2]
        {fins=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.1287129
        {legs=FALSE,domestic=FALSE}
##
   [3]
                                          => {predator=TRUE} 0.1683168
        {airborne=FALSE,domestic=FALSE} => {predator=TRUE} 0.4653465
   [4]
                                            {predator=TRUE} 0.2574257
##
   [5]
        {domestic=FALSE, catsize=TRUE}
##
   [6]
        {toothed=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.3465347
##
   [7]
        {hair=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.3564356
   [8]
        {feathers=FALSE,domestic=FALSE} => {predator=TRUE} 0.4455446
        {backbone=TRUE,domestic=FALSE}
##
   [9]
                                         => {predator=TRUE} 0.4455446
       {tail=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4059406
##
   [10]
   [11] {eggs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.2079208
##
##
        confidence lift
##
   [1]
        0.8500000
                   1.533036
   [2]
##
        0.8125000
                   1.465402
        0.7727273
   [3]
                   1.393669
   [4]
##
        0.6911765
                   1.246586
   [5]
        0.6842105
                   1.234023
##
   [6]
        0.6730769
                   1.213942
   [7]
        0.6666667
                   1.202381
  [8]
        0.6338028
                   1.143109
##
   [9]
        0.6338028
                   1.143109
   [10] 0.6307692
                   1.137637
   [11] 0.6176471
                   1.113971
##
       lhs
                                        rhs
                                                        support
                                                                   confidence
##
   [1] {hair=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1782178 0.7826087
   [2] {hair=FALSE,airborne=FALSE} => {predator=TRUE} 0.2871287 0.7250000
   [3] {hair=FALSE,feathers=FALSE} => {predator=TRUE} 0.2673267 0.7105263
##
   [4] {hair=FALSE,domestic=FALSE} => {predator=TRUE} 0.3564356 0.6666667
##
       lift
##
   [1] 1.411491
   [2] 1.307589
   [3] 1.281485
##
   [4] 1.202381
##
                                                          support
                                                                     confidence
  [1] {aquatic=TRUE, catsize=TRUE}
                                      => {predator=TRUE} 0.1188119 0.9230769
##
   [2] {domestic=FALSE,catsize=TRUE} => {predator=TRUE} 0.2574257 0.6842105
##
       lift.
   [1] 1.664835
   [2] 1.234023
##
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                              support
##
  [1]
        {domestic=TRUE}
                                         => {predator=FALSE} 0.1089109
   [2]
        {hair=TRUE,catsize=FALSE}
##
                                         => {predator=FALSE} 0.1089109
##
   [3]
        {airborne=TRUE, aquatic=FALSE}
                                        => {predator=FALSE} 0.1485149
##
   [4]
        {airborne=TRUE}
                                         => {predator=FALSE} 0.1683168
   [5]
        {aquatic=FALSE, toothed=FALSE}
                                        => {predator=FALSE} 0.1881188
   [6]
        {aquatic=FALSE,tail=FALSE}
                                         => {predator=FALSE} 0.1089109
##
##
   [7]
        {aquatic=FALSE, catsize=FALSE}
                                        => {predator=FALSE} 0.2277228
  [8]
        {eggs=TRUE,aquatic=FALSE}
                                         => {predator=FALSE} 0.1881188
        {toothed=FALSE,breathes=TRUE}
                                         => {predator=FALSE} 0.2079208
## [9]
## [10] {milk=FALSE,aquatic=FALSE}
                                         => {predator=FALSE} 0.1881188
```

```
## [11] {breathes=TRUE,tail=FALSE}
                                        => {predator=FALSE} 0.1188119
   [12] {breathes=TRUE,catsize=FALSE}
                                        => {predator=FALSE} 0.2475248
  [13] {aquatic=FALSE, venomous=FALSE} => {predator=FALSE} 0.3564356
  [14] {eggs=TRUE,breathes=TRUE}
                                        => {predator=FALSE} 0.2178218
                                        => {predator=FALSE} 0.2178218
   [15] {milk=FALSE,breathes=TRUE}
  [16] {legs=TRUE,catsize=FALSE}
                                        => {predator=FALSE} 0.2277228
  [17] {type=bird}
                                        => {predator=FALSE} 0.1089109
                                        => {predator=FALSE} 0.1089109
  [18] {feathers=TRUE}
   [19] {toothed=FALSE,backbone=TRUE}
                                        => {predator=FALSE} 0.1188119
   [20] {venomous=FALSE, catsize=FALSE} => {predator=FALSE} 0.2673267
   [21] {toothed=FALSE, venomous=FALSE} => {predator=FALSE} 0.1881188
   [22] {toothed=FALSE}
                                        => {predator=FALSE} 0.2079208
   [23] {fins=FALSE,catsize=FALSE}
                                        => {predator=FALSE} 0.2475248
  [24] {breathes=TRUE, venomous=FALSE} => {predator=FALSE} 0.3861386
  [25] {catsize=FALSE}
                                        => {predator=FALSE} 0.2871287
   [26] {legs=TRUE,tail=TRUE}
                                        => {predator=FALSE} 0.2871287
   [27] {venomous=FALSE,fins=FALSE}
                                        => {predator=FALSE} 0.3861386
   [28] {fins=FALSE,tail=TRUE}
                                        => {predator=FALSE} 0.2871287
  [29] {milk=TRUE}
                                        => {predator=FALSE} 0.1881188
   [30] {type=mammal}
                                        => {predator=FALSE} 0.1881188
  [31] {tail=FALSE}
                                        => {predator=FALSE} 0.1188119
  [32] {eggs=FALSE}
                                        => {predator=FALSE} 0.1881188
  [33] {eggs=TRUE}
                                        => {predator=FALSE} 0.2574257
   Γ341
       {milk=FALSE}
                                        => {predator=FALSE} 0.2574257
   [35] {domestic=FALSE}
                                        => {predator=FALSE} 0.3366337
   [36] {hair=FALSE}
                                        => {predator=FALSE} 0.2178218
##
   [37] {catsize=TRUE}
                                        => {predator=FALSE} 0.1584158
        confidence lift
##
  [1]
        0.8461538
                  1.8991453
   [2]
        0.8461538
                   1.8991453
##
   [3]
        0.7894737
                   1.7719298
##
   [4]
        0.7083333
                   1.5898148
##
   [5]
        0.7037037
                   1.5794239
   [6]
##
        0.6875000
                   1.5430556
   [7]
        0.6764706
##
                   1.5183007
##
   [8]
        0.6551724
                   1.4704981
   [9]
        0.6363636
                   1.4282828
  [10] 0.6333333
                   1.4214815
   [11] 0.6315789
                   1.4175439
  [12] 0.6097561
                   1.3685637
  [13] 0.5901639
                   1.3245902
  [14] 0.5641026
                   1.2660969
   [15] 0.5641026
                   1.2660969
  [16] 0.5609756
                   1.2590786
  [17] 0.5500000
                   1.2344444
  [18] 0.5500000
                   1.2344444
   [19] 0.5454545
                   1.2242424
   [20] 0.5400000
                   1.2120000
   [21] 0.5277778
                   1.1845679
   [22] 0.5250000
                   1.1783333
  [23] 0.5208333
                   1.1689815
## [24] 0.5200000
                   1.1671111
## [25] 0.5087719
                   1.1419103
## [26] 0.5087719
                  1.1419103
```

```
## [27] 0.5064935 1.1367965
## [28] 0.4915254
                   1.1032015
## [29] 0.4634146
                   1.0401084
## [30] 0.4634146
                   1.0401084
## [31] 0.4615385
                   1.0358974
## [32] 0.4523810
                   1.0153439
## [33] 0.4406780
                   0.9890772
## [34] 0.4333333
                   0.9725926
## [35] 0.3863636
                   0.8671717
  [36] 0.3793103
                   0.8513410
  [37] 0.3636364
                   0.8161616
##
       lhs
                                            support
                                                      confidence lift
## [1] {breathes=FALSE} => {predator=TRUE} 0.1683168 0.8095238 1.4600340
## [2] {aquatic=TRUE}
                        => {predator=TRUE} 0.2871287 0.8055556
## [3] {fins=TRUE}
                        => {predator=TRUE} 0.1287129 0.7647059
                                                                 1.3792017
## [4] {catsize=TRUE}
                        => {predator=TRUE} 0.2772277 0.6363636
                                                                 1.1477273
## [5] {backbone=TRUE}
                        => {predator=TRUE} 0.4653465 0.5662651
                                                                 1.0212995
  [6] {eggs=FALSE}
                        => {predator=TRUE} 0.2277228 0.5476190
                        => {predator=TRUE} 0.3861386 0.5000000
  [7] {legs=TRUE}
                                                                 0.9017857
  [8] {hair=TRUE}
                        => {predator=TRUE} 0.1980198 0.4651163
##
   [9] {aquatic=FALSE}
                        => {predator=TRUE} 0.2673267 0.4153846
                                                                 0.7491758
##
                                         rhs
                                                          support
  [1] {toothed=FALSE,backbone=TRUE} => {predator=FALSE} 0.1188119 0.5454545
##
##
       lift
## [1] 1.224242
                                    rhs
                                                      support
                                                                confidence
   [1] {legs=TRUE,catsize=FALSE} => {predator=FALSE} 0.2277228 0.5609756
##
                                 => {predator=FALSE} 0.2871287 0.5087719
##
   [2] {legs=TRUE,tail=TRUE}
##
       lift
## [1] 1.259079
##
  [2] 1.141910
##
       lhs
                                                                confidence
                                     rhs
                                                      support
##
   [1] {hair=TRUE,catsize=FALSE} => {predator=FALSE} 0.1089109 0.8461538
##
       lift
##
   [1] 1.899145
##
       lhs
                                          rhs
                                                           support
## [1] {airborne=TRUE, aquatic=FALSE}
                                      => {predator=FALSE} 0.1485149
## [2] {aquatic=FALSE,toothed=FALSE}
                                      => {predator=FALSE} 0.1881188
## [3] {aquatic=FALSE,tail=FALSE}
                                       => {predator=FALSE} 0.1089109
## [4] {aquatic=FALSE,catsize=FALSE}
                                      => {predator=FALSE} 0.2277228
## [5] {eggs=TRUE,aquatic=FALSE}
                                       => {predator=FALSE} 0.1881188
  [6] {milk=FALSE,aquatic=FALSE}
                                       => {predator=FALSE} 0.1881188
  [7] {aquatic=FALSE, venomous=FALSE} => {predator=FALSE} 0.3564356
##
       confidence lift
## [1] 0.7894737 1.771930
## [2] 0.7037037
                  1.579424
## [3] 0.6875000
                  1.543056
## [4] 0.6764706
                 1.518301
## [5] 0.6551724
                  1.470498
## [6] 0.6333333
                  1.421481
## [7] 0.5901639
                 1.324590
## [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                         support
                                                                   confidence
## [1] {backbone=FALSE, venomous=FALSE} => {tail=FALSE} 0.1386139 1.0000000
```

```
[2]
        {backbone=FALSE}
                                         => {tail=FALSE} 0.1683168 0.9444444
   [3]
                                         => {tail=FALSE} 0.1683168 0.8500000
        {feathers=FALSE, toothed=FALSE}
        {airborne=FALSE, toothed=FALSE}
  [4]
                                           {tail=FALSE} 0.1089109 0.6111111
  [5]
        {feathers=FALSE,eggs=TRUE}
                                         => {tail=FALSE} 0.1980198 0.5128205
##
##
   [6]
        {feathers=FALSE, milk=FALSE}
                                            {tail=FALSE} 0.1980198 0.5000000
  [7]
        {feathers=FALSE, catsize=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4651163
##
  [8]
        {eggs=TRUE,fins=FALSE}
                                           {tail=FALSE} 0.1980198 0.4347826
## [9]
        {milk=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.1980198 0.4255319
  [10] {hair=FALSE, feathers=FALSE}
                                            {tail=FALSE} 0.1584158 0.4210526
  [11] {fins=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4166667
  [12] {eggs=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
  [13] {milk=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
  [14] {feathers=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.3906250
## [15] {legs=TRUE,catsize=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3902439
## [16] {airborne=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3888889
  [17] {eggs=TRUE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3793103
  [18] {eggs=TRUE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3783784
  [19] {hair=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3720930
  [20] {milk=FALSE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3684211
  [21] {milk=FALSE,aquatic=FALSE}
                                           {tail=FALSE} 0.1089109 0.3666667
## [22] {feathers=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.2079208 0.3620690
  [23] {domestic=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1782178 0.3600000
## [24] {feathers=FALSE,predator=FALSE} =>
                                            {tail=FALSE} 0.1188119 0.3529412
  [25] {aquatic=FALSE, catsize=FALSE}
                                            {tail=FALSE} 0.1188119 0.3529412
  [26] {hair=FALSE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3500000
  [27] {hair=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1188119 0.3333333
## [28] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
  [29] {airborne=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1881188 0.3166667
## [30] {fins=FALSE,domestic=FALSE}
                                         => {tail=FALSE} 0.2178218 0.3055556
## [31] {predator=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1287129 0.3023256
## [32] {fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.2976190
  [33] {predator=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1089109 0.2820513
  [34] {airborne=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1485149 0.2777778
                                         => {tail=FALSE} 0.1782178 0.2727273
  [35] {legs=TRUE,domestic=FALSE}
   [36] {domestic=FALSE}
                                         => {tail=FALSE} 0.2277228 0.2613636
                                         => {tail=FALSE} 0.1386139 0.2500000
##
   [37] {predator=TRUE}
##
   [38] {venomous=FALSE}
                                         => {tail=FALSE} 0.2178218 0.2365591
##
        lift
   [1]
##
        3.8846154
##
   [2]
       3.6688034
  [3]
        3.3019231
   [4]
        2.3739316
##
##
   [5]
        1.9921105
##
   [6]
        1.9423077
  [7]
        1.8067979
## [8]
        1.6889632
##
  [9]
        1.6530278
  [10] 1.6356275
  [11] 1.6185897
## [12]
       1.5538462
## [13] 1.5538462
## [14] 1.5174279
## [15] 1.5159475
## [16] 1.5106838
```

```
## [17] 1.4734748
## [18] 1.4698545
## [19] 1.4454383
## [20] 1.4311741
## [21] 1.4243590
## [22] 1.4064987
## [23] 1.3984615
## [24] 1.3710407
## [25] 1.3710407
## [26] 1.3596154
## [27] 1.2948718
## [28] 1.2583965
## [29] 1.2301282
## [30] 1.1869658
## [31] 1.1744186
## [32] 1.1561355
  [33] 1.0956607
## [34] 1.0790598
  [35] 1.0594406
  [36] 1.0152972
##
  [37] 0.9711538
  [38] 0.9189413
##
        lhs
                                                   confidence lift
                            rhs
                                         support
                         => {tail=TRUE} 0.1287129 1.0000000
## [1]
        {type=fish}
                                                              1.3466667
                         => {tail=TRUE} 0.1980198 1.0000000
  [2]
        {type=bird}
                                                              1.3466667
  [3]
        {feathers=TRUE}
                         => {tail=TRUE} 0.1980198 1.0000000
                                                              1.3466667
  [4]
##
        {fins=TRUE}
                         => {tail=TRUE} 0.1584158 0.9411765
                                                               1.2674510
  [5]
        {catsize=TRUE}
                         => {tail=TRUE} 0.3762376 0.8636364
                                                               1.1630303
## [6]
                         => {tail=TRUE} 0.3564356 0.8571429
        {eggs=FALSE}
                                                               1.1542857
## [7]
        {milk=TRUE}
                         => {tail=TRUE} 0.3465347 0.8536585
                                                               1.1495935
## [8]
        {type=mammal}
                         => {tail=TRUE} 0.3465347 0.8536585
                                                               1.1495935
##
  [9]
        {legs=FALSE}
                         => {tail=TRUE} 0.1782178 0.7826087
                                                               1.0539130
## [10] {hair=TRUE}
                         => {tail=TRUE} 0.3267327 0.7674419
                                                               1.0334884
                         => {tail=TRUE} 0.4851485 0.7538462
## [11] {aquatic=FALSE}
                                                              1.0151795
## [12] {airborne=TRUE}
                         => {tail=TRUE} 0.1782178 0.7500000
                                                               1.0100000
                         => {tail=TRUE} 0.4158416 0.7500000
## [13] {predator=TRUE}
                                                              1.0100000
## [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
## [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                                                              0.9875556
## [16] {hair=FALSE}
                         => {tail=TRUE} 0.4158416 0.7241379
                                                              0.9751724
  [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
                                                              0.9144033
                         => {tail=TRUE} 0.3861386 0.6610169
  [18] {eggs=TRUE}
                                                              0.8901695
  [19] {catsize=FALSE} => {tail=TRUE} 0.3663366 0.6491228
                                                              0.8741520
   [20] {toothed=FALSE} => {tail=TRUE} 0.2277228 0.5750000
                                                              0.7743333
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
## [1] {eggs=TRUE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3793103
   [2] {milk=FALSE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3666667
##
   [3] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.473475
##
  [2] 1.424359
##
  [3] 1.371041
##
                                      rhs
                                                   support
## [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
## [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
```

```
##
       lift
## [1] 1.174419
  [2] 1.095661
##
                                                                  confidence
       lhs
                                           rhs
                                                        support
## [1] {domestic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
## [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
## [3] {fins=FALSE,domestic=FALSE}
                                       => {tail=FALSE} 0.2178218 0.3055556
## [4] {legs=TRUE,domestic=FALSE}
                                       => {tail=FALSE} 0.1782178 0.2727273
##
       lift
## [1] 1.398462
## [2] 1.258397
## [3] 1.186966
##
   [4] 1.059441
##
                                           rhs
                                                        support
## [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.371041
##
       lhs
                                                    support
                                                              confidence
## [1] {hair=FALSE,feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
## [2] {hair=FALSE,fins=FALSE}
                                    => {tail=FALSE} 0.1584158 0.3720930
## [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
## [4] {hair=FALSE,legs=TRUE}
                                   => {tail=FALSE} 0.1188119 0.3333333
##
       lift
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {tail=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE}
                                        => {tail=FALSE} 0.1980198 0.5128205
## [3] {feathers=FALSE,milk=FALSE}
                                        => {tail=FALSE} 0.1980198 0.5000000
## [4] {feathers=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4651163
## [5] {hair=FALSE,feathers=FALSE}
                                        => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                        => {tail=FALSE} 0.2475248 0.3906250
## [7] {feathers=FALSE,legs=TRUE}
                                        => {tail=FALSE} 0.2079208 0.3620690
## [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
## [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
##
       lift
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
## [7] 1.406499
## [8] 1.371041
## [9] 1.258397
##
       lhs
                                      rhs
                                                   support
                                                             confidence
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
## [2] {eggs=TRUE,fins=FALSE}
                                  => {tail=FALSE} 0.1980198 0.4347826
                                  => {tail=FALSE} 0.1584158 0.4000000
## [3] {eggs=TRUE,legs=TRUE}
## [4] {eggs=TRUE,aquatic=FALSE} => {tail=FALSE} 0.1089109 0.3793103
## [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
       lift
```

```
## [1] 1.992110
  [2] 1.688963
  [3] 1.553846
  [4] 1.473475
##
   [5] 1.469854
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
## [2] {fins=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4166667
## [3] {legs=TRUE,catsize=FALSE}
                                       => {tail=FALSE} 0.1584158 0.3902439
  [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
  [5] {domestic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
   [6] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
##
       lift
## [1] 1.806798
## [2] 1.618590
## [3] 1.515947
  [4] 1.510684
   [5] 1.398462
##
   [6] 1.371041
##
                                                       support
                                                                  confidence
  [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
   [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
       lift
  [1] 3.301923
##
  [2] 2.373932
   Г17
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                         support
                                                                   confidence
        {type=fish}
##
  [1]
                                           {legs=FALSE} 0.1287129 1.0000000
##
  [2]
        {hair=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1485149 1.0000000
## [3]
        {eggs=TRUE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
## [4]
        {milk=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
##
  [5]
        {toothed=TRUE, breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
  [6]
        {breathes=FALSE, tail=TRUE}
                                         => {legs=FALSE} 0.1386139 1.0000000
##
  [7]
        {backbone=TRUE, breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
   [8]
        {fins=TRUE}
                                         => {legs=FALSE} 0.1584158 0.9411765
##
  [9]
        {hair=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1782178 0.7826087
## [10] {breathes=FALSE}
                                         => {legs=FALSE} 0.1584158 0.7619048
## [11] {milk=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1584158 0.7619048
                                         => {legs=FALSE} 0.1485149 0.7500000
## [12] {eggs=TRUE,toothed=TRUE}
## [13] {aquatic=TRUE, toothed=TRUE}
                                         => {legs=FALSE} 0.1683168 0.7391304
## [14] {aquatic=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.6153846
  [15] {feathers=FALSE, aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.6000000
## [16] {airborne=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
## [17] {hair=FALSE,feathers=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5789474
## [18] {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
## [19] {hair=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1683168 0.5312500
## [20] {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
## [21] {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
## [22] {feathers=FALSE,milk=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5000000
## [23] {feathers=FALSE,eggs=TRUE}
                                         => {legs=FALSE} 0.1881188 0.4871795
## [24] {toothed=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.4615385
## [25] {hair=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4444444
## [26] {airborne=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
## [27] {hair=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4285714
```

```
## [28] {milk=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1386139 0.4117647
  [29] {hair=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4090909
                                         => {legs=FALSE} 0.1485149 0.4054054
  [30] {predator=TRUE, toothed=TRUE}
  [31] {milk=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4000000
##
   [32] {eggs=TRUE,predator=TRUE}
                                         => {legs=FALSE} 0.1287129 0.3939394
   [33] {hair=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.2079208 0.3888889
##
  [34] {eggs=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1485149 0.3846154
                                         => {legs=FALSE} 0.1584158 0.3809524
  [35] {milk=FALSE,backbone=TRUE}
   [36]
       {feathers=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.3720930
   [37] {feathers=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3617021
   [38] {eggs=TRUE,backbone=TRUE}
                                         => {legs=FALSE} 0.1485149 0.3571429
   [39] {airborne=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3469388
   [40] {toothed=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3461538
  [41] {milk=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.1881188 0.3454545
  [42] {predator=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1386139 0.3333333
   [43] {eggs=TRUE,domestic=FALSE}
                                            {legs=FALSE} 0.1782178 0.3333333
   [44] {feathers=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3272727
   [45] {tail=TRUE, catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3243243
   [46] {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
   [47] {airborne=FALSE, toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
##
  [48] {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
  [49] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
  [50] {feathers=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3098592
       {predator=TRUE}
##
   [51]
                                         => {legs=FALSE} 0.1683168 0.3035714
   [52] {feathers=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3015873
   [53]
       {backbone=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
       {domestic=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1485149 0.3000000
   [54]
   [55] {tail=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1683168 0.2615385
   [56] {backbone=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.2535211
##
##
        lift
##
  [1]
        4.391304
##
   [2]
        4.391304
##
   [3]
        4.391304
   [4]
##
        4.391304
   [5]
##
        4.391304
##
   [6]
        4.391304
  [7]
        4.391304
  [8]
##
        4.132992
   [9]
        3.436673
##
  [10] 3.345756
  [11] 3.345756
  [12] 3.293478
##
   [13] 3.245747
##
  [14] 2.702341
## [15] 2.634783
  [16] 2.549790
##
   [17] 2.542334
  [18] 2.415217
  [19] 2.332880
   [20] 2.311213
## [21] 2.254994
## [22] 2.195652
## [23] 2.139353
## [24] 2.026756
```

```
## [25] 1.951691
   [26] 1.951691
   [27] 1.881988
   [28] 1.808184
##
   [29] 1.796443
##
   [30] 1.780259
   [31] 1.756522
   [32] 1.729908
   [33] 1.707729
   [34] 1.688963
   [35] 1.672878
   [36] 1.633974
##
   [37] 1.588344
   [38] 1.568323
   [39] 1.523514
   [40] 1.520067
##
   [41] 1.516996
   [42] 1.463768
   [43] 1.463768
   [44] 1.437154
##
   [45] 1.424207
   [46] 1.420716
##
   [47] 1.414149
##
   [48] 1.386728
   [49] 1.383562
   [50] 1.360686
   [51] 1.333075
##
   [52] 1.324362
##
   [53] 1.317391
   [54] 1.317391
##
   [55] 1.148495
##
   [56]
       1.113288
##
        lhs
                                                    confidence lift
                                          support
##
   [1]
                          => {legs=TRUE} 0.1980198 1.0000000
                                                                1.2948718
        {type=bird}
##
   [2]
                          => {legs=TRUE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                                1.2948718
##
   [3]
        {airborne=TRUE}
                          => {legs=TRUE} 0.2376238 1.0000000
                                                                1.2948718
##
   [4]
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                                1.2647585
##
   [5]
        {milk=TRUE}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
   [6]
                             {legs=TRUE} 0.3762376 0.9268293
##
        {type=mammal}
                                                                1.2001251
##
   [7]
        {domestic=TRUE}
                             {legs=TRUE} 0.1188119 0.9230769
                                                                1.1952663
   [8]
        {aquatic=FALSE}
                          => {legs=TRUE} 0.5940594 0.9230769
                                                                1.1952663
   [9]
                          => {legs=TRUE} 0.3762376 0.9047619
##
        {eggs=FALSE}
                                                                1.1715507
       {toothed=FALSE}
##
   Γ10]
                          => {legs=TRUE} 0.3564356 0.9000000
                                                                1.1653846
                          => {legs=TRUE} 0.3861386 0.8666667
       {predator=FALSE}
                                                                1.122222
   [12] {catsize=TRUE}
                          => {legs=TRUE} 0.3663366 0.8409091
                                                                1.0888695
                          => {legs=TRUE} 0.2079208 0.8076923
   [13]
       {tail=FALSE}
                                                                1.0458580
   [14]
       {backbone=FALSE}
                             {legs=TRUE} 0.1386139 0.7777778
                                                                1.0071225
   [15] {tail=TRUE}
                          => {legs=TRUE} 0.5643564 0.7600000
                                                                0.9841026
   [16] {catsize=FALSE}
                          => {legs=TRUE} 0.4059406 0.7192982
                                                                0.9313990
   [17] {airborne=FALSE}
                          => {legs=TRUE} 0.5346535 0.7012987
                                                                0.9080919
##
   [18]
       {toothed=TRUE}
                          => {legs=TRUE} 0.4158416 0.6885246
                                                                0.8915511
   [19] {eggs=TRUE}
                          => {legs=TRUE} 0.3960396 0.6779661
                                                                0.8778792
## [20] {milk=FALSE}
                          => {legs=TRUE} 0.3960396 0.6666667
                                                                0.8632479
## [21] {aquatic=TRUE}
                          => {legs=TRUE} 0.1782178 0.5000000
                                                               0.6474359
```

```
##
                                                     support
                                                               confidence
## [1]
        {breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
        {aquatic=TRUE,tail=TRUE}
   [2]
                                    => {legs=FALSE} 0.1584158 0.6153846
  [3]
        {hair=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1782178 0.4285714
##
##
   [4]
        {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
   [5]
                                    => {legs=FALSE} 0.1485149 0.3846154
##
        {eggs=TRUE,tail=TRUE}
  [6]
        {predator=TRUE, tail=TRUE}
                                    => {legs=FALSE} 0.1386139 0.3333333
##
  [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
##
   [8]
        {tail=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3243243
##
   [9]
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
       {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
        lift
## [1]
        4.391304
##
  [2]
        2.702341
  [3]
##
        1.881988
##
  [4]
        1.756522
  [5]
##
        1.688963
   [6]
        1.463768
##
  [7]
##
        1.437154
##
   [8]
        1.424207
##
  [9]
        1.386728
  [10] 1.148495
##
##
       lhs
                                                                  confidence
                                          rhs
                                                        support
## [1] {toothed=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.4615385
  [2] {airborne=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.4444444
  [3] {feathers=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
  [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
   [5] {backbone=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3000000
   [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
##
       lift
## [1] 2.026756
   [2] 1.951691
  [3] 1.633974
  [4] 1.424207
   [5] 1.317391
##
   [6] 1.317391
##
                                                          support
                                                                    confidence
## [1]
        {airborne=FALSE, aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
  [2]
        {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
  [3]
        {milk=FALSE,airborne=FALSE}
##
                                         => {legs=FALSE} 0.1980198 0.5263158
        {eggs=TRUE,airborne=FALSE}
  [4]
                                         => {legs=FALSE} 0.1881188 0.5135135
   [5]
        {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
##
##
   [6]
        {airborne=FALSE, predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
  [7]
        {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
##
  [8]
        {airborne=FALSE, toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
  [9]
        {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
##
##
   [10] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
        lift
## [1]
        2.549790
##
   [2]
        2.415217
   [3]
##
        2.311213
## [4]
        2.254994
## [5]
        1.951691
## [6]
        1.523514
```

```
[7]
        1.420716
   [8]
##
        1.414149
  [9]
        1.386728
   [10] 1.383562
##
##
                                         rhs
                                                      support
                                                                 confidence
## [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
  [2] {hair=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1782178 0.7826087
  [3] {milk=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1584158 0.7619048
  [4] {eggs=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.7500000
  [5] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
  [6] {toothed=TRUE,catsize=FALSE}
                                      => {legs=FALSE} 0.1188119 0.4615385
   [7] {predator=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.4054054
   [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
   [9] {airborne=FALSE, toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
##
       lift
##
   [1] 4.391304
##
   [2] 3.436673
  [3] 3.345756
  [4] 3.293478
##
   [5] 3.245747
##
  [6] 2.026756
  [7] 1.780259
  [8] 1.520067
##
##
   [9] 1.414149
##
       lhs
                                      rhs
                                                   support
                                                              confidence
  [1] {eggs=TRUE,fins=TRUE}
                                   => {legs=FALSE} 0.1287129 1.0000000
   [2] {eggs=TRUE,toothed=TRUE}
                                   => {legs=FALSE} 0.1485149 0.7500000
   [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
  [4] {feathers=FALSE,eggs=TRUE} => {legs=FALSE} 0.1881188 0.4871795
                                   => {legs=FALSE} 0.1287129 0.3939394
  [5] {eggs=TRUE,predator=TRUE}
   [6] {eggs=TRUE,tail=TRUE}
                                   => {legs=FALSE} 0.1485149 0.3846154
   [7] {eggs=TRUE,backbone=TRUE}
                                  => {legs=FALSE} 0.1485149 0.3571429
##
   [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
       lift
   [1] 4.391304
##
##
   [2] 3.293478
   [3] 2.254994
  [4] 2.139353
##
##
   [5] 1.729908
##
  [6] 1.688963
  [7] 1.568323
##
   [8] 1.463768
##
       lhs
                                       rhs
                                                    support
                                                               confidence
  [1] {milk=FALSE,fins=TRUE}
                                      {legs=FALSE} 0.1287129 1.0000000
##
  [2] {milk=FALSE,toothed=TRUE}
                                    => {legs=FALSE} 0.1584158 0.7619048
  [3] {milk=FALSE,airborne=FALSE} =>
                                      {legs=FALSE} 0.1980198 0.5263158
  [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
   [5] {milk=FALSE,predator=TRUE}
                                    => {legs=FALSE} 0.1386139 0.4117647
  [6] {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
   [7] {milk=FALSE,backbone=TRUE}
                                    => {legs=FALSE} 0.1584158 0.3809524
##
   [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
       lift
## [1] 4.391304
## [2] 3.345756
```

```
## [3] 2.311213
  [4] 2.195652
  [5] 1.808184
  [6] 1.756522
   [7] 1.672878
##
   [8] 1.516996
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
## [1] {aquatic=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
   [2] {aquatic=TRUE,tail=TRUE}
                                      => {legs=FALSE} 0.1584158 0.6153846
   [3] {feathers=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.6000000
   [4] {airborne=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.5806452
##
   [5] {hair=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1683168 0.5312500
##
       lift
  [1] 3.245747
##
## [2] 2.702341
  [3] 2.634783
##
  [4] 2.549790
   [5] 2.332880
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                        support
                                                                   confidence
##
  [1]
        {type=fish}
                                         => {fins=TRUE} 0.1287129 1.0000000
  [2]
        {toothed=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
  [3]
##
        {breathes=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.9285714
   [4]
##
        {backbone=TRUE, breathes=FALSE}
                                            {fins=TRUE} 0.1287129 0.9285714
                                         => {fins=TRUE} 0.1584158 0.8888889
##
  [5]
        {aquatic=TRUE,legs=FALSE}
  [6]
        {toothed=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
   [7]
                                           {fins=TRUE} 0.1584158 0.8421053
##
        {backbone=TRUE,legs=FALSE}
##
   [8]
        {legs=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.8333333
  [9]
##
        {breathes=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1287129 0.8125000
## [10] {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
  [11] {aquatic=TRUE, toothed=TRUE}
                                           {fins=TRUE} 0.1683168 0.7391304
  [12] {predator=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1188119 0.7058824
  [13] {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
                                         => {fins=TRUE} 0.1485149 0.6521739
## [14] {hair=FALSE,toothed=TRUE}
   [15] {aquatic=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.6500000
## [16] {eggs=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6500000
## [17] {breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6190476
## [18] {milk=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6190476
## [19] {aquatic=TRUE,tail=TRUE}
                                            {fins=TRUE} 0.1584158 0.6153846
## [20] {feathers=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
## [21] {aquatic=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
  [22] {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
## [23] {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
                                         => {fins=TRUE} 0.1485149 0.3947368
## [24] {hair=FALSE,feathers=FALSE}
## [25] {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
                                           {fins=TRUE} 0.1485149 0.3571429
## [26] {hair=FALSE,tail=TRUE}
## [27] {predator=TRUE, toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.3513514
## [28] {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [29] {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
  [30] {hair=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1485149 0.3409091
  [31] {eggs=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
## [32] {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
## [33] {milk=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3250000
## [34] {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
```

```
## [35] {eggs=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
                                         => {fins=TRUE} 0.1287129 0.3095238
   [36] {milk=FALSE,backbone=TRUE}
  [37] {toothed=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.3076923
  [38] {toothed=TRUE,domestic=FALSE}
                                           {fins=TRUE} 0.1584158 0.3076923
  [39] {hair=FALSE,predator=TRUE}
                                            {fins=TRUE} 0.1089109 0.3055556
  [40] {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
  [41] {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
## [42] {predator=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1188119 0.2857143
  [43] {toothed=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1584158 0.2807018
  [44] {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
  [45] {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
   [46] {predator=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
  [47] {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
## [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
                                         => {fins=TRUE} 0.1287129 0.2653061
## [49] {airborne=FALSE,predator=TRUE}
   [50] {airborne=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1683168 0.2615385
                                         => {fins=TRUE} 0.1386139 0.2592593
##
   [51]
       {hair=FALSE,domestic=FALSE}
  [52] {hair=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2586207
  [53] {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
   [54] {airborne=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2352941
##
  [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [57] {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
       {eggs=TRUE, venomous=FALSE}
##
  ſ581
                                            {fins=TRUE} 0.1188119 0.2264151
   [59]
       {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [60] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [61] {backbone=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2253521
##
   [62] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
   [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [64] {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
   [65]
       {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
##
   [66]
       {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
##
   [1]
        5.941176
##
   [2]
        5.516807
   [3]
##
       5.516807
##
  [4]
        5.516807
  [5]
##
        5.281046
   [6]
##
        5.003096
##
  [7]
        5.003096
  [8]
        4.950980
   [9]
##
        4.827206
##
   [10] 4.690402
##
  [11] 4.391304
## [12] 4.193772
## [13] 3.960784
##
  [14] 3.874680
  [15] 3.861765
  [16] 3.861765
  [17] 3.677871
## [18] 3.677871
## [19] 3.656109
## [20] 3.366667
## [21] 3.366667
```

```
## [22] 3.258065
  [23] 2.970588
  [24] 2.345201
  [25] 2.227941
  [26] 2.121849
  [27] 2.087440
##
  [28] 2.087440
## [29] 2.032508
   [30] 2.025401
   [31] 1.980392
  [32] 1.980392
  [33] 1.930882
##
  [34] 1.930882
  [35] 1.838936
  [36] 1.838936
   [37] 1.828054
  [38] 1.828054
  [39] 1.815359
  [40] 1.728342
  [41] 1.711864
## [42] 1.697479
  [43] 1.667699
## [44] 1.667699
  [45] 1.643304
## [46] 1.643304
  [47] 1.603175
  [48] 1.599548
##
  [49] 1.576230
  [50] 1.553846
  [51] 1.540305
   [52] 1.536511
##
   [53] 1.425882
   [54] 1.397924
  [55] 1.383562
   [56] 1.371041
##
   [57] 1.371041
  [58] 1.345172
  [59] 1.338857
   [60] 1.338857
  [61] 1.338857
##
   [62] 1.320261
   [63] 1.302176
##
   [64] 1.296257
##
   [65] 1.284579
##
   [66] 1.100218
##
        lhs
                             rhs
                                          support
                                                     confidence lift
##
  [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000 1.2023810
   [2]
                          => {fins=FALSE} 0.1980198 1.0000000
        {type=bird}
                                                                1.2023810
##
   [3]
        {feathers=TRUE}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
   [4]
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
                                                                1.2023810
##
   [5]
                          => {fins=FALSE} 0.3960396 1.0000000
        {toothed=FALSE}
                                                                1.2023810
##
  [6]
        {legs=TRUE}
                          => {fins=FALSE} 0.7623762 0.9871795
## [7]
        {hair=TRUE}
                          => {fins=FALSE} 0.4059406 0.9534884
                                                                1.1464563
                         => {fins=FALSE} 0.7524752 0.9500000 1.1422619
## [8]
        {breathes=TRUE}
```

```
{domestic=TRUE} => {fins=FALSE} 0.1188119 0.9230769
                                                                1.1098901
  [10] {predator=FALSE} => {fins=FALSE} 0.4059406 0.9111111
                                                                1.0955026
  [11] {eggs=FALSE}
                          => {fins=FALSE} 0.3762376 0.9047619
                          => {fins=FALSE} 0.3663366 0.9024390
  [12] {milk=TRUE}
                                                                1.0850755
##
  [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
  [14] {catsize=FALSE}
                         => {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
  [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
## [16] {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                0.9837662
  [17] {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                0.9837662
  [18] {backbone=TRUE}
                         => {fins=FALSE} 0.6534653 0.7951807
                                                                0.9561102
## [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
                         => {fins=FALSE} 0.5841584 0.7866667
## [20] {tail=TRUE}
                                                                0.9458730
## [21] {eggs=TRUE}
                          => {fins=FALSE} 0.4554455 0.7796610
                                                                0.9374496
       {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                0.9369202
                         => {fins=FALSE} 0.4257426 0.7678571
## [23] {predator=TRUE}
                                                                0.9232568
  [24]
        {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
                                                                0.8914204
        {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115
##
   [25]
                                                                0.8672912
   [26]
        {aquatic=TRUE}
                          => {fins=FALSE} 0.1881188 0.5277778
                                                                0.6345899
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
   [1]
        {venomous=FALSE,legs=FALSE}
                                            {fins=TRUE} 0.1485149 0.7894737
##
  [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
        {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
##
  [3]
  [4]
        {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
##
   [5]
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
##
   [6]
        {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
  [7]
        {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
        {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
##
   [8]
   [9]
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
   [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
##
  [1]
        4.690402
##
   [2]
        3.960784
   [3]
##
        2.970588
   [4]
##
        1.667699
   [5]
##
        1.599548
##
  [6]
        1.425882
  [7]
        1.371041
##
  [8]
##
        1.345172
##
  [9]
        1.338857
  [10] 1.302176
##
   [11] 1.100218
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
  [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
##
## [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
## [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
  [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
   [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
   [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
##
   [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
       lift
## [1] 1.828054
```

```
## [2] 1.540305
   [3] 1.397924
   [4] 1.371041
  [5] 1.338857
   [6] 1.338857
##
   [7] 1.320261
   [8] 1.296257
##
   [9] 1.100218
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
   [1]
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
   [3]
##
        {aquatic=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
##
   [4]
        {hair=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3409091
##
   [5]
        {eggs=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
   [6]
        {milk=FALSE,backbone=TRUE}
##
                                         => {fins=TRUE} 0.1287129 0.3095238
##
   [7]
        {predator=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
##
   [8]
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
   [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [11] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
##
        lift
##
  [1]
        5.516807
   [2]
        5.003096
##
   [3]
##
        3.366667
##
   [4]
        2.025401
   [5]
        1.838936
   [6]
##
        1.838936
##
   [7]
        1.643304
   [8]
##
        1.603175
##
   [9]
        1.553846
##
   [10] 1.338857
##
   [11] 1.284579
##
        lhs
                                                          support
                                                                    confidence
##
   [1]
        {feathers=FALSE, aquatic=TRUE}
                                          => {fins=TRUE} 0.1683168 0.5666667
##
   [2]
        {hair=FALSE, feathers=FALSE}
                                          => {fins=TRUE} 0.1485149 0.3947368
##
   [3]
        {feathers=FALSE,eggs=TRUE}
                                          => {fins=TRUE} 0.1287129 0.3333333
   [4]
        {feathers=FALSE,milk=FALSE}
                                          => {fins=TRUE} 0.1287129 0.3250000
   [5]
        {feathers=FALSE,tail=TRUE}
                                          => {fins=TRUE} 0.1584158 0.2909091
##
   [6]
        {feathers=FALSE,predator=TRUE}
                                          =>
                                            {fins=TRUE} 0.1287129 0.2765957
##
                                         => {fins=TRUE} 0.1683168 0.2698413
##
   [7]
        {feathers=FALSE,backbone=TRUE}
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
   Γ10]
##
        lift
## [1]
        3.366667
   [2]
        2.345201
##
##
   [3]
        1.980392
##
   [4]
        1.930882
##
   [5]
        1.728342
##
   [6]
        1.643304
   [7]
        1.603175
##
## [8]
        1.383562
## [9]
        1.338857
## [10] 1.302176
```

```
##
        lhs
                                                   support
                                                              confidence
##
  [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
        {legs=FALSE,tail=TRUE}
   [2]
                                    => {fins=TRUE} 0.1485149 0.8333333
  [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
##
##
   [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
##
   [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
  [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
##
  [7]
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
##
  [8]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
  [9]
        {predator=TRUE, tail=TRUE} => {fins=TRUE} 0.1188119 0.2857143
  [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
   [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
       {backbone=TRUE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
##
        lift
## [1]
        5.516807
##
  [2]
        4.950980
   [3]
##
        3.656109
  [4]
##
        2.121849
  [5]
##
        1.980392
##
   [6]
        1.930882
##
  [7]
        1.828054
  [8]
##
        1.728342
## [9]
        1.697479
  [10] 1.667699
## [11] 1.371041
  [12] 1.284579
##
       lhs
                                      rhs
                                                  support
                                                             confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {fins=TRUE} 0.1287129 0.6500000
  [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
## [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
  [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
   [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
   [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
##
       lift
## [1] 3.861765
## [2] 2.087440
## [3] 1.980392
  [4] 1.980392
##
  [5] 1.838936
  [6] 1.345172
  [7] 1.320261
##
                                                                   confidence
##
        lhs
                                            rhs
                                                         support
## [1]
        {airborne=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
## [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
##
  [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
##
  [5]
        {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
  [6]
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
  [7]
        {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
                                         => {fins=TRUE} 0.1683168 0.2615385
##
  [8]
        {airborne=FALSE,backbone=TRUE}
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
## [11] {airborne=FALSE,venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
```

```
##
        lift
##
        3.258065
  [1]
##
   [2]
        2.227941
  [3]
        2.087440
##
##
   [4]
        2.032508
##
   [5]
        1.711864
##
  [6]
        1.667699
  [7]
##
        1.576230
##
   [8]
        1.553846
##
  [9]
        1.397924
  [10] 1.383562
##
  [11] 1.338857
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
                                       => {fins=TRUE} 0.1287129 0.3513514
## [2] {predator=TRUE,toothed=TRUE}
  [3] {hair=FALSE,predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
  [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
  [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
  [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
  [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
##
   [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift.
## [1] 4.193772
  [2] 2.087440
##
## [3] 1.815359
  [4] 1.697479
  [5] 1.643304
   [6] 1.643304
##
  [7] 1.576230
## [8] 1.425882
##
       lhs
                                                   support
                                                              confidence
## [1] {hair=FALSE,toothed=TRUE}
                                    => {fins=TRUE} 0.1485149 0.6521739
  [2] {hair=FALSE, feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
  [4] {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
## [5] {hair=FALSE,backbone=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3409091
  [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
## [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
  [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
##
       lift.
## [1] 3.874680
## [2] 2.345201
  [3] 2.227941
##
  [4] 2.121849
## [5] 2.025401
## [6] 1.815359
##
  [7] 1.599548
##
  [8] 1.540305
##
        lhs
                                                       support
                                                                 confidence
                                          rhs
##
  [1]
        {toothed=TRUE,breathes=FALSE} =>
                                         {fins=TRUE} 0.1287129 0.9285714
##
  [2]
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
## [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
## [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
## [5]
        {eggs=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
```

```
{milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
                                      => {fins=TRUE} 0.1287129 0.3513514
  [7]
        {predator=TRUE, toothed=TRUE}
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
## [8]
## [9]
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
  [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
  [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
        lift
## [1]
        5.516807
##
  [2]
        5.003096
  [3]
##
        4.391304
  [4]
        3.874680
  [5]
##
        3.861765
##
   [6]
        3.677871
##
  [7]
        2.087440
## [8]
        1.828054
## [9]
        1.828054
##
  [10] 1.711864
##
  [11] 1.667699
##
       lhs
                                         rhs
                                                     support
                                                                confidence
## [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
## [2] {aquatic=TRUE,toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
## [3] {aquatic=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
## [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
## [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [6] {aquatic=TRUE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
  [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
## [1] 5.281046
## [2] 4.391304
## [3] 3.861765
## [4] 3.656109
## [5] 3.366667
## [6] 3.366667
  [7] 3.258065
## [8] 2.970588
  [1] "Número de reglas con consecuente negado"
##
                                                                   confidence
        lhs
                                                        support
                                         => {fins=TRUE} 0.1287129 1.0000000
## [1]
        {type=fish}
  [2]
##
        {toothed=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
  [3]
        {breathes=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.9285714
## [4]
        {backbone=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
##
  [5]
        {aquatic=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8888889
##
  [6]
                                         => {fins=TRUE} 0.1584158 0.8421053
        {toothed=TRUE,legs=FALSE}
## [7]
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
## [8]
        {legs=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.8333333
## [9]
        {breathes=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1287129 0.8125000
## [10] {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
## [11] {aquatic=TRUE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.7391304
## [12] {predator=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1188119 0.7058824
## [13] {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
## [14] {hair=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1485149 0.6521739
## [15] {aquatic=TRUE,breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6500000
## [16] {eggs=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6500000
```

```
## [17] {breathes=FALSE}
                                        => {fins=TRUE} 0.1287129 0.6190476
  [18] {milk=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6190476
  [19] {aquatic=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.6153846
  [20] {feathers=FALSE,aquatic=TRUE}
                                           {fins=TRUE} 0.1683168 0.5666667
##
  [21] {aquatic=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1683168 0.5666667
  [22] {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
##
  [23] {aquatic=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1584158 0.5000000
  [24] {hair=FALSE, feathers=FALSE}
                                           {fins=TRUE} 0.1485149 0.3947368
##
  ſ25]
       {hair=FALSE,airborne=FALSE}
                                           {fins=TRUE} 0.1485149 0.3750000
   [26] {hair=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1485149 0.3571429
  [27] {predator=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3513514
                                           {fins=TRUE} 0.1287129 0.3513514
   [28] {eggs=TRUE,airborne=FALSE}
   [29] {milk=FALSE,airborne=FALSE}
                                        => {fins=TRUE} 0.1287129 0.3421053
  [30] {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
  [31] {eggs=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
   [32] {feathers=FALSE,eggs=TRUE}
                                           {fins=TRUE} 0.1287129 0.3333333
##
   [33] {milk=FALSE,tail=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3250000
   [34] {feathers=FALSE,milk=FALSE}
                                        => {fins=TRUE} 0.1287129 0.3250000
  [35] {eggs=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
   [36] {milk=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.3095238
##
  [37] {toothed=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.3076923
  [38] {toothed=TRUE,domestic=FALSE}
                                           {fins=TRUE} 0.1584158 0.3076923
                                         => {fins=TRUE} 0.1089109 0.3055556
  [39] {hair=FALSE,predator=TRUE}
##
  [40] {feathers=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.2909091
  [41] {airborne=FALSE, toothed=TRUE}
                                           {fins=TRUE} 0.1683168 0.2881356
  [42] {predator=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1188119 0.2857143
  [43] {toothed=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1584158 0.2807018
  [44] {airborne=FALSE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2807018
## [45] {feathers=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
  [46] {predator=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
  [47] {feathers=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1683168 0.2698413
##
  [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
  [49] {airborne=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2653061
  [50] {airborne=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2615385
       {hair=FALSE,domestic=FALSE}
                                           {fins=TRUE} 0.1386139 0.2592593
   Γ51]
##
  [52] {hair=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2586207
  [53] {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
  [54] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
##
   [55] {feathers=FALSE,airborne=FALSE}
                                           {fins=TRUE} 0.1683168 0.2328767
##
   [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [57] {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
   [58] {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
   [59] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [60] {feathers=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
  [61] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
   [62] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
   [63]
##
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [64]
       {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
                                        => {fins=TRUE} 0.1584158 0.2162162
   [65] {backbone=TRUE,tail=TRUE}
##
   [66]
       {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
## [1]
        5.941176
## [2]
       5.516807
## [3]
       5.516807
```

- ## [4] 5.516807
- ## [5] 5.281046
- ## [6] 5.003096
- ## [7] 5.003096
- ## [8] 4.950980
- ## [9] 4.827206
- ## [10] 4.690402
- ## [10] 4.090402
- ## [11] 4.391304
- ## [12] 4.193772
- ## [13] 3.960784
- ## [14] 3.874680
- ## [15] 3.861765
- ## [16] 3.861765
- ## [17] 3.677871
- ## [18] 3.677871
- ## [19] 3.656109
- ## [20] 3.366667
- ## [21] 3.366667
- ## [21] 3.258065
- ## [23] 2.970588
- ## [20] 2.570000
- ## [24] 2.345201
- ## [25] 2.227941
- ## [26] 2.121849
- ## [27] 2.087440
- ## [28] 2.087440
- ## [29] 2.032508
- ## [30] 2.025401
- ## [31] 1.980392
- ## [32] 1.980392
- ## [33] 1.930882
- ## [34] 1.930882
- ## [35] 1.838936
- ## [36] 1.838936
- ## [37] 1.828054
- ## [38] 1.828054
- ## [39] 1.815359
- ## [40] 1.728342
- ## [41] 1.711864
- ## [42] 1.697479
- ## [43] 1.667699
- ## [44] 1.667699
- ## [45] 1.643304
- ## [46] 1.643304
- ## [47] 1.603175
- ## [48] 1.599548
- ## [49] 1.576230
- ## [50] 1.553846
- ## [51] 1.540305
- ## [52] 1.536511 ## [53] 1.425882
- ## [54] 1.397924
- ## [55] 1.383562
- ## [56] 1.371041
- ## [57] 1.371041

```
[58] 1.345172
##
   [59] 1.338857
   [60] 1.338857
##
   [61] 1.338857
##
   [62] 1.320261
##
   [63] 1.302176
   [64] 1.296257
##
   [65] 1.284579
##
   [66] 1.100218
##
        lhs
                             rhs
                                           support
                                                     confidence lift
##
   [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000
                                                                1.2023810
   [2]
##
        {type=bird}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                 1.2023810
##
   [3]
        {feathers=TRUE}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                 1.2023810
##
   [4]
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
                                                                 1.2023810
   [5]
                          => {fins=FALSE} 0.3960396 1.0000000
##
        {toothed=FALSE}
                                                                 1.2023810
##
   [6]
        {legs=TRUE}
                          => {fins=FALSE} 0.7623762 0.9871795
                                                                 1.1869658
   [7]
##
        {hair=TRUE}
                          => {fins=FALSE} 0.4059406 0.9534884
                                                                 1.1464563
##
   [8]
        {breathes=TRUE}
                          => {fins=FALSE} 0.7524752 0.9500000
                                                                 1.1422619
##
   [9]
        {domestic=TRUE}
                          => {fins=FALSE} 0.1188119 0.9230769
                                                                 1.1098901
   [10]
       {predator=FALSE}
                          => {fins=FALSE} 0.4059406 0.9111111
                                                                 1.0955026
##
  [11] {eggs=FALSE}
                          => {fins=FALSE} 0.3762376 0.9047619
                                                                 1.0878685
                          => {fins=FALSE} 0.3663366 0.9024390
##
  [12] {milk=TRUE}
                                                                 1.0850755
                          => {fins=FALSE} 0.3663366 0.9024390
   [13] {type=mammal}
##
                                                                 1.0850755
   [14] {catsize=FALSE}
                          => {fins=FALSE} 0.4752475 0.8421053
                                                                 1.0125313
   [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                 0.9955197
   [16] {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                 0.9837662
   [17] {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                 0.9837662
   [18] {backbone=TRUE}
                          => {fins=FALSE} 0.6534653 0.7951807
                                                                 0.9561102
  [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                 0.9500294
                          => {fins=FALSE} 0.5841584 0.7866667
## [20] {tail=TRUE}
                                                                 0.9458730
   [21]
        {eggs=TRUE}
                          => {fins=FALSE} 0.4554455 0.7796610
                                                                 0.9374496
##
   [22]
        {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                 0.9369202
   [23] {predator=TRUE}
                          => {fins=FALSE} 0.4257426 0.7678571
                                                                 0.9232568
   [24] {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
                                                                 0.8914204
        {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115
   [25]
                                                                 0.8672912
       {aquatic=TRUE}
                          => {fins=FALSE} 0.1881188 0.5277778
                                                                0.6345899
##
   [26]
##
        lhs
                                             rhs
                                                         support
                                                                    confidence
## [1]
                                          => {fins=TRUE} 0.1485149 0.7894737
        {venomous=FALSE,legs=FALSE}
   [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
##
##
   [3]
        {aquatic=TRUE, venomous=FALSE}
                                          => {fins=TRUE} 0.1584158 0.5000000
   [4]
        {toothed=TRUE, venomous=FALSE}
                                          => {fins=TRUE} 0.1584158 0.2807018
   [5]
        {hair=FALSE, venomous=FALSE}
                                          => {fins=TRUE} 0.1386139 0.2692308
##
##
   [6]
        {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
##
   [7]
        {milk=FALSE, venomous=FALSE}
                                          => {fins=TRUE} 0.1188119 0.2307692
        {eggs=TRUE, venomous=FALSE}
##
   [8]
                                          => {fins=TRUE} 0.1188119 0.2264151
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
   [9]
##
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
        lift
##
   [1]
        4.690402
##
   [2]
        3.960784
##
   [3]
        2.970588
## [4]
        1.667699
## [5]
        1.599548
```

```
[6]
        1.425882
##
   [7]
        1.371041
   [8]
        1.345172
   [9]
        1.338857
##
##
   [10] 1.302176
##
   [11] 1.100218
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
   [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
   [3] {airborne=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2352941
  [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
   [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
   [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
## [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
   [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
       lift
##
  [1] 1.828054
   [2] 1.540305
##
   [3] 1.397924
##
   [4] 1.371041
  [5] 1.338857
  [6] 1.338857
##
   [7] 1.320261
   [8] 1.296257
##
   [9] 1.100218
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
##
   [1]
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
   [2]
##
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
##
  [3]
        {aquatic=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
##
  [4]
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
##
   [5]
        {eggs=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
##
   [6]
        {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
##
   [7]
        {predator=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
   [8]
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
##
   [9]
   [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [11] {backbone=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
##
        lift
##
  [1]
        5.516807
   [2]
        5.003096
   [3]
        3.366667
##
##
   [4]
        2.025401
##
   [5]
        1.838936
##
   [6]
        1.838936
   [7]
##
        1.643304
##
   [8]
        1.603175
##
   [9]
        1.553846
   [10]
       1.338857
##
   [11]
        1.284579
##
        lhs
                                             rhs
                                                         support
                                                                    confidence
## [1]
        {feathers=FALSE, aquatic=TRUE}
                                            {fins=TRUE} 0.1683168 0.5666667
## [2]
        {hair=FALSE, feathers=FALSE}
                                          => {fins=TRUE} 0.1485149 0.3947368
## [3]
        {feathers=FALSE,eggs=TRUE}
                                            {fins=TRUE} 0.1287129 0.3333333
```

```
## [4]
        {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
  [5]
        {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
  [6]
        {feathers=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
  [7]
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
##
  [8]
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
  [9]
  [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
        lift
## [1]
        3.366667
  [2]
##
        2.345201
  [3]
        1.980392
  [4]
##
        1.930882
##
   [5]
        1.728342
##
  [6]
        1.643304
## [7]
        1.603175
##
  [8]
        1.383562
  [9]
##
        1.338857
##
  [10] 1.302176
##
        lhs
                                       rhs
                                                   support
                                                              confidence
## [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
## [2]
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.8333333
## [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
## [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
## [5]
##
  [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
  [7]
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
  [8]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
##
  [9]
        {predator=TRUE, tail=TRUE} => {fins=TRUE} 0.1188119 0.2857143
## [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
## [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
##
  [12] {backbone=TRUE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
        lift
## [1]
        5.516807
        4.950980
  [2]
##
##
   [3]
        3.656109
##
  [4]
        2.121849
## [5]
        1.980392
## [6]
        1.930882
  [7]
        1.828054
##
## [8]
        1.728342
## [9]
        1.697479
  [10] 1.667699
## [11] 1.371041
##
  [12] 1.284579
##
       lhs
                                      rhs
                                                  support
                                                            confidence
                                   => {fins=TRUE} 0.1287129 0.6500000
## [1] {eggs=TRUE,toothed=TRUE}
  [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
  [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
  [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
   [6] {eggs=TRUE,venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
  [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
       lift
## [1] 3.861765
```

```
## [2] 2.087440
  [3] 1.980392
  [4] 1.980392
  [5] 1.838936
##
##
   [6] 1.345172
##
   [7] 1.320261
##
        lhs
                                                                   confidence
                                            rhs
                                                         support
## [1]
        {airborne=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
##
   [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
##
   [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
  [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
##
   [5]
        {airborne=FALSE, toothed=TRUE}
                                            {fins=TRUE} 0.1683168 0.2881356
##
   [6]
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
  [7]
        {airborne=FALSE, predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
  [8]
                                         => {fins=TRUE} 0.1683168 0.2615385
##
        {airborne=FALSE,backbone=TRUE}
  [9]
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
##
  [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
   [11] {airborne=FALSE,venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
        lift.
##
  [1]
        3.258065
##
  [2]
        2.227941
  [3]
##
        2.087440
  [4]
##
        2.032508
##
   [5]
        1.711864
##
  [6]
        1.667699
  [7]
        1.576230
   [8]
##
        1.553846
##
   [9]
        1.397924
##
  [10] 1.383562
##
  [11] 1.338857
##
       lhs
                                                       support
                                                                 confidence
##
  [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
  [2] {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
  [3] {hair=FALSE,predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
   [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
  [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
  [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
  [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
##
       lift.
  [1] 4.193772
  [2] 2.087440
##
   [3] 1.815359
##
  [4] 1.697479
## [5] 1.643304
##
  [6] 1.643304
##
  [7] 1.576230
##
  [8] 1.425882
##
       lhs
                                                    support
                                                              confidence
##
  [1] {hair=FALSE,toothed=TRUE}
                                    => {fins=TRUE} 0.1485149 0.6521739
  [2] {hair=FALSE,feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
## [4] {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
## [5] {hair=FALSE,backbone=TRUE} => {fins=TRUE} 0.1485149 0.3409091
```

```
## [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
  [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
  [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
       lift
## [1] 3.874680
## [2] 2.345201
## [3] 2.227941
## [4] 2.121849
## [5] 2.025401
## [6] 1.815359
## [7] 1.599548
##
  [8] 1.540305
##
        lhs
                                                                 confidence
                                          rhs
                                                      support
## [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
## [2]
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
## [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
## [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
## [5]
        {eggs=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
##
  [6]
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
  [7]
        {predator=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1287129 0.3513514
## [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
## [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
  [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
##
        lift
## [1]
        5.516807
  [2]
        5.003096
##
##
  [3]
        4.391304
## [4]
        3.874680
        3.861765
## [5]
## [6]
        3.677871
##
  [7]
        2.087440
##
  [8]
        1.828054
## [9]
        1.828054
  [10] 1.711864
##
  [11] 1.667699
##
       lhs
                                         rhs
                                                     support
                                                                confidence
## [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
## [2] {aquatic=TRUE,toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
## [3] {aquatic=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
## [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
## [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [6] {aquatic=TRUE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
## [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
## [1] 5.281046
## [2] 4.391304
## [3] 3.861765
## [4] 3.656109
## [5] 3.366667
## [6] 3.366667
## [7] 3.258065
## [8] 2.970588
```

```
## [1] "Número de reglas con consecuente negado"
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
  [2] {aquatic=FALSE,legs=TRUE}
                                      => {domestic=TRUE} 0.1188119 0.2000000
  [3] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
  [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
  [5] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
## [1] 1.612482
##
  [2] 1.553846
  [3] 1.335337
  [4] 1.294872
##
   [5] 1.238573
##
        lhs
                                              support
                                                         confidence lift
## [1]
        {aquatic=TRUE}
                         => {domestic=FALSE} 0.3465347 0.9722222
                                                                    1.1158460
##
  [2]
        {predator=TRUE}
                         => {domestic=FALSE} 0.5346535 0.9642857
                                                                    1.1067370
##
  [3]
                         => {domestic=FALSE} 0.2178218 0.9565217
                                                                    1.0978261
        {legs=FALSE}
##
  [4]
                         => {domestic=FALSE} 0.1980198 0.9523810
        {breathes=FALSE}
                                                                    1.0930736
        {backbone=FALSE} \Rightarrow {domestic=FALSE} 0.1683168 0.9444444
##
  [5]
                                                                    1.0839646
##
  [6]
        {fins=TRUE}
                         => {domestic=FALSE} 0.1584158 0.9411765
                                                                    1.0802139
##
  [7]
        {hair=FALSE}
                         => {domestic=FALSE} 0.5346535 0.9310345
                                                                    1.0685737
## [8]
                         => {domestic=FALSE} 0.1188119 0.9230769
        {type=fish}
                                                                    1.0594406
## [9]
        {milk=FALSE}
                         => {domestic=FALSE} 0.5445545 0.9166667
                                                                    1.0520833
                         => {domestic=FALSE} 0.5346535 0.9152542
## [10] {eggs=TRUE}
                                                                    1.0504622
## [11] {toothed=FALSE}
                         => {domestic=FALSE} 0.3564356 0.9000000
                                                                    1.0329545
## [12] {airborne=FALSE}
                         => {domestic=FALSE} 0.6732673 0.8831169
                                                                    1.0135773
                         => {domestic=FALSE} 0.4950495 0.8771930
## [13] {catsize=FALSE}
                                                                    1.0067783
## [14] {feathers=FALSE}
                         => {domestic=FALSE} 0.7029703 0.8765432
                                                                    1.0060325
## [15] {catsize=TRUE}
                         => {domestic=FALSE} 0.3762376 0.8636364
                                                                    0.9912190
## [16] {backbone=TRUE}
                         => {domestic=FALSE} 0.7029703 0.8554217
                                                                    0.9817908
## [17] {legs=TRUE}
                         => {domestic=FALSE} 0.6534653 0.8461538
                                                                    0.9711538
## [18] {airborne=TRUE}
                         => {domestic=FALSE} 0.1980198 0.8333333
                                                                    0.9564394
                         => {domestic=FALSE} 0.3366337 0.8095238
  [19] {eggs=FALSE}
                                                                    0.9291126
  [20] {milk=TRUE}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                    0.9237805
                         => {domestic=FALSE} 0.3267327 0.8048780
##
   [21] {type=mammal}
                                                                    0.9237805
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
  [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
  [3] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
  [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
##
       lift
## [1] 1.612482
  [2] 1.335337
##
  [3] 1.294872
##
  [4] 1.238573
##
       lhs
                                     rhs
                                                     support
                                                                confidence
##
  [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
       lift.
## [1] 1.553846
  [2] 1.335337
##
  [1] "Número de reglas con consecuente negado"
##
                                              support
        lhs
                            rhs
                                                         confidence lift
## [1]
       {milk=TRUE}
                         => {venomous=FALSE} 0.4059406 1.0000000 1.0860215
```

```
1.0860215
   [2]
        {type=mammal}
                             {venomous=FALSE} 0.4059406 1.0000000
##
##
   [3]
                                                                     1.0613392
        {catsize=TRUE}
                             {venomous=FALSE} 0.4257426 0.9772727
                             {venomous=FALSE} 0.4257426 0.9555556
##
   [4]
        {predator=FALSE}
                                                                     1.0377539
        {hair=TRUE}
   [5]
                             {venomous=FALSE} 0.4059406 0.9534884
##
                                                                    1.0355089
##
   [6]
        {eggs=FALSE}
                             {venomous=FALSE} 0.3960396 0.9523810
                                                                     1.0343062
##
   [7]
        {backbone=TRUE}
                             {venomous=FALSE} 0.7821782 0.9518072
                                                                    1.0336831
##
   [8]
        {legs=TRUE}
                             {venomous=FALSE} 0.7326733 0.9487179
                                                                    1.0303281
##
   [9]
        {tail=TRUE}
                             {venomous=FALSE} 0.7029703 0.9466667
                                                                    1.0281004
##
   Γ107
       {fins=TRUE}
                             {venomous=FALSE} 0.1584158 0.9411765
                                                                    1.0221379
   [11]
       {aquatic=FALSE}
                             {venomous=FALSE} 0.6039604 0.9384615
                                                                     1.0191894
   [12]
       {breathes=TRUE}
                             {venomous=FALSE} 0.7425743 0.9375000
                                                                    1.0181452
   [13]
        {toothed=TRUE}
                             {venomous=FALSE} 0.5643564 0.9344262
                                                                    1.0148070
                                                                    1.0024814
##
   Γ147
       {domestic=TRUE}
                             {venomous=FALSE} 0.1188119 0.9230769
##
   [15]
       {type=fish}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
   [16]
       {airborne=FALSE} =>
                             {venomous=FALSE} 0.7029703 0.9220779
                                                                    1.0013965
        {domestic=FALSE}
                             {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
                             {venomous=FALSE} 0.7227723 0.9012346
   Г187
        {feathers=FALSE}
                                                                    0.9787601
                             {venomous=FALSE} 0.3564356 0.9000000
   Γ197
       {toothed=FALSE}
                                                                    0.9774194
   [20] {eggs=TRUE}
                             {venomous=FALSE} 0.5247525 0.8983051
                                                                    0.9755786
   [21]
       {hair=FALSE}
                             {venomous=FALSE} 0.5148515 0.8965517
                                                                    0.9736745
##
   [22]
       {predator=TRUE}
                             {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
   [23] {catsize=FALSE}
                             {venomous=FALSE} 0.4950495 0.8771930
                                                                    0.9526504
##
   [24] {milk=FALSE}
                             {venomous=FALSE} 0.5148515 0.8666667
                                                                    0.9412186
                          =>
##
   [25]
        {breathes=FALSE}
                             {venomous=FALSE} 0.1782178 0.8571429
                                                                    0.9308756
   [26] {legs=FALSE}
                          => {venomous=FALSE} 0.1881188 0.8260870
                                                                    0.8971482
   [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
##
       "Número de reglas con consecuente negado"
##
        lhs
                                             rhs
                                                             support
##
   [1]
        {type=bird}
                                            {toothed=FALSE} 0.1980198
##
   [2]
        {feathers=TRUE}
                                            {toothed=FALSE} 0.1980198
##
   [3]
        {hair=FALSE,airborne=TRUE}
                                             {toothed=FALSE} 0.1782178
##
   [4]
        {eggs=TRUE,airborne=TRUE}
                                             {toothed=FALSE} 0.2178218
##
   [5]
        {milk=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
##
   [6]
        {milk=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2673267
   [7]
        {eggs=TRUE,aquatic=FALSE}
                                             {toothed=FALSE} 0.2574257
##
##
   [8]
        {hair=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2277228
        {eggs=TRUE,legs=TRUE}
                                             {toothed=FALSE} 0.3465347
       {milk=FALSE,legs=TRUE}
                                             {toothed=FALSE} 0.3465347
##
   [10]
       {hair=FALSE,legs=TRUE}
                                             {toothed=FALSE} 0.3069307
##
   [11]
##
       {eggs=TRUE,tail=FALSE}
                                             {toothed=FALSE} 0.1683168
   [12]
   [13]
       {milk=FALSE,tail=FALSE}
                                             {toothed=FALSE} 0.1683168
   [14] {eggs=TRUE,fins=FALSE}
                                             {toothed=FALSE} 0.3861386
   [15] {milk=FALSE,fins=FALSE}
                                             {toothed=FALSE} 0.3861386
   [16] {eggs=TRUE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
   [17] {milk=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
   [18]
       {hair=FALSE,fins=FALSE}
                                             {toothed=FALSE} 0.3465347
##
   [19]
        {hair=FALSE,tail=FALSE}
                                             {toothed=FALSE} 0.1287129
       {eggs=TRUE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
   [21] {milk=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
        {tail=FALSE, catsize=FALSE}
                                             {toothed=FALSE} 0.1584158
##
  [23]
       {hair=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.1683168
  [24] {hair=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.2772277
  [25] {tail=FALSE,domestic=FALSE}
                                         =>
                                            {toothed=FALSE} 0.1584158
## [26] {aquatic=FALSE,tail=FALSE}
                                             {toothed=FALSE} 0.1089109
```

```
## [27] {aquatic=TRUE,fins=FALSE}
                                         => {toothed=FALSE} 0.1287129
  [28] {fins=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
  [29] {eggs=TRUE, venomous=FALSE}
                                            {toothed=FALSE} 0.3564356
  [30] {milk=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3465347
##
   [31] {aquatic=TRUE,legs=TRUE}
                                             {toothed=FALSE} 0.1188119
##
   [32] {legs=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
  [33] {tail=FALSE}
                                            {toothed=FALSE} 0.1683168
##
  [34] {milk=FALSE}
                                             {toothed=FALSE} 0.3861386
   [35]
       {aquatic=FALSE,catsize=FALSE}
                                             {toothed=FALSE} 0.2178218
   [36]
       {fins=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
   [37]
       {hair=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3267327
   [38]
        {hair=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
   [39]
        {breathes=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2475248
  [40]
       {predator=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1683168
  [41]
       {catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
   [42]
        {predator=FALSE,fins=FALSE}
                                             {toothed=FALSE} 0.2079208
   [43]
       {predator=FALSE,domestic=FALSE} =>
                                            {toothed=FALSE} 0.1683168
       {fins=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.3564356
                                            {toothed=FALSE} 0.1881188
  [45] {predator=FALSE,legs=TRUE}
   [46] {legs=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.3168317
##
  [47]
       {aquatic=FALSE,domestic=FALSE}
                                         => {toothed=FALSE} 0.2277228
       {breathes=TRUE,domestic=FALSE}
                                         => {toothed=FALSE} 0.2871287
##
   [49] {predator=TRUE}
                                         => {toothed=FALSE} 0.1881188
##
        confidence lift
##
  [1]
        1.0000000 2.5250000
   [2]
        1.0000000
                   2.5250000
   [3]
                   2.5250000
##
        1.0000000
##
   [4]
        1.0000000
                   2.5250000
##
   [5]
        1.0000000
                   2.5250000
                   2.2725000
##
  [6]
        0.9000000
##
   [7]
        0.8965517
                   2.2637931
##
   [8]
        0.8846154
                   2.2336538
   [9]
        0.8750000
                   2.2093750
   [10] 0.8750000
                   2.2093750
        0.8611111
   Γ11]
                   2.1743056
##
   [12] 0.8500000
                   2.1462500
  [13] 0.8500000
                   2.1462500
  [14] 0.8478261
                   2.1407609
   [15] 0.8297872
                   2.0952128
   [16] 0.8205128
                   2.0717949
   [17] 0.8205128
                   2.0717949
   [18] 0.8139535
                   2.0552326
   [19] 0.8125000
                   2.0515625
  [20] 0.8076923
                   2.0394231
  [21] 0.8076923
                   2.0394231
  [22] 0.8000000
                   2.0200000
   [23] 0.7727273
                   1.9511364
   [24] 0.7567568
                   1.9108108
   [25] 0.6956522
                   1.7565217
   [26] 0.6875000
                   1.7359375
##
  [27]
       0.6842105
                   1.7276316
## [28] 0.6800000
                   1.7170000
## [29] 0.6792453
                   1.7150943
## [30] 0.6730769
                   1.6995192
```

```
## [31] 0.6666667
                   1.6833333
   [32] 0.6585366
                   1.6628049
   [33] 0.6538462
                   1.6509615
  [34] 0.6500000
                   1.6412500
##
   [35] 0.6470588
                   1.6338235
   [36] 0.6458333
##
                   1.6307292
   [37] 0.6346154
                   1.6024038
   [38] 0.6136364
                   1.5494318
   [39] 0.6097561
                   1.5396341
   [40] 0.5862069
                   1.4801724
  [41] 0.5438596
                   1.3732456
   [42] 0.5121951
                   1.2932927
   [43] 0.5000000
                   1.2625000
  [44] 0.5000000
                   1.2625000
   [45] 0.4871795
                   1.2301282
   [46] 0.4848485
                   1.2242424
                   1.0957547
##
   [47] 0.4339623
   [48] 0.4264706
                   1.0768382
##
   [49]
       0.3392857
                   0.8566964
##
        lhs
                                             support
                                                       confidence lift
                          => {toothed=TRUE} 0.1287129 1.0000000
##
  [1]
        {type=fish}
                                                                  1.6557377
  [2]
        {fins=TRUE}
                             {toothed=TRUE} 0.1683168 1.0000000
##
                                                                  1.6557377
  [3]
##
        {eggs=FALSE}
                          => {toothed=TRUE} 0.4059406 0.9761905
                                                                  1.6163154
##
   [4]
        {legs=FALSE}
                             {toothed=TRUE} 0.1881188 0.8260870
                                                                  1.3677833
##
  [5]
        {catsize=TRUE}
                          => {toothed=TRUE} 0.3465347 0.7954545
                                                                  1.3170641
  [6]
        {feathers=FALSE} => {toothed=TRUE} 0.6039604 0.7530864
                                                                  1.2469136
   [7]
        {tail=TRUE}
                          => {toothed=TRUE} 0.5148515 0.6933333
##
                                                                  1.1479781
##
   [8]
        {breathes=FALSE} => {toothed=TRUE} 0.1386139 0.6666667
                                                                  1.1038251
                          => {toothed=TRUE} 0.3663366 0.6607143
##
   [9]
        {predator=TRUE}
                                                                  1.0939696
                          => {toothed=TRUE} 0.2277228 0.6388889
  [10]
       {aquatic=TRUE}
                                                                  1.0578324
   [11]
        {domestic=FALSE} => {toothed=TRUE} 0.5148515 0.5909091
                                                                  0.9783905
##
   [12]
       {breathes=TRUE}
                         => {toothed=TRUE} 0.4653465 0.5875000
                                                                  0.9727459
   [13] {predator=FALSE} => {toothed=TRUE} 0.2376238 0.5333333
                                                                  0.8830601
   [14] {catsize=FALSE}
                         => {toothed=TRUE} 0.2574257 0.4561404
                                                                  0.7552488
   [15] {hair=FALSE}
                          => {toothed=TRUE} 0.2277228 0.3965517
                                                                  0.6565856
                          => {toothed=TRUE} 0.1980198 0.3389831
##
   [16] {eggs=TRUE}
                                                                  0.5612670
##
                                                      support
                                                                confidence
##
  [1] {aquatic=TRUE,fins=FALSE} => {toothed=FALSE} 0.1287129 0.6842105
   [2] {aquatic=TRUE,legs=TRUE} => {toothed=FALSE} 0.1188119 0.6666667
##
##
       lift
##
  [1] 1.727632
##
   [2] 1.683333
##
       lhs
                                           rhs
                                                            support
   [1] {tail=FALSE,domestic=FALSE}
##
                                        => {toothed=FALSE} 0.1584158
  [2] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
  [3] {fins=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3564356
   [4] {legs=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3168317
   [5] {aquatic=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2277228
##
   [6] {breathes=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2871287
##
       confidence lift
##
  [1] 0.6956522
                  1.756522
## [2] 0.5000000
                  1.262500
## [3] 0.5000000
                  1.262500
## [4] 0.4848485
                  1.224242
```

```
## [5] 0.4339623 1.095755
##
  [6] 0.4264706 1.076838
##
       lhs
                                                          support
                                                                    confidence
                                       => {toothed=FALSE} 0.3168317 0.8205128
## [1] {eggs=TRUE,breathes=TRUE}
  [2] {milk=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
  [3] {hair=FALSE,breathes=TRUE}
                                      => {toothed=FALSE} 0.2772277 0.7567568
  [4] {breathes=TRUE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2475248 0.6097561
  [5] {breathes=TRUE,domestic=FALSE} => {toothed=FALSE} 0.2871287 0.4264706
##
       lift
## [1] 2.071795
  [2] 2.071795
  [3] 1.910811
  [4] 1.539634
  [5] 1.076838
##
##
       lhs
                                           rhs
                                                           support
   [1] {eggs=TRUE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
   [2] {milk=FALSE,predator=FALSE}
                                       => {toothed=FALSE} 0.2079208
  [3] {hair=FALSE, predator=FALSE}
                                        => {toothed=FALSE} 0.1683168
  [4] {predator=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.1683168
  [5] {predator=FALSE,fins=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [6] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
  [7] {predator=FALSE,legs=TRUE}
                                        => {toothed=FALSE} 0.1881188
##
       confidence lift
## [1] 0.8076923 2.039423
  [2] 0.8076923 2.039423
  [3] 0.7727273
                  1.951136
  [4] 0.5862069
                  1.480172
  [5] 0.5121951
                  1.293293
## [6] 0.5000000
                  1.262500
## [7] 0.4871795
                  1.230128
##
       lhs
                                                          support
                                                                    confidence
## [1] {tail=FALSE,catsize=FALSE}
                                      => {toothed=FALSE} 0.1584158 0.8000000
  [2] {legs=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6585366
  [3] {aquatic=FALSE, catsize=FALSE}
                                      => {toothed=FALSE} 0.2178218 0.6470588
   [4] {fins=FALSE, catsize=FALSE}
                                      => {toothed=FALSE} 0.3069307 0.6458333
                                      => {toothed=FALSE} 0.2673267 0.6136364
  [5] {hair=FALSE,catsize=FALSE}
  [6] {breathes=TRUE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2475248 0.6097561
  [7] {predator=FALSE,catsize=FALSE} => {toothed=FALSE} 0.1683168 0.5862069
##
##
       lift
## [1] 2.020000
  [2] 1.662805
  [3] 1.633824
  [4] 1.630729
## [5] 1.549432
## [6] 1.539634
## [7] 1.480172
##
       lhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,airborne=TRUE}
                                   => {toothed=FALSE} 0.1782178 1.0000000
  [2] {hair=FALSE,aquatic=FALSE}
                                   => {toothed=FALSE} 0.2277228 0.8846154
  [3] {hair=FALSE,legs=TRUE}
                                    => {toothed=FALSE} 0.3069307 0.8611111
## [4] {hair=FALSE,fins=FALSE}
                                    => {toothed=FALSE} 0.3465347 0.8139535
## [5] {hair=FALSE,tail=FALSE}
                                    => {toothed=FALSE} 0.1287129 0.8125000
## [6] {hair=FALSE,predator=FALSE} => {toothed=FALSE} 0.1683168 0.7727273
## [7] {hair=FALSE,breathes=TRUE} => {toothed=FALSE} 0.2772277 0.7567568
```

```
## [8] {hair=FALSE, venomous=FALSE} => {toothed=FALSE} 0.3267327 0.6346154
   [9] {hair=FALSE, catsize=FALSE} => {toothed=FALSE} 0.2673267 0.6136364
##
       lift
## [1] 2.525000
##
   [2] 2.233654
  [3] 2.174306
##
  [4] 2.055233
  [5] 2.051563
   [6] 1.951136
  [7] 1.910811
  [8] 1.602404
##
   [9] 1.549432
##
       lhs
                                      rhs
                                                      support
                                                                 confidence
##
  [1] {eggs=TRUE,airborne=TRUE}
                                      {toothed=FALSE} 0.2178218 1.0000000
  [2] {eggs=TRUE,aquatic=FALSE}
                                   => {toothed=FALSE} 0.2574257 0.8965517
   [3] {eggs=TRUE,legs=TRUE}
                                      {toothed=FALSE} 0.3465347 0.8750000
  [4] {eggs=TRUE,tail=FALSE}
                                   => {toothed=FALSE} 0.1683168 0.8500000
  [5] {eggs=TRUE,fins=FALSE}
                                   => {toothed=FALSE} 0.3861386 0.8478261
  [6] {eggs=TRUE,breathes=TRUE}
                                  => {toothed=FALSE} 0.3168317 0.8205128
   [7] {eggs=TRUE,predator=FALSE} => {toothed=FALSE} 0.2079208 0.8076923
##
   [8] {eggs=TRUE,venomous=FALSE} => {toothed=FALSE} 0.3564356 0.6792453
##
       lift.
  [1] 2.525000
##
   [2] 2.263793
  [3] 2.209375
  [4] 2.146250
  [5] 2.140761
##
   [6] 2.071795
  [7] 2.039423
  [8] 1.715094
##
  [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
##
  [1]
        {type=bird}
                                            {feathers=TRUE} 0.1980198
##
  [2]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [3]
        {hair=FALSE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
  [4]
##
        {airborne=TRUE, tail=TRUE}
                                           {feathers=TRUE} 0.1584158
  [5]
        {airborne=TRUE, backbone=TRUE}
                                           {feathers=TRUE} 0.1584158
  [6]
        {toothed=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
##
  [7]
        {airborne=TRUE, toothed=FALSE}
                                            {feathers=TRUE} 0.1584158
##
  [8]
        {eggs=TRUE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
        {milk=FALSE,airborne=TRUE}
                                           {feathers=TRUE} 0.1584158
  [10] {airborne=TRUE, venomous=FALSE}
                                           {feathers=TRUE} 0.1584158
## [11] {toothed=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1980198
## [12] {hair=FALSE,toothed=FALSE}
## [13] {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [14] {toothed=FALSE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [15] {hair=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
  [16] {hair=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [17] {hair=FALSE,aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
## [18] {predator=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1089109
## [19] {aquatic=FALSE,toothed=FALSE}
                                           {feathers=TRUE} 0.1386139
## [20] {eggs=TRUE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [21] {milk=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [22] {eggs=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
```

```
## [23] {eggs=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [24] {milk=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1089109
   [25] {hair=FALSE,predator=FALSE}
   [26] {eggs=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [27] {milk=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [28] {milk=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
  [29] {eggs=TRUE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
  [30] {hair=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   Γ317
       {eggs=TRUE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [32] {milk=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [33] {milk=FALSE,aquatic=FALSE}
                                           {feathers=TRUE} 0.1386139
   [34] {hair=FALSE,fins=FALSE}
                                           {feathers=TRUE} 0.1980198
   [35]
##
       {hair=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
       {eggs=TRUE,fins=FALSE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
   [37]
       {milk=FALSE,fins=FALSE}
   [38]
        {eggs=TRUE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [39]
        {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [40] {hair=FALSE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
   [41] {milk=FALSE, venomous=FALSE}
   [42] {tail=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
##
  [43] {eggs=TRUE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
  [44] {hair=FALSE,eggs=TRUE}
  [45] {hair=FALSE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
##
       {legs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [46]
  [47]
       {backbone=TRUE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
  [48] {hair=FALSE}
                                           {feathers=TRUE} 0.1980198
   [49] {eggs=TRUE,milk=FALSE}
                                           {feathers=TRUE} 0.1980198
##
   [50] {legs=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [51] {breathes=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
   [52] {fins=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
   [53]
        {predator=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1089109
##
   [54]
        {breathes=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
       {backbone=TRUE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
   [56] {predator=FALSE,backbone=TRUE}
                                           {feathers=TRUE} 0.1089109
        {backbone=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [57]
##
   [58] {fins=FALSE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
       {backbone=TRUE, breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
       {aquatic=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1386139
##
  [60]
        {predator=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [61]
##
   [62]
       {venomous=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [63]
       {venomous=FALSE, catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
   [64] {breathes=TRUE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
##
   Γ651
       {backbone=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
       {venomous=FALSE,legs=TRUE}
##
   [66]
                                           {feathers=TRUE} 0.1980198
       {predator=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1089109
   [67]
   [68]
        {predator=FALSE,fins=FALSE}
                                           {feathers=TRUE} 0.1089109
   [69]
##
       {breathes=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [70] {aquatic=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1386139
   [71] {breathes=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [72] {fins=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
  [73] {venomous=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
  [74] {legs=TRUE,domestic=FALSE}
                                         => {feathers=TRUE} 0.1683168
  [75] {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
## [76] {backbone=TRUE, venomous=FALSE}
                                        => {feathers=TRUE} 0.1980198
```

```
## [77] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139
   [78] {aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
                                         => {feathers=TRUE} 0.1980198
   [79] {venomous=FALSE}
##
   [80] {domestic=FALSE}
                                         => {feathers=TRUE} 0.1683168
##
        confidence lift
        1.0000000 5.0500000
##
   [1]
   [2]
        0.9090909
                   4.5909091
##
   [3]
        0.8888889
                    4.4888889
##
   [4]
        0.888889
                   4.4888889
##
   [5]
        0.8888889
                    4.4888889
   [6]
        0.8695652
                   4.3913043
   [7]
##
        0.7272727
                    3.6727273
##
   [8]
        0.7272727
                    3.6727273
##
   [9]
        0.7272727
                    3.6727273
  [10] 0.7272727
                    3.6727273
   [11] 0.6060606
                    3.0606061
   [12] 0.5714286
                    2.8857143
   [13] 0.555556
                    2.8055556
   [14] 0.5555556
                   2.8055556
   [15] 0.5555556
                    2.8055556
##
  [16] 0.5405405
                   2.7297297
  [17] 0.5384615
                    2.7192308
## [18] 0.5238095
                   2.6452381
   [19] 0.5185185
                    2.6185185
   [20] 0.5128205
                   2.5897436
   [21] 0.5128205
                    2.5897436
   [22] 0.5128205
                    2.5897436
  [23] 0.5128205
                    2.5897436
  [24] 0.5128205
                   2.5897436
  [25] 0.5000000
                   2.5250000
   [26] 0.5000000
                    2.5250000
##
   [27] 0.5000000
                    2.5250000
   [28] 0.5000000
                    2.5250000
                   2.4379310
   [29] 0.4827586
   [30] 0.4761905
                    2.4047619
##
   [31] 0.4761905
                   2.4047619
   [32] 0.4761905
                    2.4047619
  [33] 0.4666667
                   2.3566667
   [34] 0.4651163
                    2.3488372
##
   [35] 0.4545455
                   2.2954545
   [36] 0.4347826
                    2.1956522
   [37] 0.4255319
                   2.1489362
##
   [38] 0.4230769
                   2.1365385
   [39] 0.4230769
                    2.1365385
## [40] 0.3846154
                    1.9423077
## [41] 0.3846154
                    1.9423077
##
   [42] 0.3783784
                    1.9108108
   [43] 0.3773585
                    1.9056604
  [44] 0.3703704
                    1.8703704
   [45] 0.3571429
                    1.8035714
## [46] 0.3508772
                    1.7719298
## [47] 0.3500000
                    1.7675000
## [48] 0.3448276
                   1.7413793
## [49] 0.3448276 1.7413793
```

```
[50] 0.3414634
                    1.7243902
   [51] 0.3414634
                    1.7243902
                    1.7118644
   [52] 0.3389831
   [53] 0.3333333
                    1.6833333
##
   [54] 0.3278689
                    1.6557377
##
   [55] 0.3125000
                    1.5781250
   [56] 0.3055556
                    1.5430556
   [57] 0.3030303
                    1.5303030
##
   [58] 0.2916667
                    1.4729167
   [59] 0.2898551
                    1.4637681
   [60] 0.2857143
                    1.4428571
   [61] 0.2820513
                    1.4243590
##
   [62] 0.2816901
                    1.4225352
   [63] 0.2800000
                    1.4140000
   [64] 0.2739726
                    1.3835616
   [65] 0.2702703
                    1.3648649
##
   [66] 0.2702703
                    1.3648649
   [67] 0.2682927
                    1.3548780
   [68] 0.2682927
                    1.3548780
   [69] 0.2666667
                    1.3466667
##
   [70] 0.2641509
                    1.3339623
   [71] 0.2631579
                    1.3289474
   [72] 0.2597403
                    1.3116883
##
   [73] 0.2597403
                    1.3116883
   [74] 0.2575758
                    1.3007576
   [75] 0.2558140
                    1.2918605
   [76] 0.2531646
                    1.2784810
##
   [77] 0.2295082
                    1.1590164
   [78] 0.2153846
                    1.0876923
   [79] 0.2150538
                    1.0860215
##
   [80] 0.1931818
                   0.9755682
##
        lhs
                                                          confidence lift
                             rhs
                                               support
##
   [1]
        {type=fish}
                          => {feathers=FALSE} 0.1287129 1.0000000
   [2]
                          => {feathers=FALSE} 0.1683168 1.0000000
##
        {fins=TRUE}
                                                                     1.2469136
##
   [3]
        {backbone=FALSE}
                             {feathers=FALSE} 0.1782178 1.0000000
                                                                     1.2469136
                          => {feathers=FALSE} 0.2079208 1.0000000
##
   [4]
                                                                     1.2469136
        {breathes=FALSE}
##
   [5]
        {legs=FALSE}
                          => {feathers=FALSE} 0.2277228 1.0000000
                                                                     1.2469136
##
   [6]
        {tail=FALSE}
                          => {feathers=FALSE} 0.2574257 1.0000000
                                                                     1.2469136
   [7]
                             {feathers=FALSE} 0.4158416 1.0000000
##
        {eggs=FALSE}
                                                                     1.2469136
   [8]
                          => {feathers=FALSE} 0.4257426 1.0000000
##
        {hair=TRUE}
                                                                     1.2469136
                             {feathers=FALSE} 0.7227723 0.9480519
   [9]
        {airborne=FALSE}
                                                                     1.1821388
       {catsize=TRUE}
                             {feathers=FALSE} 0.3762376 0.8636364
   [10]
                                                                     1.0768799
   [11] {predator=TRUE}
                             {feathers=FALSE} 0.4653465 0.8392857
                                                                     1.0465168
                          => {feathers=FALSE} 0.2970297 0.8333333
##
   [12]
       {aquatic=TRUE}
                                                                     1.0390947
                                                                     0.9783476
   [13] {aquatic=FALSE}
                          => {feathers=FALSE} 0.5049505 0.7846154
                             {feathers=FALSE} 0.3366337 0.7555556
   [14] {predator=FALSE}
                          =>
                                                                     0.9421125
                                                                     0.9406541
   [15]
       {catsize=FALSE}
                             {feathers=FALSE} 0.4257426 0.7543860
   [16] {breathes=TRUE}
                             {feathers=FALSE} 0.5940594 0.7500000
                                                                     0.9351852
   [17] {legs=TRUE}
                          => {feathers=FALSE} 0.5742574 0.7435897
                                                                     0.9271921
   [18] {milk=FALSE}
                          => {feathers=FALSE} 0.3960396 0.6666667
                                                                     0.8312757
##
                          => {feathers=FALSE} 0.3861386 0.6610169
                                                                     0.8242310
   [19] {eggs=TRUE}
   [20] {hair=FALSE}
                          => {feathers=FALSE} 0.3762376 0.6551724
                                                                     0.8169434
##
  [21] {toothed=FALSE}
                          => {feathers=FALSE} 0.1980198 0.5000000
                                                                     0.6234568
##
       lhs
                                                            support
                                           rhs
                                                                      confidence
```

```
## [1] {hair=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5384615
                                       => {feathers=TRUE} 0.1386139 0.5185185
## [2] {aquatic=FALSE,toothed=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4827586
## [3] {eggs=TRUE,aquatic=FALSE}
## [4] {milk=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
## [5] {aquatic=FALSE,tail=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2857143
## [6] {aquatic=FALSE,backbone=TRUE} => {feathers=TRUE} 0.1386139 0.2641509
## [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
       lift
## [1] 2.719231
## [2] 2.618519
## [3] 2.437931
## [4] 2.356667
## [5] 1.442857
## [6] 1.333962
## [7] 1.159016
##
        lhs
                                                             support
## [1]
        {predator=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1089109
        {hair=FALSE, predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
                                         => {feathers=TRUE} 0.1089109
  [3]
        {eggs=TRUE,predator=FALSE}
  [4]
        {milk=FALSE,predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
##
  [5]
        {predator=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1089109
        {predator=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1089109
  [6]
## [7]
        {predator=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1089109
##
  [8]
        {predator=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1089109
  [9]
        {predator=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1089109
   Γ107
       {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
        confidence lift
##
  [1]
        0.5238095 2.645238
## [2]
        0.5000000 2.525000
## [3]
        0.4230769
                   2.136538
## [4]
        0.4230769
                   2.136538
##
  [5]
        0.3333333
                   1.683333
  [6]
        0.3055556
                   1.543056
##
  [7]
        0.2820513
                   1.424359
   [8]
        0.2682927
                   1.354878
##
  [9]
        0.2682927
                   1.354878
##
  [10] 0.2558140
                  1.291860
##
       lhs
                                                          support
                                          rhs
                                                                     confidence
## [1] {tail=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3783784
                                       => {feathers=TRUE} 0.1386139 0.3500000
  [2] {backbone=TRUE,catsize=FALSE}
  [3] {legs=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
  [4] {breathes=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
  [5] {fins=FALSE, catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.2916667
  [6] {venomous=FALSE,catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
       lift
## [1] 1.910811
## [2] 1.767500
## [3] 1.724390
## [4] 1.724390
## [5] 1.472917
  [6] 1.414000
##
##
        lhs
                                           rhs
## [1]
        {toothed=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
## [2]
        {hair=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
```

```
{eggs=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [4]
                                         => {feathers=TRUE} 0.1980198
        {milk=FALSE, breathes=TRUE}
        {breathes=TRUE,catsize=FALSE}
##
   [5]
                                         => {feathers=TRUE} 0.1386139
   [6]
        {breathes=TRUE, tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
##
   [7]
        {backbone=TRUE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [8]
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [9]
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
##
   [10]
        {breathes=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198
##
   [11] {breathes=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
        confidence lift
##
   [1]
        0.6060606
                   3.060606
   [2]
                    2.729730
##
        0.5405405
##
   [3]
        0.5128205
                    2.589744
                    2.589744
##
   [4]
        0.5128205
   [5]
##
        0.3414634
                    1.724390
##
   [6]
        0.3278689
                    1.655738
##
   [7]
        0.2898551
                    1.463768
   [8]
        0.2739726
##
                    1.383562
##
   [9]
        0.2682927
                    1.354878
##
   [10]
        0.2666667
                    1.346667
##
   [11] 0.2631579
                    1.328947
##
                                                                    confidence
                                                         support
##
   [1]
                                        {feathers=TRUE} 0.1980198 0.5555556
        {toothed=FALSE,legs=TRUE}
##
   [2]
        {hair=FALSE,legs=TRUE}
                                        {feathers=TRUE} 0.1980198 0.5555556
##
   [3]
        {eggs=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
   [4]
        {milk=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
   [5]
        {legs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3508772
##
##
   [6]
        {legs=TRUE,catsize=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.3414634
   [7]
        {backbone=TRUE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.3125000
##
   [8]
        {predator=FALSE,legs=TRUE}
                                       {feathers=TRUE} 0.1089109 0.2820513
##
##
   [9]
        {breathes=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2739726
##
   [10]
       {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
       {fins=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2597403
       {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
##
   [12]
##
        lift
##
   [1]
        2.805556
##
   [2]
        2.805556
   [3]
        2.525000
##
   [4]
##
        2.525000
##
   [5]
        1.771930
   [6]
        1.724390
   [7]
##
        1.578125
##
   [8]
        1.424359
##
   [9]
        1.383562
   [10] 1.364865
##
   [11] 1.311688
##
   [12] 1.300758
##
        lhs
                                         rhs
                                                          support
                                                                     confidence
##
   [1]
        {milk=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.7272727
##
   [2]
        {milk=FALSE,toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
   [3]
##
        {milk=FALSE,breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
##
   [4]
        {milk=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
  [5]
        {milk=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
## [6]
        {milk=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
```

```
{milk=FALSE,aquatic=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.4666667
                                      => {feathers=TRUE} 0.1980198 0.4255319
##
   [8]
        {milk=FALSE,fins=FALSE}
        {milk=FALSE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
   [10] {milk=FALSE,venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
##
   [11] {hair=FALSE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3571429
   [12] {eggs=TRUE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3448276
##
##
        lift
## [1]
        3.672727
##
   [2]
        2.589744
##
   [3]
        2.589744
   [4]
        2.525000
   [5]
##
        2.525000
##
   [6]
        2,404762
##
   [7]
        2.356667
   [8]
##
        2.148936
##
   [9]
        2.136538
##
   [10] 1.942308
   [11] 1.803571
##
   [12] 1.741379
##
        lhs
                                                        support
                                                                   confidence
##
   [1]
        {eggs=TRUE,airborne=TRUE}
                                    => {feathers=TRUE} 0.1584158 0.7272727
                                    => {feathers=TRUE} 0.1980198 0.5128205
##
   [2]
        {eggs=TRUE,toothed=FALSE}
   [3]
                                    => {feathers=TRUE} 0.1980198 0.5128205
##
        {eggs=TRUE,tail=TRUE}
                                        {feathers=TRUE} 0.1980198 0.5128205
##
   [4]
        {eggs=TRUE,breathes=TRUE}
##
   [5]
        {eggs=TRUE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5000000
   [6]
        {eggs=TRUE,aquatic=FALSE}
                                    => {feathers=TRUE} 0.1386139 0.4827586
   [7]
        {eggs=TRUE,backbone=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.4761905
##
##
   [8]
        {eggs=TRUE,fins=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.4347826
                                       {feathers=TRUE} 0.1089109 0.4230769
##
   [9]
        {eggs=TRUE,predator=FALSE} =>
   [10] {eggs=TRUE,venomous=FALSE} =>
                                       {feathers=TRUE} 0.1980198 0.3773585
        {hair=FALSE,eggs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.3703704
       {eggs=TRUE,milk=FALSE}
##
   [12]
                                    => {feathers=TRUE} 0.1980198 0.3448276
##
        lift
##
   [1]
        3.672727
##
   [2]
        2.589744
   [3]
##
        2.589744
##
   [4]
        2.589744
   [5]
        2.525000
##
   [6]
##
        2.437931
##
   [7]
        2.404762
   [8]
        2.195652
   [9]
##
        2.136538
##
   [10] 1.905660
##
   [11] 1.870370
##
   [12] 1.741379
##
        lhs
                                         rhs
                                                         support
                                                                    confidence
##
  [1]
        {hair=FALSE,airborne=TRUE}
                                     => {feathers=TRUE} 0.1584158 0.8888889
   [2]
        {hair=FALSE,toothed=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.5714286
##
   [3]
        {hair=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5555556
##
   [4]
        {hair=FALSE,breathes=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5405405
   [5]
                                     => {feathers=TRUE} 0.1386139 0.5384615
##
        {hair=FALSE,aquatic=FALSE}
##
   [6]
        {hair=FALSE, predator=FALSE}
                                     => {feathers=TRUE} 0.1089109 0.5000000
        {hair=FALSE,tail=TRUE}
##
  [7]
                                      => {feathers=TRUE} 0.1980198 0.4761905
## [8]
        {hair=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4651163
```

```
{hair=FALSE,backbone=TRUE} => {feathers=TRUE} 0.1980198 0.4545455
   [10] {hair=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
   [11] {hair=FALSE,eggs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3703704
                                     => {feathers=TRUE} 0.1980198 0.3571429
   [12] {hair=FALSE,milk=FALSE}
        lift.
##
  [1]
        4.488889
   [2]
        2.885714
  [3]
##
        2.805556
##
   [4]
        2.729730
##
   [5]
        2.719231
   [6]
        2.525000
   [7]
##
        2.404762
##
   [8]
        2.348837
##
   [9]
        2.295455
  [10] 1.942308
   [11] 1.870370
##
   [12] 1.803571
##
        lhs
                                            rhs
                                                            support
##
   [1]
        {toothed=FALSE,backbone=TRUE}
                                        => {feathers=TRUE} 0.1980198
   [2]
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [3]
        {airborne=TRUE, toothed=FALSE}
                                        => {feathers=TRUE} 0.1584158
  [4]
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
  [5]
        {hair=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
   [6]
        {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
  [7]
        {toothed=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198
   [8]
        {predator=FALSE, toothed=FALSE} => {feathers=TRUE} 0.1089109
        {aquatic=FALSE, toothed=FALSE}
   [9]
                                        => {feathers=TRUE} 0.1386139
##
   [10] {eggs=TRUE,toothed=FALSE}
                                        => {feathers=TRUE} 0.1980198
                                        => {feathers=TRUE} 0.1980198
##
   [11] {milk=FALSE, toothed=FALSE}
##
        confidence lift
##
  [1]
        0.9090909
                   4.590909
##
   [2]
        0.8695652
                   4.391304
   [3]
        0.7272727
                    3.672727
   [4]
##
        0.6060606
                   3.060606
   [5]
        0.5714286
                   2.885714
##
   [6]
        0.555556
                   2.805556
   [7]
        0.555556
                   2.805556
  [8]
##
        0.5238095
                   2.645238
   [9]
        0.5185185
                    2.618519
   [10] 0.5128205
                   2.589744
   [11] 0.5128205 2.589744
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                             rhs
                                               support
                                                         confidence lift
##
  [1]
        {milk=TRUE}
                             {venomous=FALSE} 0.4059406 1.0000000 1.0860215
  [2]
        {type=mammal}
                          => {venomous=FALSE} 0.4059406 1.0000000
                                                                     1.0860215
## [3]
        {catsize=TRUE}
                             {venomous=FALSE} 0.4257426 0.9772727
                                                                     1.0613392
##
   [4]
        {predator=FALSE}
                             {venomous=FALSE} 0.4257426 0.9555556
                                                                     1.0377539
##
   [5]
        {hair=TRUE}
                          => {venomous=FALSE} 0.4059406 0.9534884
                                                                     1.0355089
   [6]
        {eggs=FALSE}
                          => {venomous=FALSE} 0.3960396 0.9523810
                                                                     1.0343062
##
   [7]
        {backbone=TRUE}
                          => {venomous=FALSE} 0.7821782 0.9518072
                                                                     1.0336831
   [8]
##
                          => {venomous=FALSE} 0.7326733 0.9487179
        {legs=TRUE}
                                                                     1.0303281
## [9]
        {tail=TRUE}
                          => {venomous=FALSE} 0.7029703 0.9466667
## [10] {fins=TRUE}
                          => {venomous=FALSE} 0.1584158 0.9411765
                                                                     1.0221379
## [11] {aquatic=FALSE}
                          => {venomous=FALSE} 0.6039604 0.9384615 1.0191894
```

```
## [12] {breathes=TRUE}
                          => {venomous=FALSE} 0.7425743 0.9375000
                                                                    1.0181452
                             {venomous=FALSE} 0.5643564 0.9344262
                                                                    1.0148070
   [13] {toothed=TRUE}
   [14] {domestic=TRUE}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
                             {venomous=FALSE} 0.1188119 0.9230769
   [15] {type=fish}
                                                                    1.0024814
   [16] {airborne=FALSE}
                             {venomous=FALSE} 0.7029703 0.9220779
                                                                    1.0013965
##
   [17] {domestic=FALSE}
                             {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
   [18] {feathers=FALSE}
                             {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
   [19]
       {toothed=FALSE}
                             {venomous=FALSE} 0.3564356 0.9000000
                                                                    0.9774194
##
   [20]
       {eggs=TRUE}
                             {venomous=FALSE} 0.5247525 0.8983051
                                                                    0.9755786
##
   [21]
       {hair=FALSE}
                             {venomous=FALSE} 0.5148515 0.8965517
                                                                    0.9736745
   [22] {predator=TRUE}
                             {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
   [23] {catsize=FALSE}
                             {venomous=FALSE} 0.4950495 0.8771930
                                                                    0.9526504
##
   [24] {milk=FALSE}
                             {venomous=FALSE} 0.5148515 0.8666667
                                                                    0.9412186
##
   [25] {breathes=FALSE}
                             {venomous=FALSE} 0.1782178 0.8571429
                                                                    0.9308756
   [26] {legs=FALSE}
                             {venomous=FALSE} 0.1881188 0.8260870
                                                                    0.8971482
   [27] {backbone=FALSE}
                             {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                         confidence lift
                                               support
                          => {venomous=FALSE} 0.4059406 1.0000000
##
   [1]
        {milk=TRUE}
                                                                    1.0860215
##
   [2]
        {type=mammal}
                             {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
##
   [3]
        {catsize=TRUE}
                          => {venomous=FALSE} 0.4257426 0.9772727
                                                                    1.0613392
  [4]
##
        {predator=FALSE}
                             {venomous=FALSE} 0.4257426 0.9555556
                                                                    1.0377539
##
   [5]
        {hair=TRUE}
                             {venomous=FALSE} 0.4059406 0.9534884
                                                                    1.0355089
##
   [6]
        {eggs=FALSE}
                             {venomous=FALSE} 0.3960396 0.9523810
                                                                    1.0343062
##
   [7]
        {backbone=TRUE}
                             {venomous=FALSE} 0.7821782 0.9518072
                                                                    1.0336831
   [8]
        {legs=TRUE}
                             {venomous=FALSE} 0.7326733 0.9487179
                                                                    1.0303281
   [9]
##
        {tail=TRUE}
                             {venomous=FALSE} 0.7029703 0.9466667
                                                                    1.0281004
##
   [10]
       {fins=TRUE}
                             {venomous=FALSE} 0.1584158 0.9411765
                                                                    1.0221379
##
   [11]
       {aquatic=FALSE}
                             {venomous=FALSE} 0.6039604 0.9384615
                                                                    1.0191894
        {breathes=TRUE}
                             {venomous=FALSE} 0.7425743 0.9375000
   [12]
                                                                    1.0181452
   [13]
        {toothed=TRUE}
                             {venomous=FALSE} 0.5643564 0.9344262
                                                                    1.0148070
##
   [14]
       {domestic=TRUE}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
       {type=fish}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
   [15]
                             {venomous=FALSE} 0.7029703 0.9220779
   [16] {airborne=FALSE}
                                                                    1.0013965
                             {venomous=FALSE} 0.8019802 0.9204545
        {domestic=FALSE}
                                                                    0.9996334
                                                                    0.9787601
##
   [18] {feathers=FALSE}
                             {venomous=FALSE} 0.7227723 0.9012346
   [19] {toothed=FALSE}
                             {venomous=FALSE} 0.3564356 0.9000000
                                                                    0.9774194
                             {venomous=FALSE} 0.5247525 0.8983051
##
  [20] {eggs=TRUE}
                                                                    0.9755786
                             {venomous=FALSE} 0.5148515 0.8965517
##
   [21]
       {hair=FALSE}
                                                                    0.9736745
##
   [22] {predator=TRUE}
                             {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
   [23] {catsize=FALSE}
                             {venomous=FALSE} 0.4950495 0.8771930
                                                                    0.9526504
                             {venomous=FALSE} 0.5148515 0.8666667
   [24] {milk=FALSE}
                                                                    0.9412186
##
   [25] {breathes=FALSE}
                             {venomous=FALSE} 0.1782178 0.8571429
                                                                    0.9308756
                          => {venomous=FALSE} 0.1881188 0.8260870
##
   [26] {legs=FALSE}
                                                                    0.8971482
  [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
       "Número de reglas con consecuente negado"
##
   [1]
##
        lhs
                                             rhs
                                                              support
##
  [1]
        {type=fish}
                                            {feathers=FALSE} 0.1287129
##
   [2]
        {fins=TRUE}
                                            {feathers=FALSE} 0.1683168
##
   [3]
        {backbone=FALSE}
                                            {feathers=FALSE} 0.1782178
   [4]
##
        {breathes=FALSE}
                                            {feathers=FALSE} 0.2079208
##
   [5]
        {legs=FALSE}
                                            {feathers=FALSE} 0.2277228
##
  [6]
        {tail=FALSE}
                                            {feathers=FALSE} 0.2574257
## [7]
        {eggs=FALSE}
                                            {feathers=FALSE} 0.4158416
```

```
## [8]
        {hair=TRUE}
                                         => {feathers=FALSE} 0.4257426
                                            {feathers=FALSE} 0.3465347
  [9]
        {airborne=FALSE, catsize=FALSE}
                                            {feathers=FALSE} 0.2673267
  [10] {airborne=FALSE, predator=FALSE} =>
  [11] {airborne=FALSE}
                                            {feathers=FALSE} 0.7227723
  [12] {catsize=TRUE}
                                            {feathers=FALSE} 0.3762376
## [13] {predator=TRUE}
                                            {feathers=FALSE} 0.4653465
                                            {feathers=FALSE} 0.2970297
  [14] {aquatic=TRUE}
  [15] {aquatic=FALSE}
                                            {feathers=FALSE} 0.5049505
  [16] {predator=FALSE}
                                            {feathers=FALSE} 0.3366337
  [17] {catsize=FALSE}
                                            {feathers=FALSE} 0.4257426
  [18] {breathes=TRUE}
                                            {feathers=FALSE} 0.5940594
                                            {feathers=FALSE} 0.5742574
  [19] {legs=TRUE}
##
  [20] {milk=FALSE}
                                            {feathers=FALSE} 0.3960396
  [21] {eggs=TRUE}
                                            {feathers=FALSE} 0.3861386
                                         => {feathers=FALSE} 0.3762376
## [22] {hair=FALSE}
##
   [23] {toothed=FALSE}
                                         => {feathers=FALSE} 0.1980198
##
        confidence lift
##
  [1]
        1.0000000 1.2469136
   [2]
##
        1.0000000
                   1.2469136
##
   [3]
        1.0000000
                   1.2469136
##
  [4]
        1.0000000
                   1.2469136
  [5]
        1.0000000
                   1.2469136
  [6]
##
        1.0000000
                   1.2469136
  [7]
        1.0000000
                   1.2469136
##
  [8]
        1.0000000
                   1.2469136
  [9]
        0.9722222
                   1.2122771
  [10] 0.9642857
                   1.2023810
  [11] 0.9480519
                   1.1821388
  [12] 0.8636364
                   1.0768799
  [13] 0.8392857
                   1.0465168
  [14] 0.8333333
                   1.0390947
  [15] 0.7846154
                   0.9783476
  [16] 0.7555556
                   0.9421125
  [17] 0.7543860
                   0.9406541
   [18] 0.7500000
                   0.9351852
##
  [19] 0.7435897
                   0.9271921
  [20] 0.6666667
                   0.8312757
  [21] 0.6610169
                   0.8242310
   [22] 0.6551724
                   0.8169434
  [23] 0.5000000 0.6234568
##
##
       lhs
                                            support
                                                      confidence lift
                         => {feathers=TRUE} 0.1980198 1.0000000 5.0500000
##
  [1] {type=bird}
   [2] {hair=FALSE}
                         => {feathers=TRUE} 0.1980198 0.3448276
                                                                  1.7413793
   [3] {aquatic=FALSE}
                        => {feathers=TRUE} 0.1386139 0.2153846
                                                                  1.0876923
  [4] {venomous=FALSE} => {feathers=TRUE} 0.1980198 0.2150538
                                                                  1.0860215
       {domestic=FALSE} => {feathers=TRUE} 0.1683168 0.1931818
                                                                  0.9755682
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                                              support
##
  [1]
        {type=fish}
                                            {breathes=FALSE} 0.1287129
        {eggs=TRUE,fins=TRUE}
##
   [2]
                                            {breathes=FALSE} 0.1287129
##
  [3]
        {milk=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
## [4]
        {hair=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
## [5]
        {aquatic=TRUE,legs=FALSE}
                                         =>
                                            {breathes=FALSE} 0.1485149
## [6]
        {milk=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
```

```
[7]
        {eggs=TRUE,legs=FALSE}
                                         => {breathes=FALSE} 0.1485149
                                            {breathes=FALSE} 0.1188119
##
   [8]
        {legs=FALSE,catsize=FALSE}
   [9]
        {hair=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
   [10] {predator=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1188119
##
   [11] {milk=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
  [12] {feathers=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
##
  [13] {milk=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
  [14] {aquatic=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
##
   [15] {eggs=TRUE,toothed=TRUE}
                                            {breathes=FALSE} 0.1287129
   [16] {airborne=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [17] {eggs=TRUE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1881188
   [18] {hair=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
       {aquatic=TRUE, toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
   [19]
  [20]
       {hair=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
                                            {breathes=FALSE} 0.2079208
  [21]
       {hair=FALSE, feathers=FALSE}
   [22]
        {milk=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
   [23]
        {eggs=TRUE,airborne=FALSE}
                                            {breathes=FALSE} 0.1980198
       {hair=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
                                            {breathes=FALSE} 0.2079208
   [25] {feathers=FALSE,milk=FALSE}
   [26] {feathers=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
##
  [27]
       {milk=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
  [28] {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
  [29] {hair=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
       {airborne=FALSE, catsize=FALSE}
##
   [30]
                                            {breathes=FALSE} 0.1584158
   [31] {predator=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
   [32] {hair=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
   [33] {feathers=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
##
   [34] {hair=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
   [35]
       {hair=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
   [36] {hair=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [37]
        {milk=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
##
   [38]
        {feathers=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
       {eggs=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1881188
   [40] {airborne=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
        {domestic=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
   Γ41]
   [42] {airborne=FALSE,domestic=FALSE}
##
                                         =>
                                            {breathes=FALSE} 0.1980198
  [43] {feathers=FALSE, airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
  [44] {feathers=FALSE,domestic=FALSE} =>
                                            {breathes=FALSE} 0.1980198
       {toothed=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1287129
   [45]
   [46] {tail=TRUE}
##
                                         => {breathes=FALSE} 0.1386139
##
        confidence lift
##
   [1]
        1.0000000
                   4.8095238
##
   [2]
        1.0000000
                   4.8095238
##
   [3]
        1.0000000
                   4.8095238
##
  [4]
        0.8666667
                   4.1682540
  [5]
##
        0.8333333
                   4.0079365
##
   [6]
        0.8000000
                   3.8476190
##
   [7]
        0.7894737
                   3.7969925
##
   [8]
        0.7500000
                   3.6071429
##
   [9]
        0.7272727
                   3.4978355
##
   [10]
        0.7058824
                   3.3949580
## [11] 0.6666667
                   3.2063492
## [12] 0.6666667
                   3.2063492
## [13] 0.6666667
                   3.2063492
```

```
## [14] 0.6521739
                    3.1366460
   [15] 0.6500000
                    3.1261905
   [16] 0.6451613
                    3.1029186
   [17] 0.6333333
                    3.0460317
   [18] 0.6250000
                    3.0059524
##
   [19] 0.6086957
                    2.9275362
   [20] 0.6086957
                    2.9275362
   [21] 0.5526316
                    2.6578947
   [22] 0.5526316
                    2.6578947
   [23] 0.5405405
                    2.5997426
   [24] 0.5250000
                    2.5250000
   [25] 0.5250000
                    2.5250000
##
   [26] 0.5128205
                    2.4664225
   [27] 0.5000000
                    2.4047619
   [28] 0.4848485
                    2.3318903
   [29]
        0.4722222
                    2.2711640
##
   [30] 0.444444
                    2.1375661
   [31] 0.4285714
                    2.0612245
   [32] 0.3750000
                    1.8035714
   [33] 0.3720930
                    1.7895903
##
   [34] 0.3703704
                    1.7813051
   [35] 0.3703704
                    1.7813051
##
   [36] 0.3636364
                    1.7489177
##
   [37] 0.3636364
                    1.7489177
   [38] 0.3617021
                    1.7396150
   [39] 0.3518519
                    1.6922399
   [40] 0.3469388
                    1.6686103
##
   [41] 0.3000000
                    1.4428571
   [42] 0.2941176
                    1.4145658
   [43] 0.2876712
                    1.3835616
   [44] 0.2816901
                    1.3547954
##
   [45] 0.2500000
                    1.2023810
##
   [46]
        0.1866667
                    0.8977778
##
        lhs
                                              support
                                                         confidence lift
##
   [1]
                             {breathes=TRUE} 0.1980198 1.0000000
        {type=bird}
##
   [2]
        {feathers=TRUE}
                             {breathes=TRUE} 0.1980198 1.0000000
                                                                    1.2625000
##
   [3]
        {airborne=TRUE}
                             {breathes=TRUE} 0.2376238 1.0000000
                                                                    1.2625000
##
   [4]
                             {breathes=TRUE} 0.4059406 1.0000000
        {milk=TRUE}
                                                                    1.2625000
   [5]
                             {breathes=TRUE} 0.4059406 1.0000000
##
        {type=mammal}
                                                                    1.2625000
   [6]
##
        {hair=TRUE}
                             {breathes=TRUE} 0.4257426 1.0000000
                                                                    1.2625000
   [7]
        {aquatic=FALSE}
                             {breathes=TRUE} 0.6336634 0.9846154
                                                                    1.2430769
   [8]
                             {breathes=TRUE} 0.4059406 0.9761905
##
        {eggs=FALSE}
                                                                    1.2324405
##
   [9]
        {legs=TRUE}
                             {breathes=TRUE} 0.7227723 0.9358974
                                                                    1.1815705
##
                             {breathes=TRUE} 0.1188119 0.9230769
   [10]
        {domestic=TRUE}
                                                                    1.1653846
       {predator=FALSE}
                             {breathes=TRUE} 0.4059406 0.9111111
   Г11]
                                                                    1.1502778
   [12]
        {catsize=TRUE}
                             {breathes=TRUE} 0.3861386 0.8863636
                                                                    1.1190341
##
   [13]
       {toothed=FALSE}
                             {breathes=TRUE} 0.3267327 0.8250000
                                                                    1.0415625
   [14]
       {tail=TRUE}
                             {breathes=TRUE} 0.6039604 0.8133333
                                                                    1.0268333
   [15] {domestic=FALSE}
                             {breathes=TRUE} 0.6732673 0.7727273
                                                                    0.9755682
   [16]
        {tail=FALSE}
                             {breathes=TRUE} 0.1881188 0.7307692
                                                                    0.9225962
##
   [17]
        {airborne=FALSE}
                          =>
                             {breathes=TRUE} 0.5544554 0.7272727
                                                                    0.9181818
  [18] {catsize=FALSE}
                             {breathes=TRUE} 0.4059406 0.7192982
                                                                    0.9081140
## [19] {predator=TRUE}
                          => {breathes=TRUE} 0.3861386 0.6964286
                                                                    0.8792411
## [20] {eggs=TRUE}
                          => {breathes=TRUE} 0.3861386 0.6610169
                                                                    0.8345339
```

```
## [21] {milk=FALSE}
                         => {breathes=TRUE} 0.3861386 0.6500000 0.8206250
  [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111 0.7715278
##
                                          rhs
                                                           support
## [1] {hair=FALSE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1980198
  [2] {milk=FALSE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1980198
  [3] {eggs=TRUE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1881188
## [4] {domestic=FALSE, catsize=FALSE} => {breathes=FALSE} 0.1485149
## [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
##
  [7] {toothed=TRUE,domestic=FALSE}
                                      => {breathes=FALSE} 0.1287129
##
       confidence lift
## [1] 0.3703704 1.781305
## [2] 0.3636364 1.748918
## [3] 0.3518519
                 1.692240
## [4] 0.3000000
                  1.442857
## [5] 0.2941176
                  1.414566
  [6] 0.2816901
                  1.354795
  [7] 0.2500000 1.202381
##
       lhs
                                          rhs
                                                           support
## [1] {airborne=FALSE,aquatic=TRUE}
                                       => {breathes=FALSE} 0.1980198
## [2] {milk=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
## [3] {eggs=TRUE,airborne=FALSE}
                                       => {breathes=FALSE} 0.1980198
## [4] {hair=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
## [5] {airborne=FALSE, catsize=FALSE}
                                       => {breathes=FALSE} 0.1584158
## [6] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
  [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
  [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
       confidence lift
## [1] 0.6451613 3.102919
## [2] 0.5526316
                  2.657895
## [3] 0.5405405
                  2.599743
## [4] 0.5250000
                  2.525000
## [5] 0.444444
                  2.137566
## [6] 0.3469388
                  1.668610
  [7] 0.2941176
                  1.414566
  [8] 0.2876712 1.383562
##
##
       lhs
                                                           support
## [1] {legs=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
## [2] {aquatic=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1485149
## [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
## [4] {predator=TRUE,catsize=FALSE} => {breathes=FALSE} 0.1188119
  [5] {feathers=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
  [6] {hair=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1584158
##
  [7] {domestic=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1485149
       confidence lift
## [1] 0.7500000 3.607143
  [2] 0.6521739
                  3.136646
## [3] 0.444444
                  2.137566
## [4] 0.4285714
                  2.061224
## [5] 0.3720930
                  1.789590
## [6] 0.3636364
                  1.748918
## [7] 0.3000000
                 1.442857
##
       lhs
                                                           support
                                         rhs
## [1] {predator=TRUE,legs=FALSE}
                                      => {breathes=FALSE} 0.1188119
```

```
## [2] {milk=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
                                      => {breathes=FALSE} 0.1584158
## [3] {eggs=TRUE,predator=TRUE}
## [4] {hair=FALSE, predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
## [5] {predator=TRUE,catsize=FALSE} => {breathes=FALSE} 0.1188119
   [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
       confidence lift
## [1] 0.7058824 3.394958
  [2] 0.5000000
                  2.404762
  [3] 0.4848485
                  2.331890
## [4] 0.472222
                  2.271164
## [5] 0.4285714
                  2.061224
  [6] 0.3617021
                  1.739615
##
  [7] 0.3469388
                 1.668610
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
  [1] {eggs=TRUE,fins=TRUE}
                                  => {breathes=FALSE} 0.1287129 1.0000000
  [2] {eggs=TRUE,legs=FALSE}
                                  => {breathes=FALSE} 0.1485149 0.7894737
## [3] {eggs=TRUE,toothed=TRUE}
                                  => {breathes=FALSE} 0.1287129 0.6500000
## [4] {eggs=TRUE,aquatic=TRUE}
                                  => {breathes=FALSE} 0.1881188 0.6333333
## [5] {eggs=TRUE,airborne=FALSE} => {breathes=FALSE} 0.1980198 0.5405405
## [6] {feathers=FALSE,eggs=TRUE} => {breathes=FALSE} 0.1980198 0.5128205
                                  => {breathes=FALSE} 0.1584158 0.4848485
## [7] {eggs=TRUE,predator=TRUE}
## [8] {hair=FALSE,eggs=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.3703704
  [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
##
       lift
## [1] 4.809524
## [2] 3.796992
## [3] 3.126190
## [4] 3.046032
## [5] 2.599743
## [6] 2.466422
## [7] 2.331890
## [8] 1.781305
## [9] 1.692240
##
       lhs
                                                        support
                                                                  confidence
## [1] {milk=FALSE,fins=TRUE}
                                   => {breathes=FALSE} 0.1287129 1.0000000
## [2] {milk=FALSE,legs=FALSE}
                                   => {breathes=FALSE} 0.1584158 0.8000000
## [3] {milk=FALSE,aquatic=TRUE}
                                   => {breathes=FALSE} 0.1980198 0.6666667
## [4] {milk=FALSE,toothed=TRUE}
                                   => {breathes=FALSE} 0.1386139 0.6666667
## [5] {milk=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208 0.5526316
  [6] {feathers=FALSE,milk=FALSE} => {breathes=FALSE} 0.2079208 0.5250000
  [7] {milk=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168 0.5000000
  [8] {hair=FALSE,milk=FALSE}
                                   => {breathes=FALSE} 0.2079208 0.3750000
##
  [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
       lift
## [1] 4.809524
## [2] 3.847619
## [3] 3.206349
## [4] 3.206349
## [5] 2.657895
## [6] 2.525000
## [7] 2.404762
## [8] 1.803571
## [9] 1.748918
```

```
[1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                         support
                                                                    confidence
        {backbone=FALSE, venomous=FALSE} =>
##
  [1]
                                           {tail=FALSE} 0.1386139 1.0000000
##
                                         => {tail=FALSE} 0.1683168 0.9444444
   [2]
        {backbone=FALSE}
##
   [3]
        {feathers=FALSE, toothed=FALSE}
                                            {tail=FALSE} 0.1683168 0.8500000
   [4]
##
        {airborne=FALSE, toothed=FALSE}
                                            {tail=FALSE} 0.1089109 0.6111111
  [5]
        {feathers=FALSE,eggs=TRUE}
                                            {tail=FALSE} 0.1980198 0.5128205
##
  [6]
        {feathers=FALSE,milk=FALSE}
                                            {tail=FALSE} 0.1980198 0.5000000
##
   [7]
        {feathers=FALSE, catsize=FALSE}
                                            {tail=FALSE} 0.1980198 0.4651163
##
   [8]
        {eggs=TRUE,fins=FALSE}
                                           {tail=FALSE} 0.1980198 0.4347826
  [9]
        {milk=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.1980198 0.4255319
   [10] {hair=FALSE, feathers=FALSE}
                                            {tail=FALSE} 0.1584158 0.4210526
   [11] {fins=FALSE, catsize=FALSE}
                                            {tail=FALSE} 0.1980198 0.4166667
                                         => {tail=FALSE} 0.1584158 0.4000000
  [12] {eggs=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
  [13] {milk=FALSE,legs=TRUE}
  [14] {feathers=FALSE,fins=FALSE}
                                            {tail=FALSE} 0.2475248 0.3906250
  [15] {legs=TRUE,catsize=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3902439
   [16] {airborne=FALSE, catsize=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3888889
  [17] {eggs=TRUE,aquatic=FALSE}
                                           {tail=FALSE} 0.1089109 0.3793103
  [18] {eggs=TRUE,airborne=FALSE}
                                            {tail=FALSE} 0.1386139 0.3783784
  [19] {hair=FALSE,fins=FALSE}
                                            {tail=FALSE} 0.1584158 0.3720930
  [20] {milk=FALSE,airborne=FALSE}
                                            {tail=FALSE} 0.1386139 0.3684211
                                            {tail=FALSE} 0.1089109 0.3666667
  [21] {milk=FALSE,aquatic=FALSE}
  [22] {feathers=FALSE,legs=TRUE}
                                            {tail=FALSE} 0.2079208 0.3620690
  [23] {domestic=FALSE,catsize=FALSE}
                                            {tail=FALSE} 0.1782178 0.3600000
  [24] {feathers=FALSE,predator=FALSE} =>
                                            {tail=FALSE} 0.1188119 0.3529412
   [25] {aquatic=FALSE,catsize=FALSE}
                                            {tail=FALSE} 0.1188119 0.3529412
  [26] {hair=FALSE,airborne=FALSE}
                                            {tail=FALSE} 0.1386139 0.3500000
  [27] {hair=FALSE,legs=TRUE}
                                           {tail=FALSE} 0.1188119 0.3333333
## [28] {feathers=FALSE,domestic=FALSE} =>
                                            {tail=FALSE} 0.2277228 0.3239437
  [29]
        {airborne=FALSE,fins=FALSE}
                                            {tail=FALSE} 0.1881188 0.3166667
   [30]
       {fins=FALSE,domestic=FALSE}
                                           {tail=FALSE} 0.2178218 0.3055556
   [31] {predator=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1287129 0.3023256
   [32] {fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.2976190
   [33] {predator=TRUE,legs=TRUE}
                                            {tail=FALSE} 0.1089109 0.2820513
                                           {tail=FALSE} 0.1485149 0.2777778
##
   [34] {airborne=FALSE,legs=TRUE}
  [35] {legs=TRUE,domestic=FALSE}
                                            {tail=FALSE} 0.1782178 0.2727273
                                           {tail=FALSE} 0.2277228 0.2613636
  [36] {domestic=FALSE}
                                            {tail=FALSE} 0.1386139 0.2500000
   [37] {predator=TRUE}
   [38] {venomous=FALSE}
                                         => {tail=FALSE} 0.2178218 0.2365591
##
##
        lift
  [1]
        3.8846154
##
##
   [2]
        3.6688034
##
   [3]
        3.3019231
##
  [4]
        2.3739316
  [5]
##
        1.9921105
##
   [6]
        1.9423077
##
   [7]
        1.8067979
  [8]
        1.6889632
##
   [9]
        1.6530278
##
  [10]
       1.6356275
## [11] 1.6185897
## [12] 1.5538462
## [13] 1.5538462
```

```
## [14] 1.5174279
  [15] 1.5159475
  [16] 1.5106838
  [17] 1.4734748
  [18] 1.4698545
##
  [19] 1.4454383
  [20] 1.4311741
  [21] 1.4243590
   [22] 1.4064987
  [23] 1.3984615
  [24] 1.3710407
  [25] 1.3710407
   [26] 1.3596154
  [27] 1.2948718
  [28] 1.2583965
   [29] 1.2301282
   [30] 1.1869658
   [31] 1.1744186
   [32] 1.1561355
   [33] 1.0956607
##
  [34] 1.0790598
  [35] 1.0594406
   [36] 1.0152972
##
##
   [37] 0.9711538
##
   [38] 0.9189413
##
        lhs
                                         support
                                                    confidence lift
##
   [1]
                          => {tail=TRUE} 0.1287129 1.0000000
        {type=fish}
                                                               1.3466667
##
   [2]
        {type=bird}
                          => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
##
   [3]
        {feathers=TRUE}
                          => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
##
  [4]
        {fins=TRUE}
                          => {tail=TRUE} 0.1584158 0.9411765
                                                               1.2674510
##
  [5]
        {catsize=TRUE}
                          => {tail=TRUE} 0.3762376 0.8636364
                                                               1.1630303
##
   [6]
        {eggs=FALSE}
                          => {tail=TRUE} 0.3564356 0.8571429
                                                               1.1542857
##
   [7]
        {milk=TRUE}
                          => {tail=TRUE} 0.3465347 0.8536585
                                                               1.1495935
  [8]
##
                          => {tail=TRUE} 0.3465347 0.8536585
        {type=mammal}
                                                               1.1495935
   [9]
        {legs=FALSE}
                          => {tail=TRUE} 0.1782178 0.7826087
                                                               1.0539130
                                                               1.0334884
##
  [10] {hair=TRUE}
                          => {tail=TRUE} 0.3267327 0.7674419
  [11] {aquatic=FALSE}
                          => {tail=TRUE} 0.4851485 0.7538462
                                                               1.0151795
                          => {tail=TRUE} 0.1782178 0.7500000
  [12] {airborne=TRUE}
                                                               1.0100000
  [13] {predator=TRUE}
                          => {tail=TRUE} 0.4158416 0.7500000
                                                               1.0100000
   [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
                                                               0.9946970
  [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                                                               0.9875556
                          => {tail=TRUE} 0.4158416 0.7241379
   [16] {hair=FALSE}
                                                               0.9751724
   [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
                                                               0.9144033
                          => {tail=TRUE} 0.3861386 0.6610169
   [18] {eggs=TRUE}
                                                               0.8901695
  [19] {catsize=FALSE}
                          => {tail=TRUE} 0.3663366 0.6491228
                                                               0.8741520
  [20] {toothed=FALSE}
                         => {tail=TRUE} 0.2277228 0.5750000
##
                                                               0.7743333
##
       lhs
                                         rhs
                                                                 confidence
                                                       support
##
   [1] {eggs=TRUE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3793103
   [2] {milk=FALSE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3666667
##
   [3] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.473475
## [2] 1.424359
## [3] 1.371041
```

```
##
                                     rhs
                                                   support
                                                             confidence
  [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
   [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
##
       lift
## [1] 1.174419
  [2] 1.095661
##
       lhs
                                          rhs
                                                        support
                                                                  confidence
## [1] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
## [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
## [3] {fins=FALSE,domestic=FALSE}
                                       => {tail=FALSE} 0.2178218 0.3055556
## [4] {legs=TRUE,domestic=FALSE}
                                        => {tail=FALSE} 0.1782178 0.2727273
##
       lift
## [1] 1.398462
## [2] 1.258397
## [3] 1.186966
## [4] 1.059441
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
  [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.371041
##
       lhs
                                      rhs
                                                              confidence
                                                    support
## [1] {hair=FALSE,feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
## [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
## [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
## [4] {hair=FALSE,legs=TRUE}
                                   => {tail=FALSE} 0.1188119 0.3333333
       lift
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {tail=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE}
                                        => {tail=FALSE} 0.1980198 0.5128205
                                        => {tail=FALSE} 0.1980198 0.5000000
## [3] {feathers=FALSE,milk=FALSE}
## [4] {feathers=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4651163
## [5] {hair=FALSE,feathers=FALSE}
                                        => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                        => {tail=FALSE} 0.2475248 0.3906250
## [7] {feathers=FALSE,legs=TRUE}
                                       => {tail=FALSE} 0.2079208 0.3620690
## [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
## [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
       lift
##
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
## [7] 1.406499
## [8] 1.371041
## [9] 1.258397
##
                                     rhs
       lhs
                                                   support
                                                             confidence
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
## [2] {eggs=TRUE,fins=FALSE}
                                  => {tail=FALSE} 0.1980198 0.4347826
## [3] {eggs=TRUE,legs=TRUE}
                                  => {tail=FALSE} 0.1584158 0.4000000
```

```
## [4] {eggs=TRUE,aquatic=FALSE} => {tail=FALSE} 0.1089109 0.3793103
   [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
##
       lift
## [1] 1.992110
##
   [2] 1.688963
##
   [3] 1.553846
  [4] 1.473475
##
  [5] 1.469854
##
       lhs
                                                                  confidence
                                          rhs
                                                       support
##
  [1] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
  [2] {fins=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4166667
   [3] {legs=TRUE,catsize=FALSE}
                                       => {tail=FALSE} 0.1584158 0.3902439
  [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
  [5] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
  [6] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
  [1] 1.806798
##
   [2] 1.618590
  [3] 1.515947
   [4] 1.510684
##
   [5] 1.398462
##
   [6] 1.371041
##
       lhs
                                          rhs
                                                       support
                                                                  confidence
  [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
##
   [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
       lift
##
  [1] 3.301923
   [2] 2.373932
##
   [1] "Número de reglas con consecuente negado"
##
        lhs
                            rhs
                                              support
                                                        confidence lift
## [1]
        {milk=TRUE}
                         => {venomous=FALSE} 0.4059406 1.0000000
                                                                   1.0860215
##
   [2]
        {type=mammal}
                         => {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
##
  [3]
        {catsize=TRUE}
                         => {venomous=FALSE} 0.4257426 0.9772727
                                                                    1.0613392
  [4]
##
        {predator=FALSE} => {venomous=FALSE} 0.4257426 0.9555556
                                                                    1.0377539
   [5]
                            {venomous=FALSE} 0.4059406 0.9534884
##
        {hair=TRUE}
                                                                    1.0355089
                                                                    1.0343062
##
  [6]
        {eggs=FALSE}
                         => {venomous=FALSE} 0.3960396 0.9523810
  [7]
        {backbone=TRUE}
                            {venomous=FALSE} 0.7821782 0.9518072
                                                                    1.0336831
## [8]
                            {venomous=FALSE} 0.7326733 0.9487179
        {legs=TRUE}
                                                                    1.0303281
  [9]
        {tail=TRUE}
                            {venomous=FALSE} 0.7029703 0.9466667
##
                                                                    1.0281004
##
  [10] {fins=TRUE}
                         => {venomous=FALSE} 0.1584158 0.9411765
                                                                    1.0221379
  [11] {aquatic=FALSE}
                         => {venomous=FALSE} 0.6039604 0.9384615
                                                                    1.0191894
                         => {venomous=FALSE} 0.7425743 0.9375000
  [12] {breathes=TRUE}
                                                                    1.0181452
## [13] {toothed=TRUE}
                         => {venomous=FALSE} 0.5643564 0.9344262
                                                                    1.0148070
                         => {venomous=FALSE} 0.1188119 0.9230769
## [14] {domestic=TRUE}
                                                                    1.0024814
## [15] {type=fish}
                          => {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
## [16] {airborne=FALSE}
                         =>
                            {venomous=FALSE} 0.7029703 0.9220779
                                                                    1.0013965
  [17] {domestic=FALSE} =>
                            {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
## [18] {feathers=FALSE} => {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
## [19] {toothed=FALSE}
                         => {venomous=FALSE} 0.3564356 0.9000000
                                                                    0.9774194
## [20] {eggs=TRUE}
                         => {venomous=FALSE} 0.5247525 0.8983051
                                                                    0.9755786
## [21] {hair=FALSE}
                         => {venomous=FALSE} 0.5148515 0.8965517
                                                                    0.9736745
## [22] {predator=TRUE}
                         => {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
                         => {venomous=FALSE} 0.4950495 0.8771930
## [23] {catsize=FALSE}
                                                                    0.9526504
## [24] {milk=FALSE}
                         => {venomous=FALSE} 0.5148515 0.8666667
```

```
[25] {breathes=FALSE} => {venomous=FALSE} 0.1782178 0.8571429
                                                                    0.9308756
                          => {venomous=FALSE} 0.1881188 0.8260870
##
   [26] {legs=FALSE}
                                                                    0.8971482
   [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
       "Número de reglas con consecuente negado"
##
##
                                                              support
##
  [1]
        {toothed=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
                                         =>
##
   [2]
        {feathers=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
##
   [3]
        {eggs=TRUE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
   [4]
        {milk=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
   [5]
        {hair=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1287129
##
   [6]
        {tail=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
   [7]
##
        {tail=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
##
   [8]
        {aquatic=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1089109
##
   [9]
        {fins=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
  [10]
       {airborne=FALSE,toothed=FALSE}
                                         =>
                                            {backbone=FALSE} 0.1188119
        {toothed=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
       {toothed=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
   [12]
   [13] {milk=FALSE,toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
   [14] {toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
   [15] {feathers=FALSE,milk=FALSE}
                                            {backbone=FALSE} 0.1782178
                                            {backbone=FALSE} 0.1683168
##
  [16] {feathers=FALSE,eggs=TRUE}
  [17] {milk=FALSE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
  [18] {feathers=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
##
       {milk=FALSE,fins=FALSE}
##
   Г197
                                            {backbone=FALSE} 0.1782178
   [20] {eggs=TRUE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1089109
   [21] {eggs=TRUE,fins=FALSE}
                                            {backbone=FALSE} 0.1683168
   [22] {hair=FALSE, feathers=FALSE}
                                            {backbone=FALSE} 0.1386139
##
   [23] {milk=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
   [24] {fins=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
   [25] {aquatic=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1188119
        {milk=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
##
   [27]
        {eggs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
   [28]
       {hair=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1386139
   [29] {eggs=TRUE,legs=TRUE}
                                            {backbone=FALSE} 0.1287129
        {domestic=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
   [30]
##
   [31] {legs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1287129
   [32] {milk=FALSE,airborne=FALSE}
                                            {backbone=FALSE} 0.1188119
   [33] {milk=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
##
                                         =>
       {airborne=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1089109
##
   [34]
   [35]
##
       {eggs=TRUE,airborne=FALSE}
                                            {backbone=FALSE} 0.1089109
   [36]
       {eggs=TRUE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
                                            {backbone=FALSE} 0.1683168
##
   [37] {eggs=TRUE}
##
   [38]
       {feathers=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
       {hair=FALSE,domestic=FALSE}
##
   [39]
                                            {backbone=FALSE} 0.1386139
  [40] {feathers=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
   [41]
        {feathers=FALSE,domestic=FALSE} =>
                                            {backbone=FALSE} 0.1683168
##
   [42] {fins=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
   [43] {feathers=FALSE, aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
   [44]
       {aquatic=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1089109
   [45]
        {legs=TRUE,domestic=FALSE}
                                            {backbone=FALSE} 0.1287129
##
##
   [46]
        {aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
##
        confidence lift
##
  [1]
        1.0000000 5.611111
## [2]
        0.9000000 5.050000
```

```
[3]
        0.8500000
                    4.769444
##
   [4]
        0.8500000
                    4.769444
        0.8125000
   [5]
                    4.559028
   [6]
##
        0.8000000
                    4.488889
##
   [7]
        0.6956522
                    3.903382
##
   [8]
        0.6875000
                    3.857639
   [9]
        0.6800000
                    3.815556
   [10] 0.6666667
                    3.740741
##
   [11] 0.5483871
                    3.077061
   [12] 0.4722222
                    2.649691
   [13] 0.4615385
                    2.589744
   [14] 0.4500000
                    2.525000
##
   [15] 0.4500000
                    2.525000
   [16] 0.4358974
                    2.445869
   [17] 0.4000000
                    2.244444
   [18] 0.3953488
                    2.218346
   [19] 0.3829787
                    2.148936
   [20] 0.3793103
                    2.128352
   [21] 0.3695652
                    2.073671
   [22] 0.3684211
                    2.067251
##
   [23] 0.3541667
                    1.987269
   [24] 0.3541667
                    1.987269
   [25] 0.3529412
                    1.980392
##
   [26] 0.3500000
                    1.963889
   [27] 0.3478261
                    1.951691
   [28] 0.3255814
                    1.826873
   [29] 0.3250000
                    1.823611
##
   [30] 0.3200000
                    1.795556
   [31] 0.3170732
                    1.779133
   [32] 0.3157895
                    1.771930
   [33] 0.3090909
                    1.734343
##
   [34] 0.3055556
                    1.714506
   [35] 0.2972973
                    1.668168
   [36] 0.2962963
                    1.662551
   [37] 0.2881356
                    1.616761
##
   [38] 0.2812500
                    1.578125
   [39] 0.2592593
                    1.454733
   [40] 0.2413793
                    1.354406
   [41] 0.2394366
                    1.343505
##
##
   [42] 0.2361111
                    1.324846
   [43] 0.2352941
                    1.320261
   [44] 0.2075472
                    1.164570
##
   [45] 0.1969697
                    1.105219
##
   [46] 0.1846154
                    1.035897
##
        lhs
                                                          confidence lift
                                               support
                              {backbone=TRUE} 0.1287129 1.0000000
   [1]
##
        {type=fish}
                          =>
                                                                     1.2168675
##
   [2]
        {fins=TRUE}
                              {backbone=TRUE} 0.1683168 1.0000000
                                                                     1.2168675
   [3]
##
        {type=bird}
                              {backbone=TRUE} 0.1980198 1.0000000
                                                                     1.2168675
##
   [4]
        {feathers=TRUE}
                              {backbone=TRUE} 0.1980198 1.0000000
                                                                     1.2168675
##
   [5]
        {milk=TRUE}
                              {backbone=TRUE} 0.4059406 1.0000000
                                                                     1.2168675
                              {backbone=TRUE} 0.4059406 1.0000000
##
   [6]
        {type=mammal}
                                                                     1.2168675
##
   [7]
        {toothed=TRUE}
                              {backbone=TRUE} 0.6039604 1.0000000
                                                                     1.2168675
##
   [8]
        {tail=TRUE}
                              {backbone=TRUE} 0.7326733 0.9866667
                                                                     1.2006426
## [9]
        {catsize=TRUE}
                          => {backbone=TRUE} 0.4257426 0.9772727
```

```
## [10] {domestic=TRUE}
                         => {backbone=TRUE} 0.1188119 0.9230769
                                                                   1.1232623
                                                                  1.0495482
  [11] {breathes=TRUE}
                         => {backbone=TRUE} 0.6831683 0.8625000
  [12] {legs=FALSE}
                         => {backbone=TRUE} 0.1881188 0.8260870
                                                                  1.0052383
                         => {backbone=TRUE} 0.6336634 0.8205128
##
  [13] {legs=TRUE}
                                                                  0.9984554
##
  [14] {aquatic=FALSE}
                         => {backbone=TRUE} 0.5247525 0.8153846
                                                                  0.9922150
  [15] {predator=FALSE} => {backbone=TRUE} 0.3564356 0.8000000
                                                                  0.9734940
  [16] {feathers=FALSE} => {backbone=TRUE} 0.6237624 0.7777778
                                                                  0.9464525
  [17] {airborne=TRUE}
                         => {backbone=TRUE} 0.1782178 0.7500000
                                                                  0.9126506
##
  [18] {eggs=TRUE}
                         => {backbone=TRUE} 0.4158416 0.7118644
                                                                   0.8662446
  [19] {catsize=FALSE}
                         => {backbone=TRUE} 0.3960396 0.7017544
                                                                  0.8539421
  [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                  0.8112450
##
   [21] {toothed=FALSE} => {backbone=TRUE} 0.2178218 0.5500000
                                                                  0.6692771
##
                                                                 confidence
       lhs
                                      rhs
                                                       support
##
  [1] {milk=FALSE,legs=TRUE}
                                  => {backbone=FALSE} 0.1386139 0.3500000
  [2] {eggs=TRUE,legs=TRUE}
                                  => {backbone=FALSE} 0.1287129 0.3250000
   [3] {legs=TRUE,catsize=FALSE}
                                  => {backbone=FALSE} 0.1287129 0.3170732
   [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
       lift
##
  [1] 1.963889
##
  [2] 1.823611
  [3] 1.779133
  [4] 1.354406
##
##
   [5] 1.105219
##
       lhs
                                          rhs
                                                           support
  [1] {aquatic=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1089109
   [2] {milk=FALSE,aquatic=FALSE}
                                       => {backbone=FALSE} 0.1188119
   [3] {eggs=TRUE,aquatic=FALSE}
                                       => {backbone=FALSE} 0.1089109
   [4] {aquatic=FALSE,catsize=FALSE}
                                      => {backbone=FALSE} 0.1188119
   [5] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
##
   [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
##
       confidence lift
  [1] 0.6875000
                  3.857639
   [2] 0.4000000
                  2.244444
   [3] 0.3793103
                  2.128352
##
   [4] 0.3529412
                  1.980392
   [5] 0.2352941
                  1.320261
  [6] 0.2075472 1.164570
##
##
       lhs
                                           rhs
                                                            support
##
  [1] {feathers=FALSE, toothed=FALSE}
                                        => {backbone=FALSE} 0.1782178
  [2] {feathers=FALSE,milk=FALSE}
                                        => {backbone=FALSE} 0.1782178
   [3] {feathers=FALSE,eggs=TRUE}
                                        => {backbone=FALSE} 0.1683168
   [4] {feathers=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
  [5] {hair=FALSE, feathers=FALSE}
                                        => {backbone=FALSE} 0.1386139
  [6] {feathers=FALSE,fins=FALSE}
                                        => {backbone=FALSE} 0.1782178
   [7] {feathers=FALSE,legs=TRUE}
                                        => {backbone=FALSE} 0.1386139
##
   [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
##
   [9] {feathers=FALSE,aquatic=FALSE}
                                        => {backbone=FALSE} 0.1188119
##
       confidence lift
  [1] 0.9000000 5.050000
##
##
  [2] 0.4500000
                  2.525000
## [3] 0.4358974
                  2.445869
## [4] 0.3953488
                  2.218346
## [5] 0.3684211
                  2.067251
```

```
[6] 0.2812500
                  1.578125
   [7] 0.2413793
                  1.354406
   [8] 0.2394366
                  1.343505
##
   [9] 0.2352941
                  1.320261
##
       lhs
                                      rhs
                                                        support
                                                                   confidence
##
  [1] {eggs=TRUE,tail=FALSE}
                                   => {backbone=FALSE} 0.1683168 0.8500000
  [2] {feathers=FALSE,eggs=TRUE} => {backbone=FALSE} 0.1683168 0.4358974
   [3] {eggs=TRUE,aquatic=FALSE}
                                      {backbone=FALSE} 0.1089109 0.3793103
   [4] {eggs=TRUE,fins=FALSE}
                                      {backbone=FALSE} 0.1683168 0.3695652
   [5] {eggs=TRUE,catsize=FALSE}
                                      {backbone=FALSE} 0.1584158 0.3478261
   [6] {eggs=TRUE,legs=TRUE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
   [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
##
   [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
       lift
## [1] 4.769444
##
   [2] 2.445869
##
   [3] 2.128352
   [4] 2.073671
   [5] 1.951691
##
   [6] 1.823611
##
   [7] 1.668168
   [8] 1.662551
##
##
        lhs
                                            rhs
                                                              support
##
   [1]
        {tail=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
   [2]
        {toothed=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
   [3]
        {feathers=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1683168
   [4]
##
        {milk=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
   [5]
        {fins=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
   [6]
        {aquatic=FALSE, catsize=FALSE}
##
                                        => {backbone=FALSE} 0.1188119
   [7]
        {eggs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
##
##
   [8]
        {domestic=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1584158
##
   [9]
        {legs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1287129
##
   [10]
       {airborne=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1089109
##
        confidence lift
        0.8000000
                   4.488889
##
   [1]
##
   [2]
        0.5483871
                   3.077061
##
   [3]
        0.3953488
                   2.218346
   [4]
        0.3541667
##
                   1.987269
   [5]
        0.3541667
##
                   1.987269
##
   [6]
        0.3529412
                   1.980392
   [7]
        0.3478261
                   1.951691
##
   [8]
        0.3200000
                   1.795556
##
   [9]
        0.3170732
                   1.779133
##
   [10] 0.3055556
                   1.714506
##
       lhs
                                                            support
##
   [1] {toothed=FALSE,tail=FALSE}
                                          {backbone=FALSE} 0.1683168
##
   [2] {feathers=FALSE,toothed=FALSE} =>
                                          {backbone=FALSE} 0.1782178
   [3] {airborne=FALSE,toothed=FALSE} =>
                                          {backbone=FALSE} 0.1188119
   [4] {toothed=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
       {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
##
##
   [6]
       {milk=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
##
       confidence lift
## [1] 1.0000000 5.611111
## [2] 0.9000000 5.050000
```

```
[3] 0.6666667
                  3.740741
   [4] 0.5483871
                  3.077061
   [5] 0.4722222
                  2.649691
      0.4615385
##
   [6]
                  2.589744
##
       "Número de reglas con consecuente negado"
##
                                                             support
##
  [1]
        {type=bird}
                                            {toothed=FALSE} 0.1980198
   [2]
##
        {feathers=TRUE}
                                            {toothed=FALSE} 0.1980198
##
   [3]
        {hair=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.1782178
##
   [4]
        {eggs=TRUE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
   [5]
        {milk=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
   [6]
##
        {milk=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2673267
##
   [7]
                                            {toothed=FALSE} 0.2574257
        {eggs=TRUE,aquatic=FALSE}
##
   [8]
        {hair=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2277228
   [9]
##
        {eggs=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
   [10] {milk=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
##
       {hair=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3069307
   [11]
       {eggs=TRUE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   [12]
   [13] {milk=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   [14] {eggs=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
##
   [15] {milk=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
  [16] {eggs=TRUE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
       {milk=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
   [17]
##
   Г187
       {hair=FALSE.fins=FALSE}
                                            {toothed=FALSE} 0.3465347
   [19] {hair=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1287129
   [20] {eggs=TRUE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
   [21] {milk=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
   [22] {tail=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1584158
   [23] {hair=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.1683168
  [24] {hair=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.2772277
   [25]
        {tail=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.1584158
##
   [26]
        {aquatic=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1089109
       {aquatic=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.1287129
   [28] {fins=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   [29] {eggs=TRUE, venomous=FALSE}
                                            {toothed=FALSE} 0.3564356
##
   [30] {milk=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3465347
   [31] {aquatic=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.1188119
   [32] {legs=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
##
        {tail=FALSE}
   [33]
                                             {toothed=FALSE} 0.1683168
##
   [34]
       {milk=FALSE}
                                            {toothed=FALSE} 0.3861386
   [35] {aquatic=FALSE, catsize=FALSE}
                                            {toothed=FALSE} 0.2178218
   [36] {fins=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
   [37]
       {hair=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3267327
##
   [38]
       {hair=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
   [39] {breathes=TRUE, catsize=FALSE}
                                            {toothed=FALSE} 0.2475248
   [40]
       {predator=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1683168
##
   [41]
       {catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
   [42]
       {predator=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.2079208
   [43] {predator=FALSE,domestic=FALSE} =>
                                            {toothed=FALSE} 0.1683168
   [44] {fins=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.3564356
##
  [45] {predator=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.1881188
  [46] {legs=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.3168317
  [47] {aquatic=FALSE,domestic=FALSE}
                                         => {toothed=FALSE} 0.2277228
## [48] {breathes=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.2871287
```

```
## [49] {predator=TRUE}
                                         => {toothed=FALSE} 0.1881188
##
        confidence lift
##
  [1]
        1.0000000 2.5250000
  [2]
##
        1.0000000
                   2.5250000
   [3]
        1.0000000
                   2.5250000
   [4]
##
        1.0000000
                   2.5250000
  [5]
        1.0000000
                   2.5250000
## [6]
        0.9000000
                   2.2725000
##
   [7]
        0.8965517
                   2.2637931
##
  [8]
        0.8846154
                   2.2336538
  [9]
        0.8750000
                   2.2093750
  [10] 0.8750000
                   2.2093750
## [11] 0.8611111
                   2.1743056
## [12] 0.8500000
                   2.1462500
## [13] 0.8500000
                   2.1462500
## [14] 0.8478261
                   2.1407609
  [15] 0.8297872
                   2.0952128
  [16] 0.8205128
                   2.0717949
  [17] 0.8205128
                   2.0717949
## [18] 0.8139535
                   2.0552326
## [19] 0.8125000
                   2.0515625
## [20] 0.8076923
                   2.0394231
## [21] 0.8076923
                   2.0394231
## [22] 0.8000000
                   2.0200000
## [23] 0.7727273
                   1.9511364
## [24] 0.7567568
                   1.9108108
## [25] 0.6956522
                   1.7565217
## [26] 0.6875000
                   1.7359375
## [27] 0.6842105
                   1.7276316
## [28] 0.6800000
                   1.7170000
## [29] 0.6792453
                   1.7150943
  [30] 0.6730769
                   1.6995192
  [31] 0.6666667
                   1.6833333
## [32] 0.6585366
                   1.6628049
   [33] 0.6538462
                   1.6509615
## [34] 0.6500000
                   1.6412500
  [35] 0.6470588
                   1.6338235
## [36] 0.6458333
                   1.6307292
  [37] 0.6346154
                   1.6024038
  [38] 0.6136364
                   1.5494318
  [39] 0.6097561
                   1.5396341
  [40] 0.5862069
                   1.4801724
## [41] 0.5438596
                   1.3732456
## [42] 0.5121951
                   1.2932927
## [43] 0.5000000
                   1.2625000
## [44] 0.5000000
                   1.2625000
                   1.2301282
## [45] 0.4871795
## [46] 0.4848485
                   1.2242424
  [47] 0.4339623
                   1.0957547
##
   [48]
        0.4264706
                   1.0768382
##
   [49]
        0.3392857
                   0.8566964
##
        lhs
                                            support
                                                       confidence lift
## [1]
                          => {toothed=TRUE} 0.1287129 1.0000000 1.6557377
        {type=fish}
## [2]
        {fins=TRUE}
                         => {toothed=TRUE} 0.1683168 1.0000000 1.6557377
```

```
{eggs=FALSE}
  [3]
                         => {toothed=TRUE} 0.4059406 0.9761905
                                                                  1.6163154
   [4]
                         => {toothed=TRUE} 0.1881188 0.8260870
##
        {legs=FALSE}
                                                                  1.3677833
        {catsize=TRUE}
  [5]
                         => {toothed=TRUE} 0.3465347 0.7954545
                                                                  1.3170641
  [6]
        {feathers=FALSE} => {toothed=TRUE} 0.6039604 0.7530864
##
                                                                  1.2469136
##
   [7]
        {tail=TRUE}
                         => {toothed=TRUE} 0.5148515 0.6933333
                                                                  1.1479781
##
   [8]
        {breathes=FALSE} => {toothed=TRUE} 0.1386139 0.6666667
                                                                  1.1038251
   [9]
        {predator=TRUE}
                         => {toothed=TRUE} 0.3663366 0.6607143
                                                                  1.0939696
  [10]
       {aquatic=TRUE}
                         => {toothed=TRUE} 0.2277228 0.6388889
                                                                  1.0578324
  [11] {domestic=FALSE}
                         => {toothed=TRUE} 0.5148515 0.5909091
                                                                  0.9783905
  [12] {breathes=TRUE}
                         => {toothed=TRUE} 0.4653465 0.5875000
                                                                  0.9727459
  [13] {predator=FALSE} => {toothed=TRUE} 0.2376238 0.5333333
                                                                  0.8830601
   [14] {catsize=FALSE}
                         => {toothed=TRUE} 0.2574257 0.4561404
                                                                  0.7552488
   [15] {hair=FALSE}
                         => {toothed=TRUE} 0.2277228 0.3965517
##
                                                                  0.6565856
                         => {toothed=TRUE} 0.1980198 0.3389831
##
   [16] {eggs=TRUE}
                                                                  0.5612670
##
       lhs
                                     rhs
                                                                confidence
                                                     support
   [1] {aquatic=TRUE,fins=FALSE} => {toothed=FALSE} 0.1287129 0.6842105
##
   [2] {aquatic=TRUE,legs=TRUE} => {toothed=FALSE} 0.1188119 0.6666667
##
       lift
##
  [1] 1.727632
##
   [2] 1.683333
##
       lhs
                                           rhs
                                                            support
  [1] {tail=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.1584158
  [2] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
   [3] {fins=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3564356
  [4] {legs=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3168317
   [5] {aquatic=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2277228
   [6] {breathes=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2871287
##
       confidence lift
## [1] 0.6956522 1.756522
  [2] 0.5000000
                  1.262500
   [3] 0.5000000
                  1.262500
   [4] 0.4848485
                  1.224242
  [5] 0.4339623
                  1.095755
##
  [6] 0.4264706
                  1.076838
##
       lhs
                                                           support
                                                                     confidence
## [1] {eggs=TRUE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
  [2] {milk=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
  [3] {hair=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.2772277 0.7567568
  [4] {breathes=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2475248 0.6097561
  [5] {breathes=TRUE,domestic=FALSE} => {toothed=FALSE} 0.2871287 0.4264706
##
##
       lift
  [1] 2.071795
##
   [2] 2.071795
   [3] 1.910811
## [4] 1.539634
## [5] 1.076838
##
       lhs
                                           rhs
                                                            support
  [1] {eggs=TRUE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [2] {milk=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [3] {hair=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.1683168
## [4] {predator=FALSE,catsize=FALSE}
                                        => {toothed=FALSE} 0.1683168
## [5] {predator=FALSE,fins=FALSE}
                                        => {toothed=FALSE} 0.2079208
## [6] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
## [7] {predator=FALSE,legs=TRUE}
                                        => {toothed=FALSE} 0.1881188
```

```
confidence lift
##
  [1] 0.8076923 2.039423
##
   [2] 0.8076923
                  2.039423
   [3] 0.7727273
                  1.951136
   [4] 0.5862069
                  1.480172
   [5] 0.5121951
                  1.293293
##
   [6] 0.5000000
                  1.262500
##
  [7] 0.4871795 1.230128
##
       lhs
                                          rhs
                                                                     confidence
                                                          support
##
  [1] {tail=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.1584158 0.8000000
   [2] {legs=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6585366
   [3] {aquatic=FALSE, catsize=FALSE}
                                       => {toothed=FALSE} 0.2178218 0.6470588
   [4] {fins=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.3069307 0.6458333
   [5] {hair=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6136364
  [6] {breathes=TRUE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2475248 0.6097561
   [7] {predator=FALSE, catsize=FALSE} => {toothed=FALSE} 0.1683168 0.5862069
##
##
       lift
##
  [1] 2.020000
  [2] 1.662805
##
   [3] 1.633824
##
   [4] 1.630729
  [5] 1.549432
##
  [6] 1.539634
##
   [7] 1.480172
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
  [1] {hair=FALSE,airborne=TRUE}
                                    => {toothed=FALSE} 0.1782178 1.0000000
   [2] {hair=FALSE,aquatic=FALSE}
                                   => {toothed=FALSE} 0.2277228 0.8846154
   [3] {hair=FALSE,legs=TRUE}
                                    => {toothed=FALSE} 0.3069307 0.8611111
  [4] {hair=FALSE,fins=FALSE}
                                    => {toothed=FALSE} 0.3465347 0.8139535
  [5] {hair=FALSE,tail=FALSE}
                                      {toothed=FALSE} 0.1287129 0.8125000
   [6] {hair=FALSE, predator=FALSE} =>
                                       {toothed=FALSE} 0.1683168 0.7727273
   [7] {hair=FALSE,breathes=TRUE}
                                   => {toothed=FALSE} 0.2772277 0.7567568
   [8] {hair=FALSE, venomous=FALSE} => {toothed=FALSE} 0.3267327 0.6346154
##
   [9] {hair=FALSE, catsize=FALSE} => {toothed=FALSE} 0.2673267 0.6136364
       lift
##
## [1] 2.525000
  [2] 2.233654
  [3] 2.174306
##
   [4] 2.055233
##
  [5] 2.051563
  [6] 1.951136
   [7] 1.910811
##
##
   [8] 1.602404
##
   [9] 1.549432
##
       lhs
                                                                 confidence
                                                      support
##
   [1] {eggs=TRUE,airborne=TRUE}
                                   => {toothed=FALSE} 0.2178218 1.0000000
   [2] {eggs=TRUE,aquatic=FALSE}
##
                                   => {toothed=FALSE} 0.2574257 0.8965517
   [3] {eggs=TRUE,legs=TRUE}
                                   => {toothed=FALSE} 0.3465347 0.8750000
   [4] {eggs=TRUE,tail=FALSE}
                                   => {toothed=FALSE} 0.1683168 0.8500000
   [5] {eggs=TRUE,fins=FALSE}
                                   => {toothed=FALSE} 0.3861386 0.8478261
   [6] {eggs=TRUE,breathes=TRUE}
                                  => {toothed=FALSE} 0.3168317 0.8205128
  [7] {eggs=TRUE,predator=FALSE} => {toothed=FALSE} 0.2079208 0.8076923
  [8] {eggs=TRUE,venomous=FALSE} => {toothed=FALSE} 0.3564356 0.6792453
##
##
       lift
```

```
[1] 2.525000
   [2] 2.263793
   [3] 2.209375
##
   [4] 2.146250
##
   [5]
       2.140761
   [6] 2.071795
##
   [7] 2.039423
##
   [8] 1.715094
##
   [1] "Número de reglas con consecuente negado"
##
                                                             support
##
   [1]
        {breathes=TRUE,domestic=TRUE}
                                            {aquatic=FALSE} 0.1188119
   [2]
##
        {fins=FALSE,domestic=TRUE}
                                            {aquatic=FALSE} 0.1188119
##
   [3]
        {backbone=FALSE, breathes=TRUE}
                                            {aquatic=FALSE} 0.1089109
        {milk=TRUE, predator=FALSE}
##
   [4]
                                            {aquatic=FALSE} 0.1881188
   [5]
##
        {predator=FALSE, type=mammal}
                                            {aquatic=FALSE} 0.1881188
   [6]
        {eggs=FALSE,predator=FALSE}
                                            {aquatic=FALSE} 0.1881188
##
##
   [7]
        {hair=TRUE, predator=FALSE}
                                            {aquatic=FALSE} 0.2277228
   [8]
        {hair=TRUE,catsize=FALSE}
                                            {aquatic=FALSE} 0.1287129
##
   [9]
        {hair=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.3861386
   [10] {eggs=FALSE,legs=TRUE}
                                            {aquatic=FALSE} 0.3564356
##
  [11] {eggs=FALSE,fins=FALSE}
                                            {aquatic=FALSE} 0.3564356
  [12] {milk=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.3465347
  [13] {fins=FALSE,type=mammal}
                                            {aquatic=FALSE} 0.3465347
##
   [14] {predator=FALSE, catsize=TRUE}
                                            {aquatic=FALSE} 0.1485149
   [15] {predator=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.3762376
   [16] {predator=FALSE,fins=FALSE}
                                            {aquatic=FALSE} 0.3762376
   [17] {domestic=TRUE}
                                            {aquatic=FALSE} 0.1188119
##
   [18] {predator=FALSE,legs=TRUE}
                                            {aquatic=FALSE} 0.3564356
  [19] {hair=TRUE}
                                            {aquatic=FALSE} 0.3861386
  [20] {eggs=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.3564356
   [21]
       {toothed=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.3762376
   [22]
       {fins=FALSE,catsize=TRUE}
                                            {aquatic=FALSE} 0.3069307
       {eggs=FALSE}
                                            {aquatic=FALSE} 0.3564356
   [23]
   [24] {toothed=TRUE,legs=TRUE}
                                            {aquatic=FALSE} 0.3564356
        {milk=TRUE}
   [25]
                                            {aquatic=FALSE} 0.3465347
##
  [26] {type=mammal}
                                            {aquatic=FALSE} 0.3465347
  [27] {feathers=FALSE, predator=FALSE}
                                            {aquatic=FALSE} 0.2871287
  [28] {predator=FALSE}
                                            {aquatic=FALSE} 0.3762376
        {breathes=TRUE,fins=FALSE}
##
   [29]
                                            {aquatic=FALSE} 0.6336634
   [30] {legs=TRUE,catsize=TRUE}
                                            {aquatic=FALSE} 0.3069307
##
   [31] {feathers=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.4950495
   [32] {fins=FALSE,tail=TRUE}
                                            {aquatic=FALSE} 0.4851485
##
   [33] {legs=TRUE,tail=TRUE}
                                            {aquatic=FALSE} 0.4653465
   [34] {breathes=TRUE,legs=TRUE}
                                            {aquatic=FALSE} 0.5940594
  [35] {breathes=TRUE, catsize=FALSE}
                                            {aquatic=FALSE} 0.3267327
   [36]
        {airborne=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.4455446
##
   [37]
       {backbone=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.5247525
       {feathers=FALSE,fins=FALSE}
                                            {aquatic=FALSE} 0.5049505
   [39] {feathers=FALSE,legs=TRUE}
                                            {aquatic=FALSE} 0.4554455
   [40] {venomous=FALSE,fins=FALSE}
                                            {aquatic=FALSE} 0.6039604
  [41] {fins=FALSE,legs=TRUE}
##
                                            {aquatic=FALSE} 0.5940594
  [42] {fins=FALSE}
                                            {aquatic=FALSE} 0.6435644
  [43] {toothed=FALSE,tail=TRUE}
                                         => {aquatic=FALSE} 0.1584158
## [44] {toothed=FALSE,backbone=TRUE}
                                            {aquatic=FALSE} 0.1485149
```

```
## [45] {toothed=FALSE}
  [46] {toothed=TRUE}
   [47] {tail=FALSE}
   [48] {domestic=FALSE}
   [49]
       {catsize=FALSE}
   [50] {eggs=TRUE}
##
##
        confidence lift
## [1]
        1.0000000 1.5538462
##
   [2]
        1.0000000
                   1.5538462
   [3]
##
        1.0000000
                   1.5538462
   [4]
        1.0000000
                   1.5538462
   [5]
##
        1.0000000
                   1.5538462
##
   [6]
        1.0000000
                   1.5538462
   [7]
##
        1.0000000
                    1.5538462
##
  [8]
        1.0000000
                    1.5538462
   [9]
        0.9512195
                    1.4780488
   [10] 0.9473684
                    1.4720648
   [11] 0.9473684
                    1.4720648
   [12] 0.9459459
                    1.4698545
   [13] 0.9459459
                    1.4698545
  [14] 0.9375000
                    1.4567308
  [15] 0.9268293
                    1.4401501
  [16] 0.9268293
                    1.4401501
   [17] 0.9230769
                    1.4343195
  [18] 0.9230769
                    1.4343195
   [19] 0.9069767
                    1.4093023
  [20] 0.8780488
                    1.3643527
  [21] 0.8636364
                    1.3419580
## [22] 0.8611111
                    1.3380342
## [23] 0.8571429
                    1.3318681
  [24] 0.8571429
                    1.3318681
   [25] 0.8536585
                    1.3264540
   [26] 0.8536585
                    1.3264540
   [27] 0.8529412
                    1.3253394
   [28] 0.844444
                    1.3121368
##
   [29] 0.8421053
                    1.3085020
   [30] 0.8378378
                    1.3018711
  [31] 0.8333333
                   1.2948718
   [32] 0.8305085
                    1.2904824
                   1.2812416
   [33] 0.8245614
   [34] 0.8219178
                    1.2771338
   [35] 0.8048780
                    1.2506567
   [36] 0.8035714
                    1.2486264
   [37] 0.8030303
                    1.2477855
  [38] 0.7968750
                   1.2382212
   [39] 0.7931034
                    1.2323607
   [40] 0.7922078
                    1.2309690
   [41] 0.7792208
                    1.2107892
                    1.2023810
   [42] 0.7738095
   [43] 0.6956522
                    1.0809365
  [44] 0.6818182
                    1.0594406
## [45] 0.6750000
                    1.0488462
## [46] 0.6229508
                   0.9679697
```

## [47] 0.6153846

0.9562130

=> {aquatic=FALSE} 0.2673267
=> {aquatic=FALSE} 0.3762376
=> {aquatic=FALSE} 0.1584158
=> {aquatic=FALSE} 0.5247525
=> {aquatic=FALSE} 0.3366337
=> {aquatic=FALSE} 0.2871287

```
## [48] 0.6022727 0.9358392
  [49] 0.5964912 0.9268556
  [50] 0.4915254 0.7637549
##
       lhs
                                          support
                                                     confidence lift
##
  [1] {type=fish}
                        => {aquatic=TRUE} 0.1287129 1.0000000 2.8055556
                        => {aquatic=TRUE} 0.1683168 1.0000000 2.8055556
  [2] {fins=TRUE}
  [3] {breathes=FALSE} => {aquatic=TRUE} 0.1980198 0.9523810
## [4] {legs=FALSE}
                        => {aquatic=TRUE} 0.1782178 0.7826087
                                                                2.1956522
  [5] {backbone=TRUE}
                        => {aquatic=TRUE} 0.2970297 0.3614458
                                                                1.0140562
  [6] {tail=TRUE}
                        => {aquatic=TRUE} 0.2574257 0.3466667
                                                                0.9725926
  [7] {venomous=FALSE} => {aquatic=TRUE} 0.3168317 0.3440860
                                                                0.9653524
                        => {aquatic=TRUE} 0.1287129 0.3250000
   [8] {toothed=FALSE}
                                                                0.9118056
   [9] {breathes=TRUE} => {aquatic=TRUE} 0.1584158 0.2000000 0.5611111
##
                                        rhs
                                                         support
## [1] {backbone=TRUE,fins=FALSE}
                                     => {aquatic=FALSE} 0.5247525 0.8030303
   [2] {toothed=FALSE,backbone=TRUE} => {aquatic=FALSE} 0.1485149 0.6818182
##
       lift
  [1] 1.247786
##
  [2] 1.059441
##
##
       lhs
                                                     support
                                                               confidence
## [1] {fins=FALSE,tail=TRUE}
                                 => {aquatic=FALSE} 0.4851485 0.8305085
## [2] {legs=TRUE,tail=TRUE}
                                 => {aquatic=FALSE} 0.4653465 0.8245614
  [3] {toothed=FALSE,tail=TRUE} => {aquatic=FALSE} 0.1584158 0.6956522
##
##
       lift
## [1] 1.290482
  [2] 1.281242
  [3] 1.080936
##
##
                                      rhs
                                                       support
                                                                 confidence
   [1] {venomous=FALSE,fins=FALSE} => {aquatic=FALSE} 0.6039604 0.7922078
##
##
       lift
##
  [1] 1.230969
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
  [1] {toothed=FALSE,tail=TRUE}
                                     => {aquatic=FALSE} 0.1584158 0.6956522
   [2] {toothed=FALSE,backbone=TRUE} => {aquatic=FALSE} 0.1485149 0.6818182
##
       lift
## [1] 1.080936
##
  [2] 1.059441
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
## [1] {breathes=TRUE,domestic=TRUE} => {aquatic=FALSE} 0.1188119 1.0000000
  [2] {backbone=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.1089109 1.0000000
  [3] {predator=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.3762376 0.9268293
  [4] {eggs=FALSE,breathes=TRUE}
                                      => {aquatic=FALSE} 0.3564356 0.8780488
  [5] {breathes=TRUE,fins=FALSE}
                                      => {aquatic=FALSE} 0.6336634 0.8421053
## [6] {feathers=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.4950495 0.8333333
## [7] {breathes=TRUE,legs=TRUE}
                                      => {aquatic=FALSE} 0.5940594 0.8219178
## [8] {breathes=TRUE,catsize=FALSE}
                                      => {aquatic=FALSE} 0.3267327 0.8048780
##
  [9] {airborne=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.4455446 0.8035714
##
       lift
## [1] 1.553846
## [2] 1.553846
## [3] 1.440150
## [4] 1.364353
## [5] 1.308502
## [6] 1.294872
```

```
[7] 1.277134
   [8] 1.250657
   [9] 1.248626
##
       "Número de reglas con consecuente negado"
##
                                                             support
##
  [1]
        {aquatic=TRUE, catsize=TRUE}
                                           {predator=TRUE} 0.1188119
        {breathes=FALSE,domestic=FALSE} => {predator=TRUE} 0.1683168
   [2]
##
   [3]
        {aquatic=TRUE,fins=FALSE}
                                            {predator=TRUE} 0.1584158
##
   [4]
        {airborne=FALSE, aquatic=TRUE}
                                            {predator=TRUE} 0.2574257
##
   [5]
        {aquatic=TRUE,legs=TRUE}
                                            {predator=TRUE} 0.1485149
   [6]
        {feathers=FALSE, aquatic=TRUE}
                                            {predator=TRUE} 0.2475248
   [7]
##
        {fins=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.1287129
##
   [8]
        {aquatic=TRUE, breathes=TRUE}
                                            {predator=TRUE} 0.1287129
##
   [9]
        {breathes=FALSE}
                                            {predator=TRUE} 0.1683168
  [10] {aquatic=TRUE}
                                            {predator=TRUE} 0.2871287
        {backbone=TRUE,legs=FALSE}
                                            {predator=TRUE} 0.1485149
   [11]
       {hair=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1782178
   [12]
   [13] {legs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.1683168
   [14] {fins=TRUE}
                                            {predator=TRUE} 0.1287129
   [15] {milk=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1584158
##
  [16] {eggs=TRUE,toothed=TRUE}
                                            {predator=TRUE} 0.1485149
  [17] {hair=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2871287
  [18] {hair=FALSE, feathers=FALSE}
                                            {predator=TRUE} 0.2673267
   [19] {milk=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2673267
  [20] {eggs=TRUE,airborne=FALSE}
                                            {predator=TRUE} 0.2574257
  [21] {airborne=FALSE,domestic=FALSE} =>
                                            {predator=TRUE} 0.4653465
   [22] {domestic=FALSE,catsize=TRUE}
                                            {predator=TRUE} 0.2574257
  [23] {toothed=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.3465347
  [24] {airborne=FALSE,toothed=FALSE}
                                            {predator=TRUE} 0.1188119
  [25] {hair=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.3564356
  [26] {catsize=TRUE}
                                            {predator=TRUE} 0.2772277
   [27]
       {feathers=FALSE,domestic=FALSE} =>
                                            {predator=TRUE} 0.4455446
  [28] {backbone=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4455446
  [29] {tail=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4059406
   [30] {feathers=FALSE,milk=FALSE}
                                            {predator=TRUE} 0.2475248
##
  [31] {eggs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.2079208
  [32] {feathers=FALSE,eggs=TRUE}
                                            {predator=TRUE} 0.2376238
  [33] {feathers=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.3762376
       {milk=FALSE,tail=TRUE}
   [34]
                                            {predator=TRUE} 0.2376238
   [35] {feathers=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.3267327
   [36] {eggs=TRUE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
   [37] {milk=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
   [38] {eggs=TRUE,tail=TRUE}
                                            {predator=TRUE} 0.2277228
##
  [39] {backbone=TRUE}
                                            {predator=TRUE} 0.4653465
  [40] {eggs=FALSE}
                                            {predator=TRUE} 0.2277228
   [41]
        {venomous=FALSE,tail=FALSE}
                                            {predator=TRUE} 0.1188119
##
   [42] {legs=TRUE}
                                            {predator=TRUE} 0.3861386
   [43]
       {hair=TRUE}
                                            {predator=TRUE} 0.1980198
                                         => {predator=TRUE} 0.2673267
##
   [44]
        {aquatic=FALSE}
##
        confidence lift
##
   [1]
        0.9230769
                   1.6648352
  [2]
        0.8500000
                   1.5330357
##
  [3]
        0.8421053
                   1.5187970
## [4]
        0.8387097
                   1.5126728
```

```
[5]
        0.8333333
                    1.5029762
##
   [6]
        0.8333333
                    1.5029762
   [7]
        0.8125000
                    1.4654018
   [8]
        0.8125000
##
                    1.4654018
##
   [9]
        0.8095238
                    1.4600340
##
   [10] 0.8055556
                    1.4528770
   [11] 0.7894737
                    1.4238722
   [12] 0.7826087
                    1.4114907
   [13] 0.7727273
                    1.3936688
   [14] 0.7647059
                    1.3792017
   [15] 0.7619048
                    1.3741497
   [16] 0.7500000
                    1.3526786
   [17] 0.7250000
                    1.3075893
   [18] 0.7105263
                    1.2814850
   [19] 0.7105263
                    1.2814850
   [20] 0.7027027
                    1.2673745
   [21] 0.6911765
                    1.2465861
   [22] 0.6842105
                    1.2340226
   [23] 0.6730769
                    1.2139423
   [24] 0.6666667
                    1.2023810
##
   [25] 0.6666667
                    1.2023810
   [26] 0.6363636
                    1.1477273
   [27] 0.6338028
                    1.1431087
   [28] 0.6338028
                    1.1431087
   [29] 0.6307692
                    1.1376374
   [30] 0.6250000
                    1.1272321
   [31] 0.6176471
                    1.1139706
   [32] 0.6153846
                    1.1098901
   [33] 0.6031746
                    1.0878685
                    1.0821429
   [34] 0.6000000
   [35] 0.6000000
                    1.0821429
##
   [36]
       0.5952381
                    1.0735544
   [37]
        0.5952381
                    1.0735544
   [38]
       0.5897436
                    1.0636447
        0.5662651
   [39]
                    1.0212995
##
   [40] 0.5476190
                    0.9876701
   [41] 0.5454545
                    0.9837662
   [42] 0.5000000
                    0.9017857
   [43] 0.4651163
                    0.8388704
   [44] 0.4153846
##
                    0.7491758
##
        lhs
                                               support
                                                          confidence lift
##
   [1]
        {domestic=TRUE}
                          => {predator=FALSE} 0.1089109 0.8461538
                                                                     1.8991453
##
   [2]
        {airborne=TRUE}
                          => {predator=FALSE} 0.1683168 0.7083333
                                                                     1.5898148
##
   [3]
                          => {predator=FALSE} 0.1089109 0.5500000
        {type=bird}
                                                                      1.2344444
   [4]
        {feathers=TRUE}
                          => {predator=FALSE} 0.1089109 0.5500000
                                                                      1.2344444
   [5]
##
        {toothed=FALSE}
                             {predator=FALSE} 0.2079208 0.5250000
                                                                      1.1783333
##
   [6]
        {catsize=FALSE}
                          => {predator=FALSE} 0.2871287 0.5087719
                                                                      1.1419103
##
   [7]
        {milk=TRUE}
                             {predator=FALSE} 0.1881188 0.4634146
                                                                      1.0401084
   [8]
        {type=mammal}
                          => {predator=FALSE} 0.1881188 0.4634146
                                                                      1.0401084
   [9]
        {tail=FALSE}
                          => {predator=FALSE} 0.1188119 0.4615385
                                                                      1.0358974
##
   [10]
       {eggs=FALSE}
                          => {predator=FALSE} 0.1881188 0.4523810
                                                                      1.0153439
   [11] {eggs=TRUE}
                          => {predator=FALSE} 0.2574257 0.4406780
## [12] {milk=FALSE}
                          => {predator=FALSE} 0.2574257 0.4333333
                                                                      0.9725926
## [13] {domestic=FALSE} => {predator=FALSE} 0.3366337 0.3863636
                                                                     0.8671717
```

```
=> {predator=FALSE} 0.2178218 0.3793103 0.8513410
## [14] {hair=FALSE}
##
  [15] {catsize=TRUE}
                         => {predator=FALSE} 0.1584158 0.3636364 0.8161616
##
                                          rhs
                                                          support
   [1] {airborne=FALSE,toothed=FALSE} => {predator=TRUE} 0.1188119 0.6666667
##
##
       lift.
  [1] 1.202381
##
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
   [1] {venomous=FALSE,tail=FALSE} => {predator=TRUE} 0.1188119 0.5454545
##
##
       lift
##
   [1] 0.9837662
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
   [1] {eggs=FALSE,domestic=FALSE} => {predator=TRUE} 0.2079208 0.6176471
##
##
       lift
##
   [1] 1.113971
##
       lhs
                                      rhs
                                                      support
                                                                 confidence
   [1] {eggs=TRUE,toothed=TRUE}
                                   => {predator=TRUE} 0.1485149 0.7500000
   [2] {eggs=TRUE,airborne=FALSE} => {predator=TRUE} 0.2574257 0.7027027
  [3] {feathers=FALSE,eggs=TRUE} => {predator=TRUE} 0.2376238 0.6153846
   [4] {eggs=TRUE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
   [5] {eggs=TRUE,tail=TRUE}
                                   => {predator=TRUE} 0.2277228 0.5897436
##
       lift.
## [1] 1.352679
## [2] 1.267375
  [3] 1.109890
  [4] 1.073554
##
  [5] 1.063645
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
## [1] {milk=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1584158 0.7619048
  [2] {milk=FALSE,airborne=FALSE} => {predator=TRUE} 0.2673267 0.7105263
  [3] {feathers=FALSE,milk=FALSE} => {predator=TRUE} 0.2475248 0.6250000
  [4] {milk=FALSE,tail=TRUE}
                                    => {predator=TRUE} 0.2376238 0.6000000
##
   [5] {milk=FALSE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
##
       lift
## [1] 1.374150
   [2] 1.281485
##
  [3] 1.127232
## [4] 1.082143
  [5] 1.073554
##
##
        lhs
                                            rhs
                                                             support
## [1]
        {breathes=FALSE,domestic=FALSE} => {predator=TRUE} 0.1683168
        {fins=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.1287129
        {legs=FALSE,domestic=FALSE}
##
  [3]
                                         => {predator=TRUE} 0.1683168
##
   [4]
        {airborne=FALSE,domestic=FALSE} => {predator=TRUE} 0.4653465
##
   [5]
        {domestic=FALSE, catsize=TRUE}
                                         => {predator=TRUE} 0.2574257
  [6]
        {toothed=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.3465347
## [7]
        {hair=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.3564356
##
  [8]
        {feathers=FALSE,domestic=FALSE} => {predator=TRUE} 0.4455446
  [9]
        {backbone=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4455446
  [10]
       {tail=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4059406
   [11] {eggs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.2079208
##
##
        confidence lift
## [1]
        0.8500000 1.533036
## [2]
        0.8125000 1.465402
## [3]
        0.7727273 1.393669
```

```
[4]
        0.6911765
                   1.246586
##
   [5]
        0.6842105
                   1.234023
  [6]
        0.6730769
                   1.213942
  [7]
##
        0.6666667
                   1.202381
##
   [8]
        0.6338028
                   1.143109
##
   [9]
        0.6338028
                   1.143109
  [10] 0.6307692
                   1.137637
## [11] 0.6176471 1.113971
##
       lhs
                                       rhs
                                                        support
                                                                  confidence
##
  [1] {hair=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1782178 0.7826087
  [2] {hair=FALSE,airborne=FALSE} => {predator=TRUE} 0.2871287 0.7250000
   [3] {hair=FALSE, feathers=FALSE} => {predator=TRUE} 0.2673267 0.7105263
   [4] {hair=FALSE,domestic=FALSE} => {predator=TRUE} 0.3564356 0.6666667
##
       lift
## [1] 1.411491
   [2] 1.307589
##
  [3] 1.281485
##
   [4] 1.202381
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
##
   [1] {aquatic=TRUE, catsize=TRUE}
                                      => {predator=TRUE} 0.1188119 0.9230769
##
   [2] {domestic=FALSE,catsize=TRUE} => {predator=TRUE} 0.2574257 0.6842105
##
       lift.
  [1] 1.664835
##
##
   [2] 1.234023
##
   [1] "Número de reglas con consecuente negado"
                                         rhs
                                                          support
                                                                    confidence
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
##
   [2] {aquatic=FALSE,legs=TRUE}
                                      => {domestic=TRUE} 0.1188119 0.2000000
   [3] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
## [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
##
  [5] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
## [1] 1.612482
  [2] 1.553846
   [3] 1.335337
##
  [4] 1.294872
##
  [5] 1.238573
##
        lhs
                             rhs
                                              support
                                                         confidence lift
                          => {domestic=FALSE} 0.3465347 0.9722222
##
  [1]
        {aquatic=TRUE}
                                                                    1.1158460
##
  [2]
        {predator=TRUE}
                          => {domestic=FALSE} 0.5346535 0.9642857
                                                                    1.1067370
  [3]
        {legs=FALSE}
                          => {domestic=FALSE} 0.2178218 0.9565217
                                                                    1.0978261
  [4]
        {breathes=FALSE} => {domestic=FALSE} 0.1980198 0.9523810
##
                                                                    1.0930736
##
   [5]
        {backbone=FALSE}
                         => {domestic=FALSE} 0.1683168 0.9444444
                                                                    1.0839646
##
  [6]
                          => {domestic=FALSE} 0.1584158 0.9411765
        {fins=TRUE}
                                                                    1.0802139
  [7]
        {hair=FALSE}
                          => {domestic=FALSE} 0.5346535 0.9310345
                                                                    1.0685737
## [8]
        {type=fish}
                         => {domestic=FALSE} 0.1188119 0.9230769
                                                                    1.0594406
##
  [9]
        {milk=FALSE}
                          => {domestic=FALSE} 0.5445545 0.9166667
                                                                    1.0520833
  [10] {eggs=TRUE}
                          => {domestic=FALSE} 0.5346535 0.9152542
                                                                    1.0504622
  [11] {toothed=FALSE}
                         => {domestic=FALSE} 0.3564356 0.9000000
                                                                    1.0329545
## [12] {airborne=FALSE}
                         => {domestic=FALSE} 0.6732673 0.8831169
                                                                    1.0135773
## [13] {catsize=FALSE}
                         => {domestic=FALSE} 0.4950495 0.8771930
                                                                    1.0067783
## [14] {feathers=FALSE} => {domestic=FALSE} 0.7029703 0.8765432
## [15] {catsize=TRUE}
                          => {domestic=FALSE} 0.3762376 0.8636364
                                                                    0.9912190
## [16] {backbone=TRUE}
                         => {domestic=FALSE} 0.7029703 0.8554217 0.9817908
```

```
## [17] {legs=TRUE}
                         => {domestic=FALSE} 0.6534653 0.8461538
                                                                   0.9711538
                            {domestic=FALSE} 0.1980198 0.8333333
                                                                   0.9564394
  [18] {airborne=TRUE}
                         => {domestic=FALSE} 0.3366337 0.8095238
  [19] {eggs=FALSE}
                                                                    0.9291126
                         => {domestic=FALSE} 0.3267327 0.8048780
  [20] {milk=TRUE}
                                                                    0.9237805
##
   [21] {type=mammal}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                   0.9237805
##
       lhs
                                         rhs
                                                         support
                                                                    confidence
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
   [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
   [3] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
##
   [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
##
   [1] 1.612482
##
   [2] 1.335337
   [3] 1.294872
##
  [4] 1.238573
##
##
       lhs
                                     rhs
                                                     support
                                                                confidence
   [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
##
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
       lift
##
   [1] 1.553846
##
   [2] 1.335337
##
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
##
  Г17
        {type=fish}
                                         => {tail=TRUE} 0.1287129 1.0000000
##
   [2]
        {type=bird}
                                         => {tail=TRUE} 0.1980198 1.0000000
  [3]
        {feathers=TRUE}
                                           {tail=TRUE} 0.1980198 1.0000000
   [4]
        {backbone=TRUE, breathes=FALSE}
                                           {tail=TRUE} 0.1386139 1.0000000
##
##
   [5]
        {airborne=TRUE, backbone=TRUE}
                                           {tail=TRUE} 0.1782178 1.0000000
##
   [6]
        {toothed=FALSE,backbone=TRUE}
                                         => {tail=TRUE} 0.2178218 1.0000000
##
  [7]
                                         => {tail=TRUE} 0.1782178 0.9473684
        {backbone=TRUE,legs=FALSE}
##
  [8]
        {fins=TRUE}
                                           {tail=TRUE} 0.1584158 0.9411765
##
  [9]
        {predator=FALSE, catsize=TRUE}
                                         => {tail=TRUE} 0.1485149 0.9375000
  [10] {hair=FALSE,backbone=TRUE}
                                           {tail=TRUE} 0.4059406 0.9318182
  [11] {hair=FALSE,catsize=TRUE}
                                         => {tail=TRUE} 0.1287129 0.9285714
       {eggs=TRUE,backbone=TRUE}
                                            {tail=TRUE} 0.3861386 0.9285714
   [12]
## [13] {milk=FALSE,backbone=TRUE}
                                           {tail=TRUE} 0.3861386 0.9285714
## [14] {eggs=TRUE,catsize=TRUE}
                                           {tail=TRUE} 0.1188119 0.9230769
## [15] {milk=FALSE,catsize=TRUE}
                                           {tail=TRUE} 0.1089109 0.9166667
  [16] {predator=FALSE,backbone=TRUE}
                                            {tail=TRUE} 0.3267327 0.9166667
  [17] {aquatic=FALSE,backbone=TRUE}
                                           {tail=TRUE} 0.4752475 0.9056604
  [18] {backbone=TRUE,domestic=FALSE}
                                           {tail=TRUE} 0.6336634 0.9014085
                                           {tail=TRUE} 0.3564356 0.9000000
  [19] {backbone=TRUE, catsize=FALSE}
## [20] {eggs=FALSE,domestic=FALSE}
                                         => {tail=TRUE} 0.2970297 0.8823529
## [21] {milk=TRUE,domestic=FALSE}
                                         => {tail=TRUE} 0.2871287 0.8787879
## [22] {domestic=FALSE,type=mammal}
                                         => {tail=TRUE} 0.2871287 0.8787879
## [23] {predator=FALSE,toothed=TRUE}
                                           {tail=TRUE} 0.2079208 0.8750000
  [24] {hair=FALSE,toothed=TRUE}
                                         => {tail=TRUE} 0.1980198 0.8695652
  [25] {domestic=FALSE,catsize=TRUE}
                                         => {tail=TRUE} 0.3267327 0.8684211
  [26] {aquatic=FALSE,toothed=TRUE}
                                         => {tail=TRUE} 0.3267327 0.8684211
  [27] {toothed=TRUE,domestic=FALSE}
                                           {tail=TRUE} 0.4455446 0.8653846
## [28] {catsize=TRUE}
                                           {tail=TRUE} 0.3762376 0.8636364
## [29] {toothed=TRUE, venomous=FALSE}
                                         => {tail=TRUE} 0.4851485 0.8596491
                                         => {tail=TRUE} 0.3564356 0.8571429
## [30] {eggs=FALSE}
## [31] {milk=FALSE,toothed=TRUE}
                                           {tail=TRUE} 0.1782178 0.8571429
```

```
## [32] {milk=TRUE}
                                         => {tail=TRUE} 0.3465347 0.8536585
                                         => {tail=TRUE} 0.3465347 0.8536585
  [33] {type=mammal}
  [34] {predator=TRUE, breathes=TRUE}
                                         => {tail=TRUE} 0.3168317 0.8205128
                                         => {tail=TRUE} 0.1782178 0.8181818
  [35] {airborne=TRUE, venomous=FALSE}
  [36] {aquatic=FALSE,predator=TRUE}
                                           {tail=TRUE} 0.2178218 0.8148148
  [37] {hair=TRUE,predator=TRUE}
                                         => {tail=TRUE} 0.1584158 0.8000000
  [38] {hair=TRUE,domestic=FALSE}
                                         => {tail=TRUE} 0.2673267 0.7941176
## [39] {venomous=FALSE,legs=FALSE}
                                           {tail=TRUE} 0.1485149 0.7894737
  [40] {breathes=TRUE, venomous=FALSE}
                                            {tail=TRUE} 0.5841584 0.7866667
  [41] {legs=FALSE}
                                           {tail=TRUE} 0.1782178 0.7826087
## [42] {airborne=FALSE,aquatic=FALSE}
                                         => {tail=TRUE} 0.3564356 0.7826087
## [43] {airborne=FALSE,breathes=TRUE}
                                           {tail=TRUE} 0.4257426 0.7678571
## [44] {hair=TRUE}
                                         => {tail=TRUE} 0.3267327 0.7674419
## [45] {breathes=TRUE,domestic=FALSE}
                                         => {tail=TRUE} 0.5148515 0.7647059
                                         => {tail=TRUE} 0.3960396 0.7547170
## [46] {aquatic=FALSE,domestic=FALSE}
  [47] {aquatic=FALSE}
                                         => {tail=TRUE} 0.4851485 0.7538462
  [48] {airborne=TRUE}
                                         => {tail=TRUE} 0.1782178 0.7500000
  [49] {predator=TRUE}
                                         => {tail=TRUE} 0.4158416 0.7500000
  [50] {airborne=FALSE,predator=FALSE} => {tail=TRUE} 0.2079208 0.7500000
  [51] {domestic=FALSE}
                                           {tail=TRUE} 0.6435644 0.7386364
##
  [52] {predator=FALSE}
                                         => {tail=TRUE} 0.3267327 0.7333333
                                         => {tail=TRUE} 0.4158416 0.7241379
## [53] {hair=FALSE}
                                         => {tail=TRUE} 0.5445545 0.6790123
## [54] {feathers=FALSE}
  [55] {eggs=TRUE}
                                         => {tail=TRUE} 0.3861386 0.6610169
  [56] {catsize=FALSE}
                                        => {tail=TRUE} 0.3663366 0.6491228
   [57] {toothed=FALSE}
                                        => {tail=TRUE} 0.2277228 0.5750000
##
        lift
##
  [1]
        1.3466667
##
  [2]
        1.3466667
## [3]
        1.3466667
## [4]
        1.3466667
##
  [5]
        1.3466667
##
  [6]
        1.3466667
  [7]
##
        1.2757895
   [8]
        1.2674510
##
  [9]
        1.2625000
## [10] 1.2548485
## [11] 1.2504762
  [12] 1.2504762
## [13] 1.2504762
## [14] 1.2430769
## [15] 1.2344444
## [16] 1.2344444
## [17] 1.2196226
## [18] 1.2138967
## [19] 1.2120000
## [20] 1.1882353
## [21] 1.1834343
## [22] 1.1834343
## [23] 1.1783333
## [24] 1.1710145
## [25] 1.1694737
## [26] 1.1694737
## [27] 1.1653846
```

```
## [28] 1.1630303
  [29] 1.1576608
  [30] 1.1542857
  [31] 1.1542857
   [32] 1.1495935
  [33] 1.1495935
  [34] 1.1049573
  [35] 1.1018182
   [36] 1.0972840
  [37] 1.0773333
  [38] 1.0694118
  [39] 1.0631579
  [40] 1.0593778
## [41] 1.0539130
## [42] 1.0539130
  [43] 1.0340476
  [44] 1.0334884
  [45] 1.0298039
  [46] 1.0163522
  [47] 1.0151795
## [48] 1.0100000
  [49] 1.0100000
  [50] 1.0100000
   [51] 0.9946970
  [52] 0.9875556
  [53] 0.9751724
  [54] 0.9144033
   [55] 0.8901695
  [56] 0.8741520
##
  [57] 0.7743333
##
       lhs
                                         support
                                                   confidence lift
##
  [1] {backbone=FALSE} => {tail=FALSE} 0.1683168 0.9444444
                                                              3.6688034
   [2] {fins=FALSE}
                        => {tail=FALSE} 0.2475248 0.2976190
   [3] {domestic=FALSE} => {tail=FALSE} 0.2277228 0.2613636
                                                              1.0152972
   [4] {predator=TRUE} => {tail=FALSE} 0.1386139 0.2500000
                                                              0.9711538
   [5] {venomous=FALSE} => {tail=FALSE} 0.2178218 0.2365591
                                                              0.9189413
##
##
                                          rhs
                                                      support
                                                                confidence
## [1] {backbone=TRUE,domestic=FALSE} => {tail=TRUE} 0.6336634 0.9014085
   [2] {eggs=FALSE,domestic=FALSE}
                                       => {tail=TRUE} 0.2970297 0.8823529
                                       => {tail=TRUE} 0.2871287 0.8787879
   [3] {milk=TRUE,domestic=FALSE}
  [4] {domestic=FALSE,type=mammal}
                                       => {tail=TRUE} 0.2871287 0.8787879
   [5] {domestic=FALSE,catsize=TRUE}
                                      => {tail=TRUE} 0.3267327 0.8684211
   [6] {toothed=TRUE,domestic=FALSE}
                                      => {tail=TRUE} 0.4455446 0.8653846
   [7] {hair=TRUE,domestic=FALSE}
                                       => {tail=TRUE} 0.2673267 0.7941176
## [8] {breathes=TRUE,domestic=FALSE} => {tail=TRUE} 0.5148515 0.7647059
  [9] {aquatic=FALSE,domestic=FALSE} => {tail=TRUE} 0.3960396 0.7547170
##
       lift
## [1] 1.213897
  [2] 1.188235
  [3] 1.183434
##
  [4] 1.183434
## [5] 1.169474
## [6] 1.165385
## [7] 1.069412
```

```
## [8] 1.029804
   [9] 1.016352
##
##
       lhs
                                         rhs
                                                     support
                                                                confidence
  [1] {predator=TRUE,breathes=TRUE} => {tail=TRUE} 0.3168317 0.8205128
##
##
   [2] {aquatic=FALSE,predator=TRUE} => {tail=TRUE} 0.2178218 0.8148148
   [3] {hair=TRUE,predator=TRUE}
                                      => {tail=TRUE} 0.1584158 0.8000000
##
       lift
## [1] 1.104957
   [2] 1.097284
##
   [3] 1.077333
##
       lhs
                                          rhs
                                                      support
                                                                 confidence
                                      => {tail=TRUE} 0.4851485 0.8596491
##
   [1] {toothed=TRUE, venomous=FALSE}
   [2] {airborne=TRUE, venomous=FALSE} => {tail=TRUE} 0.1782178 0.8181818
   [3] {venomous=FALSE,legs=FALSE}
                                       => {tail=TRUE} 0.1485149 0.7894737
  [4] {breathes=TRUE, venomous=FALSE} => {tail=TRUE} 0.5841584 0.7866667
##
       lift
##
  [1] 1.157661
   [2] 1.101818
  [3] 1.063158
   [4] 1.059378
##
   Γ17
       "Número de reglas con consecuente negado"
##
                                                        confidence lift
                                              support
                         => {venomous=FALSE} 0.4059406 1.0000000 1.0860215
##
  [1]
        {milk=TRUE}
##
   [2]
        {type=mammal}
                         => {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
##
  [3]
        {catsize=TRUE}
                         => {venomous=FALSE} 0.4257426 0.9772727
                                                                    1.0613392
  [4]
        {predator=FALSE}
                         => {venomous=FALSE} 0.4257426 0.9555556
                                                                    1.0377539
  [5]
                         => {venomous=FALSE} 0.4059406 0.9534884
##
        {hair=TRUE}
                                                                    1.0355089
##
   [6]
        {eggs=FALSE}
                         => {venomous=FALSE} 0.3960396 0.9523810
                                                                    1.0343062
  [7]
##
        {backbone=TRUE}
                         => {venomous=FALSE} 0.7821782 0.9518072
                                                                    1.0336831
                         => {venomous=FALSE} 0.7326733 0.9487179
##
  [8]
        {legs=TRUE}
                                                                    1.0303281
## [9]
        {tail=TRUE}
                         => {venomous=FALSE} 0.7029703 0.9466667
                                                                    1.0281004
##
  [10] {fins=TRUE}
                         => {venomous=FALSE} 0.1584158 0.9411765
                                                                    1.0221379
  [11] {aquatic=FALSE}
                         => {venomous=FALSE} 0.6039604 0.9384615
                                                                    1.0191894
  [12] {breathes=TRUE}
                         => {venomous=FALSE} 0.7425743 0.9375000
                                                                    1.0181452
  [13] {toothed=TRUE}
                         => {venomous=FALSE} 0.5643564 0.9344262
                                                                    1.0148070
                         => {venomous=FALSE} 0.1188119 0.9230769
## [14] {domestic=TRUE}
                                                                    1.0024814
  [15] {type=fish}
                         => {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
## [16] {airborne=FALSE} => {venomous=FALSE} 0.7029703 0.9220779
                                                                    1.0013965
  [17] {domestic=FALSE}
                         => {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
  [18] {feathers=FALSE} => {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
                         => {venomous=FALSE} 0.3564356 0.9000000
  [19] {toothed=FALSE}
                                                                    0.9774194
                         => {venomous=FALSE} 0.5247525 0.8983051
  [20] {eggs=TRUE}
                                                                    0.9755786
## [21] {hair=FALSE}
                         => {venomous=FALSE} 0.5148515 0.8965517
                                                                    0.9736745
                         => {venomous=FALSE} 0.4950495 0.8928571
## [22] {predator=TRUE}
                                                                    0.9696621
## [23] {catsize=FALSE}
                         => {venomous=FALSE} 0.4950495 0.8771930
                                                                    0.9526504
                         => {venomous=FALSE} 0.5148515 0.8666667
## [24] {milk=FALSE}
                                                                    0.9412186
## [25] {breathes=FALSE} => {venomous=FALSE} 0.1782178 0.8571429
                                                                    0.9308756
  [26] {legs=FALSE}
                         => {venomous=FALSE} 0.1881188 0.8260870
                                                                    0.8971482
   [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
        lhs
                                                            support
## [1]
        {type=fish}
                                         => {aquatic=TRUE} 0.1287129
## [2]
        {fins=TRUE}
                                         => {aquatic=TRUE} 0.1683168
## [3]
        {breathes=FALSE,tail=TRUE}
                                         => {aquatic=TRUE} 0.1386139
```

```
[4]
        {backbone=TRUE, breathes=FALSE}
                                         => {aquatic=TRUE} 0.1386139
##
   [5]
        {breathes=FALSE}
                                            {aquatic=TRUE} 0.1980198
                                            {aquatic=TRUE} 0.1683168
##
   [6]
        {backbone=TRUE,legs=FALSE}
   [7]
        {hair=FALSE,toothed=TRUE}
##
                                            {aquatic=TRUE} 0.1980198
##
   [8]
        {milk=FALSE,toothed=TRUE}
                                            {aquatic=TRUE} 0.1782178
   [9]
        {eggs=TRUE, toothed=TRUE}
##
                                            {aquatic=TRUE} 0.1683168
  Γ107
       {predator=TRUE,legs=FALSE}
                                            {aquatic=TRUE} 0.1386139
        {venomous=FALSE,legs=FALSE}
   [11]
                                            {aquatic=TRUE} 0.1485149
##
   Γ12]
       {legs=FALSE}
                                            {aquatic=TRUE} 0.1782178
   [13]
       {eggs=TRUE,predator=TRUE}
                                            {aquatic=TRUE} 0.2277228
       {hair=FALSE,predator=TRUE}
                                            {aquatic=TRUE} 0.2475248
   [14]
   [15]
       {hair=FALSE,feathers=FALSE}
                                            {aquatic=TRUE} 0.2574257
       {milk=FALSE,predator=TRUE}
##
   [16]
                                            {aquatic=TRUE} 0.2277228
       {eggs=TRUE,airborne=FALSE}
                                            {aquatic=TRUE} 0.2475248
  [18] {hair=FALSE,airborne=FALSE}
                                            {aquatic=TRUE} 0.2673267
        {milk=FALSE,airborne=FALSE}
                                            {aquatic=TRUE} 0.2475248
   [20]
       {feathers=FALSE,eggs=TRUE}
                                            {aquatic=TRUE} 0.2376238
   [21] {predator=TRUE, catsize=FALSE}
                                            {aquatic=TRUE} 0.1683168
   [22] {feathers=FALSE,milk=FALSE}
                                            {aquatic=TRUE} 0.2376238
   [23]
       {hair=FALSE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2574257
##
  [24]
       {predator=TRUE, toothed=FALSE}
                                            {aquatic=TRUE} 0.1089109
  [25] {hair=FALSE,domestic=FALSE}
                                            {aquatic=TRUE} 0.3069307
   [26] {eggs=TRUE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2376238
##
   [27] {milk=FALSE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2376238
   [28]
       {toothed=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1386139
   [29] {eggs=TRUE,tail=TRUE}
                                            {aquatic=TRUE} 0.2079208
   [30] {predator=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
##
   [31] {eggs=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
   [32] {airborne=FALSE, catsize=FALSE}
                                            {aquatic=TRUE} 0.1881188
  [33] {milk=FALSE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
   [34]
        {milk=FALSE,tail=TRUE}
                                            {aquatic=TRUE} 0.2079208
##
   [35]
        {backbone=TRUE, catsize=FALSE}
                                            {aquatic=TRUE} 0.1782178
       {feathers=FALSE, catsize=FALSE}
                                            {aquatic=TRUE} 0.1881188
        {airborne=FALSE,domestic=FALSE}
   [37]
                                            {aquatic=TRUE} 0.2970297
                                         =>
        {domestic=FALSE, catsize=FALSE}
   [38]
                                            {aquatic=TRUE} 0.2178218
##
   [39]
       {toothed=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2178218
       {feathers=FALSE,domestic=FALSE} =>
                                            {aquatic=TRUE} 0.2871287
  [41] {backbone=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
        {tail=TRUE,catsize=FALSE}
##
   [42]
                                            {aquatic=TRUE} 0.1485149
       {feathers=FALSE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2376238
   [43]
   [44]
       {backbone=TRUE}
                                            {aquatic=TRUE} 0.2970297
   [45] {tail=TRUE}
                                            {aquatic=TRUE} 0.2574257
##
   Γ461
       {venomous=FALSE}
                                            {aquatic=TRUE} 0.3168317
##
   [47]
       {toothed=FALSE}
                                            {aquatic=TRUE} 0.1287129
##
   [48] {breathes=TRUE}
                                         => {aquatic=TRUE} 0.1584158
##
        confidence lift
##
   [1]
        1.0000000
                   2.8055556
##
   [2]
        1.0000000
                   2.8055556
                   2.8055556
##
   [3]
        1.0000000
##
   [4]
        1.0000000
                   2.8055556
   [5]
##
        0.9523810
                   2.6719577
##
   [6]
        0.8947368
                   2.5102339
##
  [7]
        0.8695652
                   2.4396135
## [8]
        0.8571429
                   2.4047619
```

```
[9]
        0.8500000
                    2.3847222
   [10] 0.8235294
                    2.3104575
   [11] 0.7894737
                    2.2149123
   [12] 0.7826087
                    2.1956522
   [13] 0.6969697
                    1.9553872
   [14] 0.6944444
                    1.9483025
   [15] 0.6842105
                    1.9195906
   [16] 0.6764706
                    1.8978758
   [17] 0.6756757
                    1.8956456
   [18] 0.6750000
                    1.8937500
   [19] 0.6578947
                    1.8457602
   [20] 0.6153846
                    1.7264957
   [21] 0.6071429
                    1.7033730
   [22] 0.6000000
                    1.6833333
   [23] 0.5909091
                    1.6578283
   [24] 0.5789474
                    1.6242690
   [25] 0.5740741
                    1.6105967
   [26] 0.5714286
                    1.6031746
   [27] 0.5714286
                    1.6031746
   [28] 0.5384615
                    1.5106838
##
   [29] 0.5384615
                    1.5106838
   [30] 0.5370370
                    1.5066872
                    1.5066872
   [31] 0.5370370
##
   [32] 0.5277778
                    1.4807099
   [33] 0.5272727
                    1.4792929
   [34] 0.5250000
                    1.4729167
   [35] 0.4500000
                    1.2625000
##
   [36] 0.4418605
                    1.2396641
   [37] 0.4411765
                    1.2377451
   [38] 0.4400000
                    1.2344444
   [39] 0.4230769
                    1.1869658
##
   [40] 0.4084507
                    1.1459311
   [41] 0.4084507
                    1.1459311
   [42]
        0.4054054
                    1.1373874
   [43]
        0.3809524
                    1.0687831
##
   [44] 0.3614458
                    1.0140562
   [45] 0.3466667
                    0.9725926
   [46] 0.3440860
                    0.9653524
   [47] 0.3250000
                    0.9118056
##
   [48] 0.2000000
                   0.5611111
##
        lhs
                                              support
                                                         confidence lift
##
   [1]
                          => {aquatic=FALSE} 0.1188119 0.9230769
        {domestic=TRUE}
                                                                    1.4343195
##
   [2]
        {hair=TRUE}
                          => {aquatic=FALSE} 0.3861386 0.9069767
                                                                     1.4093023
##
   [3]
                          => {aquatic=FALSE} 0.3564356 0.8571429
        {eggs=FALSE}
                                                                     1.3318681
   [4]
##
        {milk=TRUE}
                          => {aquatic=FALSE} 0.3465347 0.8536585
                                                                     1.3264540
   [5]
                          => {aquatic=FALSE} 0.3465347 0.8536585
##
        {type=mammal}
                                                                     1.3264540
##
   [6]
        {predator=FALSE}
                             {aquatic=FALSE} 0.3762376 0.8444444
                                                                     1.3121368
##
   [7]
        {fins=FALSE}
                          => {aquatic=FALSE} 0.6435644 0.7738095
                                                                     1.2023810
##
   [8]
        {toothed=FALSE}
                          => {aquatic=FALSE} 0.2673267 0.6750000
                                                                     1.0488462
##
   [9]
        {toothed=TRUE}
                          => {aquatic=FALSE} 0.3762376 0.6229508
                                                                     0.9679697
                                                                    0.9562130
##
   [10]
        {tail=FALSE}
                          => {aquatic=FALSE} 0.1584158 0.6153846
  [11] {domestic=FALSE}
                          => {aquatic=FALSE} 0.5247525 0.6022727
                                                                     0.9358392
## [12] {catsize=FALSE}
                          => {aquatic=FALSE} 0.3366337 0.5964912
                                                                    0.9268556
## [13] {eggs=TRUE}
                          => {aquatic=FALSE} 0.2871287 0.4915254
                                                                    0.7637549
```

```
##
                                         rhs
                                                        support
                                                                  confidence
   [1] {predator=TRUE,toothed=FALSE} => {aquatic=TRUE} 0.1089109 0.5789474
##
       lift
## [1] 1.624269
##
                                        rhs
                                                        support
                                                                  confidence
## [1] {hair=FALSE,toothed=TRUE}
                                     => {aquatic=TRUE} 0.1980198 0.8695652
## [2] {milk=FALSE,toothed=TRUE}
                                     => {aquatic=TRUE} 0.1782178 0.8571429
## [3] {eggs=TRUE,toothed=TRUE}
                                     => {aquatic=TRUE} 0.1683168 0.8500000
## [4] {toothed=TRUE,catsize=FALSE}
                                     => {aquatic=TRUE} 0.1386139 0.5384615
  [5] {toothed=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2178218 0.4230769
##
       lift
## [1] 2.439614
## [2] 2.404762
## [3] 2.384722
## [4] 1.510684
## [5] 1.186966
##
       lhs
                                                                    confidence
                                           rhs
                                                          support
## [1] {hair=FALSE,domestic=FALSE}
                                       => {aguatic=TRUE} 0.3069307 0.5740741
## [2] {predator=TRUE,domestic=FALSE}
                                       => {aquatic=TRUE} 0.2871287 0.5370370
## [3] {eggs=TRUE,domestic=FALSE}
                                       => {aquatic=TRUE} 0.2871287 0.5370370
## [4] {milk=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5272727
## [5] {airborne=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2970297 0.4411765
## [6] {domestic=FALSE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.2178218 0.4400000
## [7] {toothed=TRUE,domestic=FALSE}
                                       => {aquatic=TRUE} 0.2178218 0.4230769
## [8] {feathers=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.4084507
  [9] {backbone=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.4084507
##
       lift
## [1] 1.610597
## [2] 1.506687
## [3] 1.506687
## [4] 1.479293
## [5] 1.237745
## [6] 1.234444
## [7] 1.186966
## [8] 1.145931
## [9] 1.145931
##
                                                         support
                                                                   confidence
## [1] {predator=TRUE,catsize=FALSE} => {aquatic=TRUE} 0.1683168 0.6071429
## [2] {toothed=TRUE,catsize=FALSE}
                                      => {aquatic=TRUE} 0.1386139 0.5384615
## [3] {airborne=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.5277778
## [4] {backbone=TRUE,catsize=FALSE} => {aquatic=TRUE} 0.1782178 0.4500000
## [5] {feathers=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.4418605
## [6] {domestic=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.2178218 0.4400000
  [7] {tail=TRUE,catsize=FALSE}
##
                                      => {aquatic=TRUE} 0.1485149 0.4054054
       lift
## [1] 1.703373
## [2] 1.510684
## [3] 1.480710
## [4] 1.262500
## [5] 1.239664
## [6] 1.234444
## [7] 1.137387
##
       lhs
                                     rhs
                                                     support
                                                               confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                  => {aquatic=TRUE} 0.1683168 0.8500000
```

```
## [2] {eggs=TRUE,predator=TRUE} => {aquatic=TRUE} 0.2277228 0.6969697
  [3] {eggs=TRUE,airborne=FALSE} => {aquatic=TRUE} 0.2475248 0.6756757
  [4] {feathers=FALSE,eggs=TRUE} => {aquatic=TRUE} 0.2376238 0.6153846
  [5] {eggs=TRUE,backbone=TRUE} => {aquatic=TRUE} 0.2376238 0.5714286
                                  => {aquatic=TRUE} 0.2079208 0.5384615
   [6] {eggs=TRUE,tail=TRUE}
##
   [7] {eggs=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.5370370
##
       lift
## [1] 2.384722
##
   [2] 1.955387
  [3] 1.895646
  [4] 1.726496
##
  [5] 1.603175
##
   [6] 1.510684
  [7] 1.506687
##
  [1]
       "Número de reglas con consecuente negado"
##
                                           rhs
                                                        support
                                                                  confidence
##
                                        => {milk=FALSE} 0.1287129 1.0000000
  [1]
        {type=fish}
   [2]
                                        => {milk=FALSE} 0.1782178 1.0000000
        {backbone=FALSE}
   [3]
                                        => {milk=FALSE} 0.1980198 1.0000000
##
        {type=bird}
##
   [4]
        {feathers=TRUE}
                                        => {milk=FALSE} 0.1980198 1.0000000
##
   [5]
        {breathes=FALSE}
                                        => {milk=FALSE} 0.2079208 1.0000000
  [6]
        {legs=FALSE,catsize=FALSE}
                                        => {milk=FALSE} 0.1584158 1.0000000
                                        => {milk=FALSE} 0.1881188 1.0000000
  [7]
        {eggs=TRUE,legs=FALSE}
##
##
  [8]
        {hair=FALSE,airborne=TRUE}
                                           {milk=FALSE} 0.1782178 1.0000000
##
  [9]
        {hair=FALSE,tail=FALSE}
                                        => {milk=FALSE} 0.1584158 1.0000000
  [10] {aquatic=TRUE,catsize=FALSE}
                                        => {milk=FALSE} 0.2277228 1.0000000
                                        => {milk=FALSE} 0.3069307 1.0000000
  [11] {toothed=FALSE,catsize=FALSE}
## [12] {hair=FALSE,toothed=FALSE}
                                        => {milk=FALSE} 0.3465347 1.0000000
## [13] {hair=FALSE,predator=FALSE}
                                        => {milk=FALSE} 0.2178218 1.0000000
## [14] {hair=FALSE,catsize=FALSE}
                                        => {milk=FALSE} 0.4356436 1.0000000
  [15] {eggs=TRUE,catsize=FALSE}
                                           {milk=FALSE} 0.4554455 1.0000000
  [16] {hair=FALSE,eggs=TRUE}
                                        => {milk=FALSE} 0.5346535 1.0000000
  [17] {hair=FALSE,aquatic=FALSE}
                                        => {milk=FALSE} 0.2574257 1.0000000
                                        => {milk=FALSE} 0.3564356 1.0000000
  [18] {hair=FALSE,legs=TRUE}
       {hair=FALSE,fins=FALSE}
                                          {milk=FALSE} 0.4257426 1.0000000
   Г197
                                        => {milk=FALSE} 0.1980198 1.0000000
##
  [20] {eggs=TRUE,toothed=TRUE}
  [21] {eggs=TRUE,aquatic=FALSE}
                                        => {milk=FALSE} 0.2871287 1.0000000
                                        => {milk=FALSE} 0.5742574 0.9830508
## [22] {eggs=TRUE}
                                           {milk=FALSE} 0.5544554 0.9655172
  [23] {hair=FALSE}
                                        => {milk=FALSE} 0.2574257 0.9285714
  [24] {predator=TRUE,catsize=FALSE}
  [25] {airborne=TRUE}
                                        => {milk=FALSE} 0.2178218 0.9166667
                                        => {milk=FALSE} 0.1683168 0.8947368
  [26] {aquatic=TRUE,fins=FALSE}
## [27] {legs=FALSE}
                                        => {milk=FALSE} 0.1980198 0.8695652
                                       => {milk=FALSE} 0.4257426 0.8600000
## [28] {domestic=FALSE,catsize=FALSE}
## [29] {aquatic=TRUE}
                                        => {milk=FALSE} 0.2970297 0.8333333
                                        => {milk=FALSE} 0.1881188 0.8260870
  [30] {tail=FALSE,domestic=FALSE}
##
  [31] {tail=FALSE}
                                           {milk=FALSE} 0.1980198 0.7692308
  [32] {fins=TRUE}
                                        => {milk=FALSE} 0.1287129 0.7647059
  [33] {predator=TRUE}
                                        => {milk=FALSE} 0.3366337 0.6071429
  [34] {fins=FALSE}
                                        => {milk=FALSE} 0.4653465 0.5595238
## [35] {tail=TRUE}
                                        => {milk=FALSE} 0.3960396 0.5333333
## [36] {backbone=TRUE}
                                        => {milk=FALSE} 0.4158416 0.5060241
## [37] {aquatic=FALSE}
                                        => {milk=FALSE} 0.2970297 0.4615385
## [38] {toothed=TRUE}
                                        => {milk=FALSE} 0.2079208 0.3442623
```

```
##
        lift
        1.6833333
##
  Г17
   [2]
        1.6833333
  [3]
##
        1.6833333
   [4]
        1.6833333
  [5]
##
        1.6833333
  [6]
        1.6833333
## [7]
        1.6833333
##
  [8]
        1.6833333
##
  [9]
        1.6833333
## [10] 1.6833333
## [11] 1.6833333
## [12] 1.6833333
## [13] 1.6833333
## [14] 1.6833333
## [15] 1.6833333
## [16] 1.6833333
## [17] 1.6833333
## [18] 1.6833333
## [19] 1.6833333
## [20] 1.6833333
## [21] 1.6833333
## [22] 1.6548023
## [23] 1.6252874
## [24] 1.5630952
## [25] 1.5430556
## [26] 1.5061404
## [27] 1.4637681
## [28] 1.4476667
## [29] 1.4027778
## [30] 1.3905797
  [31] 1.2948718
## [32] 1.2872549
## [33] 1.0220238
  [34] 0.9418651
  [35] 0.8977778
## [36] 0.8518072
## [37] 0.7769231
##
  [38] 0.5795082
##
       lhs
                                        support
                                                  confidence lift
                            rhs
                        => {milk=TRUE} 0.3960396 0.6557377 1.615354
  [1] {toothed=TRUE}
   [2] {feathers=FALSE} => {milk=TRUE} 0.4059406 0.5061728 1.246914
   [3] {predator=TRUE} => {milk=TRUE} 0.2178218 0.3928571 0.967770
##
       lhs
                                                            confidence lift
                                    rhs
                                                 support
##
  [1] {eggs=TRUE,toothed=TRUE} => {milk=FALSE} 0.1980198 1
##
                                         rhs
                                                       support
                                                                 confidence
   [1] {predator=TRUE,catsize=FALSE} => {milk=FALSE} 0.2574257 0.9285714
##
##
       lift
  [1] 1.563095
##
   [1] "Número de reglas con consecuente negado"
##
                                            rhs
        lhs
                                                             support
        {breathes=TRUE,domestic=TRUE}
## [1]
                                         => {aquatic=FALSE} 0.1188119
## [2]
        {fins=FALSE,domestic=TRUE}
                                         => {aquatic=FALSE} 0.1188119
        {backbone=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.1089109
## [3]
```

```
[4]
        {milk=TRUE, predator=FALSE}
                                         => {aguatic=FALSE} 0.1881188
                                            {aquatic=FALSE} 0.1881188
##
   [5]
        {predator=FALSE, type=mammal}
        {eggs=FALSE,predator=FALSE}
                                            {aquatic=FALSE} 0.1881188
   [6]
        {hair=TRUE, predator=FALSE}
##
   [7]
                                            {aquatic=FALSE} 0.2277228
##
   [8]
        {hair=TRUE,catsize=FALSE}
                                            {aquatic=FALSE} 0.1287129
##
   [9]
        {hair=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.3861386
  [10] {eggs=FALSE,legs=TRUE}
                                            {aquatic=FALSE} 0.3564356
  [11] {eggs=FALSE,fins=FALSE}
                                            {aquatic=FALSE} 0.3564356
##
   [12] {milk=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.3465347
   [13] {fins=FALSE,type=mammal}
                                            {aquatic=FALSE} 0.3465347
  [14] {predator=FALSE,catsize=TRUE}
                                           {aquatic=FALSE} 0.1485149
   [15] {predator=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.3762376
   [16] {predator=FALSE,fins=FALSE}
                                            {aquatic=FALSE} 0.3762376
                                            {aquatic=FALSE} 0.1188119
  [17] {domestic=TRUE}
## [18] {predator=FALSE,legs=TRUE}
                                            {aquatic=FALSE} 0.3564356
        {hair=TRUE}
                                            {aquatic=FALSE} 0.3861386
   Г197
   [20]
       {eggs=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.3564356
   [21] {toothed=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.3762376
   [22] {fins=FALSE,catsize=TRUE}
                                            {aquatic=FALSE} 0.3069307
   [23] {eggs=FALSE}
                                            {aquatic=FALSE} 0.3564356
##
  [24] {toothed=TRUE,legs=TRUE}
                                            {aquatic=FALSE} 0.3564356
##
  [25] {milk=TRUE}
                                            {aquatic=FALSE} 0.3465347
                                            {aquatic=FALSE} 0.3465347
##
  [26] {type=mammal}
##
   [27] {feathers=FALSE,predator=FALSE} =>
                                            {aquatic=FALSE} 0.2871287
  [28] {predator=FALSE}
                                            {aquatic=FALSE} 0.3762376
  [29] {breathes=TRUE,fins=FALSE}
                                           {aquatic=FALSE} 0.6336634
   [30] {legs=TRUE,catsize=TRUE}
                                           {aquatic=FALSE} 0.3069307
##
   [31] {feathers=FALSE,breathes=TRUE}
                                           {aquatic=FALSE} 0.4950495
  [32] {fins=FALSE,tail=TRUE}
                                            {aquatic=FALSE} 0.4851485
  [33] {legs=TRUE,tail=TRUE}
                                            {aquatic=FALSE} 0.4653465
   [34] {breathes=TRUE,legs=TRUE}
                                            {aquatic=FALSE} 0.5940594
##
   [35]
        {breathes=TRUE,catsize=FALSE}
                                            {aquatic=FALSE} 0.3267327
       {airborne=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.4455446
   [37]
       {backbone=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.5247525
       {feathers=FALSE,fins=FALSE}
   [38]
                                            {aquatic=FALSE} 0.5049505
##
   [39] {feathers=FALSE,legs=TRUE}
                                            {aquatic=FALSE} 0.4554455
  [40] {venomous=FALSE,fins=FALSE}
                                            {aquatic=FALSE} 0.6039604
  [41] {fins=FALSE,legs=TRUE}
                                            {aquatic=FALSE} 0.5940594
  [42] {fins=FALSE}
                                            {aquatic=FALSE} 0.6435644
##
  [43] {toothed=FALSE,tail=TRUE}
                                            {aquatic=FALSE} 0.1584158
  [44] {toothed=FALSE,backbone=TRUE}
                                            {aquatic=FALSE} 0.1485149
   [45] {toothed=FALSE}
                                            {aquatic=FALSE} 0.2673267
##
   [46] {toothed=TRUE}
                                            {aquatic=FALSE} 0.3762376
##
  [47] {tail=FALSE}
                                            {aquatic=FALSE} 0.1584158
  [48] {domestic=FALSE}
                                           {aquatic=FALSE} 0.5247525
   [49]
       {catsize=FALSE}
                                           {aquatic=FALSE} 0.3366337
##
   [50]
       {eggs=TRUE}
                                           {aquatic=FALSE} 0.2871287
##
        confidence lift
##
  [1]
        1.0000000
                   1.5538462
##
   [2]
        1.0000000
                   1.5538462
   [3]
##
                   1.5538462
        1.0000000
##
  [4]
        1.0000000
                   1.5538462
##
  [5]
        1.0000000
                   1.5538462
## [6]
        1.0000000
                  1.5538462
```

```
[7]
        1.0000000
                    1.5538462
##
   [8]
        1.0000000
                    1.5538462
        0.9512195
   [9]
                    1.4780488
   [10] 0.9473684
                    1.4720648
   [11] 0.9473684
                    1.4720648
##
   [12] 0.9459459
                    1.4698545
   [13] 0.9459459
                    1.4698545
   [14] 0.9375000
                    1.4567308
   [15] 0.9268293
                    1.4401501
   [16] 0.9268293
                    1.4401501
   [17] 0.9230769
                    1.4343195
   [18] 0.9230769
                    1.4343195
   [19] 0.9069767
                    1.4093023
   [20] 0.8780488
                    1.3643527
   [21] 0.8636364
                    1.3419580
   [22]
        0.8611111
                    1.3380342
   [23] 0.8571429
                    1.3318681
   [24] 0.8571429
                    1.3318681
   [25] 0.8536585
                    1.3264540
   [26] 0.8536585
                    1.3264540
##
   [27] 0.8529412
                    1.3253394
   [28] 0.844444
                    1.3121368
   [29] 0.8421053
                    1.3085020
##
   [30] 0.8378378
                    1.3018711
   [31] 0.8333333
                    1.2948718
   [32] 0.8305085
                    1.2904824
   [33] 0.8245614
                    1.2812416
##
   [34] 0.8219178
                    1.2771338
   [35] 0.8048780
                    1.2506567
   [36] 0.8035714
                    1.2486264
   [37]
        0.8030303
                    1.2477855
##
   [38] 0.7968750
                    1.2382212
   [39] 0.7931034
                    1.2323607
   [40] 0.7922078
                    1.2309690
   [41] 0.7792208
                    1.2107892
                    1.2023810
##
   [42] 0.7738095
   [43] 0.6956522
                    1.0809365
   [44] 0.6818182
                    1.0594406
   [45] 0.6750000
                    1.0488462
##
   [46] 0.6229508
                    0.9679697
   [47] 0.6153846
                    0.9562130
   [48] 0.6022727
                    0.9358392
##
   [49] 0.5964912
                    0.9268556
##
   [50] 0.4915254
                    0.7637549
##
       lhs
                                            support
                                                       confidence lift
   [1] {type=fish}
                         => {aquatic=TRUE} 0.1287129 1.0000000
##
                                                                  2.8055556
##
   [2] {fins=TRUE}
                         => {aquatic=TRUE} 0.1683168 1.0000000
                                                                  2.8055556
                                                                  2.6719577
   [3] {breathes=FALSE} => {aquatic=TRUE} 0.1980198 0.9523810
   [4]
      {legs=FALSE}
                         => {aquatic=TRUE} 0.1782178 0.7826087
                                                                  2.1956522
   [5]
       {backbone=TRUE}
                         => {aquatic=TRUE} 0.2970297 0.3614458
                                                                  1.0140562
##
   [6]
      {tail=TRUE}
                         => {aquatic=TRUE} 0.2574257 0.3466667
                                                                  0.9725926
   [7] {venomous=FALSE} => {aquatic=TRUE} 0.3168317 0.3440860
                                                                  0.9653524
  [8] {toothed=FALSE}
                         => {aquatic=TRUE} 0.1287129 0.3250000
                                                                  0.9118056
## [9] {breathes=TRUE}
                         => {aquatic=TRUE} 0.1584158 0.2000000
                                                                  0.5611111
```

```
##
                                         rhs
                                                         support
                                                                    confidence
  [1] {backbone=TRUE,fins=FALSE}
                                      => {aquatic=FALSE} 0.5247525 0.8030303
   [2] {toothed=FALSE,backbone=TRUE} => {aquatic=FALSE} 0.1485149 0.6818182
##
       lift
##
  [1] 1.247786
   [2] 1.059441
##
##
       lhs
                                    rhs
                                                     support
                                                                confidence
  [1] {fins=FALSE,tail=TRUE}
##
                                  => {aquatic=FALSE} 0.4851485 0.8305085
   [2] {legs=TRUE,tail=TRUE}
                                  => {aquatic=FALSE} 0.4653465 0.8245614
##
   [3] {toothed=FALSE,tail=TRUE} => {aquatic=FALSE} 0.1584158 0.6956522
##
       lift
  [1] 1.290482
##
##
   [2] 1.281242
   [3] 1.080936
##
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
   [1] {venomous=FALSE,fins=FALSE} => {aquatic=FALSE} 0.6039604 0.7922078
##
##
       lift
##
   [1] 1.230969
##
       lhs
                                         rhs
                                                         support
                                                                    confidence
##
   [1] {toothed=FALSE,tail=TRUE}
                                      => {aquatic=FALSE} 0.1584158 0.6956522
##
   [2] {toothed=FALSE,backbone=TRUE} => {aquatic=FALSE} 0.1485149 0.6818182
##
## [1] 1.080936
   [2] 1.059441
##
##
       lhs
                                          rhs
                                                          support
                                                                     confidence
## [1] {breathes=TRUE,domestic=TRUE} => {aquatic=FALSE} 0.1188119 1.0000000
  [2] {backbone=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.1089109 1.0000000
  [3] {predator=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.3762376 0.9268293
## [4] {eggs=FALSE,breathes=TRUE}
                                       => {aquatic=FALSE} 0.3564356 0.8780488
## [5] {breathes=TRUE,fins=FALSE}
                                       => {aquatic=FALSE} 0.6336634 0.8421053
## [6] {feathers=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.4950495 0.8333333
  [7] {breathes=TRUE,legs=TRUE}
                                       => {aquatic=FALSE} 0.5940594 0.8219178
  [8] {breathes=TRUE,catsize=FALSE}
                                      => {aquatic=FALSE} 0.3267327 0.8048780
  [9] {airborne=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.4455446 0.8035714
       lift
##
## [1] 1.553846
## [2] 1.553846
## [3] 1.440150
## [4] 1.364353
## [5] 1.308502
## [6] 1.294872
## [7] 1.277134
##
  [8] 1.250657
  [9] 1.248626
##
  [1] "Número de reglas con consecuente negado"
##
                                         rhs
                                                         support
                                                                    confidence
## [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
  [2] {aquatic=FALSE,legs=TRUE}
                                      => {domestic=TRUE} 0.1188119 0.2000000
  [3] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
  [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
  [5] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
##
       lift
## [1] 1.612482
## [2] 1.553846
```

```
[3] 1.335337
   [4] 1.294872
   [5] 1.238573
##
        lhs
                             rhs
                                               support
                                                         confidence lift
##
   [1]
        {aquatic=TRUE}
                          => {domestic=FALSE} 0.3465347 0.9722222
                                                                    1.1158460
                          => {domestic=FALSE} 0.5346535 0.9642857
##
   [2]
        {predator=TRUE}
                                                                    1.1067370
##
  [3]
        {legs=FALSE}
                          => {domestic=FALSE} 0.2178218 0.9565217
                                                                    1.0978261
##
  [4]
        {breathes=FALSE} => {domestic=FALSE} 0.1980198 0.9523810
                                                                    1.0930736
##
   [5]
        {backbone=FALSE} =>
                             {domestic=FALSE} 0.1683168 0.9444444
                                                                    1.0839646
##
  [6]
        {fins=TRUE}
                          => {domestic=FALSE} 0.1584158 0.9411765
                                                                    1.0802139
  [7]
        {hair=FALSE}
                          => {domestic=FALSE} 0.5346535 0.9310345
                                                                    1.0685737
##
   [8]
        {type=fish}
                          => {domestic=FALSE} 0.1188119 0.9230769
                                                                    1.0594406
##
   [9]
                          => {domestic=FALSE} 0.5445545 0.9166667
        {milk=FALSE}
                                                                    1.0520833
  [10] {eggs=TRUE}
                          => {domestic=FALSE} 0.5346535 0.9152542
                                                                    1.0504622
                          => {domestic=FALSE} 0.3564356 0.9000000
## [11]
       {toothed=FALSE}
                                                                    1.0329545
        {airborne=FALSE}
                             {domestic=FALSE} 0.6732673 0.8831169
                                                                    1.0135773
                          => {domestic=FALSE} 0.4950495 0.8771930
  [13] {catsize=FALSE}
                                                                    1.0067783
  [14] {feathers=FALSE}
                         => {domestic=FALSE} 0.7029703 0.8765432
                                                                    1.0060325
                          => {domestic=FALSE} 0.3762376 0.8636364
  [15] {catsize=TRUE}
                                                                    0.9912190
  [16] {backbone=TRUE}
                          => {domestic=FALSE} 0.7029703 0.8554217
                                                                    0.9817908
##
  [17] {legs=TRUE}
                          => {domestic=FALSE} 0.6534653 0.8461538
                                                                    0.9711538
                          => {domestic=FALSE} 0.1980198 0.8333333
  [18] {airborne=TRUE}
                                                                    0.9564394
  [19] {eggs=FALSE}
                          => {domestic=FALSE} 0.3366337 0.8095238
                                                                    0.9291126
                             {domestic=FALSE} 0.3267327 0.8048780
##
   [20] {milk=TRUE}
                                                                    0.9237805
##
   [21] {type=mammal}
                          => {domestic=FALSE} 0.3267327 0.8048780
                                                                    0.9237805
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
   [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
##
   [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
   [3] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
##
   [4] {backbone=TRUE, breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
##
  [1] 1.612482
   [2] 1.335337
   [3] 1.294872
   [4]
       1.238573
##
##
       lhs
                                     rhs
                                                      support
                                                                confidence
  [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
##
       lift
  [1] 1.553846
##
   [2] 1.335337
##
   Г17
       "Número de reglas con consecuente negado"
##
                                                            support
##
  [1]
        {type=fish}
                                            {aquatic=TRUE} 0.1287129
##
  [2]
        {fins=TRUE}
                                            {aquatic=TRUE} 0.1683168
## [3]
        {breathes=FALSE,tail=TRUE}
                                            {aquatic=TRUE} 0.1386139
##
  [4]
        {backbone=TRUE, breathes=FALSE}
                                            {aquatic=TRUE} 0.1386139
##
  [5]
        {breathes=FALSE}
                                            {aquatic=TRUE} 0.1980198
  [6]
        {backbone=TRUE,legs=FALSE}
                                         => {aquatic=TRUE} 0.1683168
   [7]
        {hair=FALSE,toothed=TRUE}
                                            {aquatic=TRUE} 0.1980198
##
##
  [8]
        {milk=FALSE,toothed=TRUE}
                                         => {aquatic=TRUE} 0.1782178
        {eggs=TRUE, toothed=TRUE}
                                         => {aquatic=TRUE} 0.1683168
## [10] {predator=TRUE,legs=FALSE}
                                         => {aquatic=TRUE} 0.1386139
## [11] {venomous=FALSE,legs=FALSE}
                                         => {aquatic=TRUE} 0.1485149
```

```
## [12] {legs=FALSE}
                                         => {aguatic=TRUE} 0.1782178
   [13] {eggs=TRUE,predator=TRUE}
                                            {aquatic=TRUE} 0.2277228
  [14] {hair=FALSE,predator=TRUE}
                                            {aquatic=TRUE} 0.2475248
   [15] {hair=FALSE, feathers=FALSE}
                                            {aquatic=TRUE} 0.2574257
##
   [16] {milk=FALSE,predator=TRUE}
                                            {aquatic=TRUE} 0.2277228
  [17] {eggs=TRUE,airborne=FALSE}
                                            {aquatic=TRUE} 0.2475248
  [18] {hair=FALSE,airborne=FALSE}
                                            {aquatic=TRUE} 0.2673267
   [19] {milk=FALSE,airborne=FALSE}
                                            {aquatic=TRUE} 0.2475248
   [20] {feathers=FALSE,eggs=TRUE}
                                            {aquatic=TRUE} 0.2376238
   [21] {predator=TRUE, catsize=FALSE}
                                            {aquatic=TRUE} 0.1683168
   [22] {feathers=FALSE,milk=FALSE}
                                            {aquatic=TRUE} 0.2376238
   [23] {hair=FALSE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2574257
                                            {aquatic=TRUE} 0.1089109
       {predator=TRUE, toothed=FALSE}
  [24]
       {hair=FALSE,domestic=FALSE}
                                            {aquatic=TRUE} 0.3069307
  [26]
       {eggs=TRUE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2376238
        {milk=FALSE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2376238
   [27]
   [28]
        {toothed=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1386139
       {eggs=TRUE,tail=TRUE}
                                            {aquatic=TRUE} 0.2079208
   [29]
   [30] {predator=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
   [31] {eggs=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
##
   [32] {airborne=FALSE, catsize=FALSE}
                                         => {aquatic=TRUE} 0.1881188
       {milk=FALSE,domestic=FALSE}
  [33]
                                            {aquatic=TRUE} 0.2871287
  [34] {milk=FALSE,tail=TRUE}
                                            {aquatic=TRUE} 0.2079208
       {backbone=TRUE, catsize=FALSE}
##
   [35]
                                            {aquatic=TRUE} 0.1782178
   [36]
       {feathers=FALSE, catsize=FALSE}
                                            {aquatic=TRUE} 0.1881188
   [37]
       {airborne=FALSE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2970297
       {domestic=FALSE,catsize=FALSE}
   [38]
                                            {aquatic=TRUE} 0.2178218
   [39]
       {toothed=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2178218
  [40]
       {feathers=FALSE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
  [41] {backbone=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
        {tail=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1485149
   [43]
        {feathers=FALSE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2376238
   [44]
        {backbone=TRUE}
                                            {aquatic=TRUE} 0.2970297
   [45]
       {tail=TRUE}
                                            {aquatic=TRUE} 0.2574257
   Γ461
        {venomous=FALSE}
                                            {aquatic=TRUE} 0.3168317
##
   [47]
       {toothed=FALSE}
                                         => {aquatic=TRUE} 0.1287129
##
   Γ48]
       {breathes=TRUE}
                                            {aquatic=TRUE} 0.1584158
##
        confidence lift
##
   [1]
        1.0000000
                   2.8055556
##
   [2]
        1.0000000
                   2.8055556
   [3]
        1.0000000
                   2.8055556
   [4]
##
        1.0000000
                   2.8055556
##
   [5]
        0.9523810
                   2.6719577
##
   [6]
        0.8947368
                   2.5102339
##
  [7]
        0.8695652
                   2.4396135
  [8]
##
        0.8571429
                   2.4047619
##
   [9]
        0.8500000
                   2.3847222
   [10] 0.8235294
                   2.3104575
   [11]
        0.7894737
                   2.2149123
        0.7826087
                   2.1956522
   [12]
##
                   1.9553872
   Γ13]
       0.6969697
  [14] 0.6944444
                   1.9483025
## [15] 0.6842105
                   1.9195906
## [16] 0.6764706
                   1.8978758
```

```
## [17] 0.6756757
                    1.8956456
   [18] 0.6750000
                    1.8937500
   [19] 0.6578947
                    1.8457602
   [20] 0.6153846
                    1.7264957
   [21] 0.6071429
                    1.7033730
   [22] 0.6000000
                    1.6833333
   [23] 0.5909091
                    1.6578283
   [24] 0.5789474
                    1.6242690
   [25] 0.5740741
                    1.6105967
   [26] 0.5714286
                    1.6031746
   [27] 0.5714286
                    1.6031746
   [28] 0.5384615
                    1.5106838
   [29] 0.5384615
                    1.5106838
   [30] 0.5370370
                    1.5066872
   [31] 0.5370370
                    1.5066872
   [32]
        0.5277778
                    1.4807099
   [33] 0.5272727
                    1.4792929
   [34] 0.5250000
                    1.4729167
   [35] 0.4500000
                    1.2625000
                    1.2396641
   [36] 0.4418605
##
   [37] 0.4411765
                    1.2377451
   [38] 0.4400000
                    1.2344444
   [39] 0.4230769
                    1.1869658
   [40] 0.4084507
                    1.1459311
   [41] 0.4084507
                    1.1459311
   [42] 0.4054054
                    1.1373874
   [43]
        0.3809524
                    1.0687831
   [44] 0.3614458
                    1.0140562
   [45] 0.3466667
                    0.9725926
   [46] 0.3440860
                    0.9653524
   [47]
        0.3250000
                    0.9118056
##
   [48]
        0.2000000
                   0.5611111
##
        lhs
                                                         confidence lift
                                              support
##
   [1]
        {domestic=TRUE}
                          => {aquatic=FALSE} 0.1188119 0.9230769
                                                                    1.4343195
##
   [2]
        {hair=TRUE}
                          => {aguatic=FALSE} 0.3861386 0.9069767
                                                                    1.4093023
##
   [3]
        {eggs=FALSE}
                          => {aquatic=FALSE} 0.3564356 0.8571429
                                                                    1.3318681
##
   [4]
        {milk=TRUE}
                          => {aquatic=FALSE} 0.3465347 0.8536585
                                                                    1.3264540
   [5]
                          => {aquatic=FALSE} 0.3465347 0.8536585
                                                                    1.3264540
##
        {type=mammal}
   [6]
        {predator=FALSE}
                          => {aquatic=FALSE} 0.3762376 0.8444444
##
                                                                    1.3121368
                                                                    1.2023810
##
   [7]
        {fins=FALSE}
                          => {aquatic=FALSE} 0.6435644 0.7738095
                          => {aquatic=FALSE} 0.2673267 0.6750000
   [8]
        {toothed=FALSE}
                                                                    1.0488462
   [9]
                          => {aquatic=FALSE} 0.3762376 0.6229508
##
        {toothed=TRUE}
                                                                    0.9679697
   Γ10]
       {tail=FALSE}
                          => {aquatic=FALSE} 0.1584158 0.6153846
                                                                    0.9562130
                          => {aquatic=FALSE} 0.5247525 0.6022727
   [11] {domestic=FALSE}
                                                                    0.9358392
   [12] {catsize=FALSE}
                          => {aquatic=FALSE} 0.3366337 0.5964912
                                                                    0.9268556
                          => {aquatic=FALSE} 0.2871287 0.4915254
##
   [13] {eggs=TRUE}
                                                                    0.7637549
##
       lhs
                                          rhs
                                                          support
                                                                    confidence
   [1] {predator=TRUE,toothed=FALSE} => {aquatic=TRUE} 0.1089109 0.5789474
##
##
       lift
##
   [1] 1.624269
##
       lhs
                                          rhs
                                                          support
                                                                    confidence
  [1] {hair=FALSE,toothed=TRUE}
                                       => {aquatic=TRUE} 0.1980198 0.8695652
  [2] {milk=FALSE,toothed=TRUE}
                                       => {aquatic=TRUE} 0.1782178 0.8571429
## [3] {eggs=TRUE,toothed=TRUE}
                                       => {aquatic=TRUE} 0.1683168 0.8500000
```

```
## [4] {toothed=TRUE,catsize=FALSE} => {aquatic=TRUE} 0.1386139 0.5384615
   [5] {toothed=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2178218 0.4230769
##
       lift
  [1] 2.439614
##
##
   [2] 2.404762
  [3] 2.384722
##
  [4] 1.510684
##
  [5] 1.186966
##
       lhs
                                           rhs
                                                          support
                                                                     confidence
##
  [1] {hair=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.3069307 0.5740741
  [2] {predator=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
   [3] {eggs=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
  [4] {milk=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5272727
  [5] {airborne=FALSE,domestic=FALSE}
                                       => {aquatic=TRUE} 0.2970297 0.4411765
## [6] {domestic=FALSE,catsize=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4400000
   [7] {toothed=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4230769
   [8] {feathers=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.4084507
   [9] {backbone=TRUE,domestic=FALSE}
                                       => {aquatic=TRUE} 0.2871287 0.4084507
##
       lift
##
  [1] 1.610597
##
  [2] 1.506687
  [3] 1.506687
  [4] 1.479293
##
##
  [5] 1.237745
##
  [6] 1.234444
  [7] 1.186966
##
   [8] 1.145931
##
   [9] 1.145931
##
       lhs
                                          rhs
                                                         support
                                                                    confidence
                                      => {aquatic=TRUE} 0.1683168 0.6071429
  [1] {predator=TRUE,catsize=FALSE}
   [2] {toothed=TRUE,catsize=FALSE}
                                       =>
                                          {aquatic=TRUE} 0.1386139 0.5384615
  [3] {airborne=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.5277778
  [4] {backbone=TRUE, catsize=FALSE}
                                       => {aquatic=TRUE} 0.1782178 0.4500000
  [5] {feathers=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.4418605
   [6] {domestic=FALSE, catsize=FALSE} => {aquatic=TRUE} 0.2178218 0.4400000
##
   [7] {tail=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1485149 0.4054054
##
       lift
## [1] 1.703373
##
  [2] 1.510684
  [3] 1.480710
##
  [4] 1.262500
   [5] 1.239664
##
   [6] 1.234444
##
   [7] 1.137387
##
       lhs
                                                     support
                                                               confidence
##
  [1] {eggs=TRUE,toothed=TRUE}
                                  => {aquatic=TRUE} 0.1683168 0.8500000
##
   [2] {eggs=TRUE,predator=TRUE}
                                  => {aquatic=TRUE} 0.2277228 0.6969697
   [3] {eggs=TRUE,airborne=FALSE} => {aquatic=TRUE} 0.2475248 0.6756757
  [4] {feathers=FALSE,eggs=TRUE} => {aquatic=TRUE} 0.2376238 0.6153846
   [5] {eggs=TRUE,backbone=TRUE}
                                  => {aquatic=TRUE} 0.2376238 0.5714286
   [6] {eggs=TRUE,tail=TRUE}
                                  => {aquatic=TRUE} 0.2079208 0.5384615
   [7] {eggs=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.5370370
##
       lift
## [1] 2.384722
```

```
[2] 1.955387
  [3] 1.895646
  [4] 1.726496
##
   [5] 1.603175
##
   [6] 1.510684
##
   [7] 1.506687
##
       "Número de reglas con consecuente negado"
##
                                                        support
                                                                   confidence
##
  [1]
                                         => {fins=TRUE} 0.1287129 1.0000000
        {type=fish}
##
   [2]
        {toothed=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.9285714
   [3]
        {breathes=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.9285714
   [4]
##
        {backbone=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.9285714
        {aquatic=TRUE,legs=FALSE}
##
   [5]
                                           {fins=TRUE} 0.1584158 0.8888889
##
   [6]
        {toothed=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
   [7]
                                         => {fins=TRUE} 0.1584158 0.8421053
##
        {backbone=TRUE,legs=FALSE}
##
   [8]
        {legs=FALSE,tail=TRUE}
                                            {fins=TRUE} 0.1485149 0.8333333
##
   [9]
        {breathes=FALSE,legs=FALSE}
                                           {fins=TRUE} 0.1287129 0.8125000
   [10] {venomous=FALSE,legs=FALSE}
                                           {fins=TRUE} 0.1485149 0.7894737
  [11] {aquatic=TRUE, toothed=TRUE}
                                           {fins=TRUE} 0.1683168 0.7391304
  [12] {predator=TRUE,legs=FALSE}
                                            {fins=TRUE} 0.1188119 0.7058824
##
  [13] {breathes=FALSE, venomous=FALSE}
                                        => {fins=TRUE} 0.1188119 0.6666667
  [14] {hair=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1485149 0.6521739
                                           {fins=TRUE} 0.1287129 0.6500000
  [15] {aquatic=TRUE, breathes=FALSE}
##
   [16] {eggs=TRUE,toothed=TRUE}
                                            {fins=TRUE} 0.1287129 0.6500000
  [17] {breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.6190476
  [18] {milk=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.6190476
  [19] {aquatic=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.6153846
  [20] {feathers=FALSE,aquatic=TRUE}
                                           {fins=TRUE} 0.1683168 0.5666667
  [21] {aquatic=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
## [22] {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
  [23]
        {aquatic=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1584158 0.5000000
   [24]
        {hair=FALSE, feathers=FALSE}
                                           {fins=TRUE} 0.1485149 0.3947368
  [25] {hair=FALSE,airborne=FALSE}
                                           {fins=TRUE} 0.1485149 0.3750000
  [26] {hair=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1485149 0.3571429
   [27] {predator=TRUE, toothed=TRUE}
                                            {fins=TRUE} 0.1287129 0.3513514
##
  [28] {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
  [29] {milk=FALSE,airborne=FALSE}
                                           {fins=TRUE} 0.1287129 0.3421053
  [30] {hair=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1485149 0.3409091
  [31] {eggs=TRUE,tail=TRUE}
                                            {fins=TRUE} 0.1287129 0.3333333
##
  [32] {feathers=FALSE,eggs=TRUE}
                                           {fins=TRUE} 0.1287129 0.3333333
  [33] {milk=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.3250000
  [34] {feathers=FALSE,milk=FALSE}
                                           {fins=TRUE} 0.1287129 0.3250000
   [35] {eggs=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.3095238
                                         => {fins=TRUE} 0.1287129 0.3095238
  [36] {milk=FALSE,backbone=TRUE}
  [37] {toothed=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.3076923
                                           {fins=TRUE} 0.1584158 0.3076923
  [38] {toothed=TRUE,domestic=FALSE}
  [39]
       {hair=FALSE, predator=TRUE}
                                           {fins=TRUE} 0.1089109 0.3055556
  [40] {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
  [41] {airborne=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
  [42] {predator=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1188119 0.2857143
## [43] {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [44] {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [45] {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
## [46] {predator=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.2765957
```

```
## [47] {feathers=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2698413
  [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
                                         => {fins=TRUE} 0.1287129 0.2653061
  [49] {airborne=FALSE,predator=TRUE}
  [50] {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
  [51] {hair=FALSE,domestic=FALSE}
                                           {fins=TRUE} 0.1386139 0.2592593
##
  [52] {hair=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2586207
  [53] {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
  [54] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
   [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [57] {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
   [58] {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
   [59] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [60] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [61] {backbone=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2253521
        {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [63]
   [64] {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
   [65] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
   [66] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
## [1]
       5.941176
  [2]
##
       5.516807
   [3]
##
        5.516807
##
  [4]
        5.516807
  [5]
        5.281046
   [6]
##
        5.003096
##
   [7]
        5.003096
  [8]
##
        4.950980
## [9]
        4.827206
## [10] 4.690402
##
  [11] 4.391304
  [12] 4.193772
## [13] 3.960784
   [14] 3.874680
## [15] 3.861765
## [16] 3.861765
## [17] 3.677871
## [18] 3.677871
## [19] 3.656109
  [20] 3.366667
  [21] 3.366667
## [22] 3.258065
## [23] 2.970588
## [24] 2.345201
## [25] 2.227941
##
  [26] 2.121849
  [27] 2.087440
  [28] 2.087440
  [29] 2.032508
## [30] 2.025401
## [31] 1.980392
## [32] 1.980392
## [33] 1.930882
```

```
## [34] 1.930882
   [35] 1.838936
   [36] 1.838936
   [37] 1.828054
##
   [38] 1.828054
##
   [39] 1.815359
   [40] 1.728342
  [41] 1.711864
##
   [42] 1.697479
   [43] 1.667699
  [44] 1.667699
   [45] 1.643304
##
   [46] 1.643304
  [47] 1.603175
  [48] 1.599548
   [49] 1.576230
##
   [50] 1.553846
   [51] 1.540305
   [52] 1.536511
   [53] 1.425882
##
   [54] 1.397924
   [55] 1.383562
##
   [56] 1.371041
##
   [57] 1.371041
   [58] 1.345172
   [59] 1.338857
   [60] 1.338857
##
   [61] 1.338857
   [62] 1.320261
   [63] 1.302176
##
   [64] 1.296257
##
   [65] 1.284579
##
   [66]
       1.100218
##
        lhs
                             rhs
                                          support
                                                     confidence lift
##
   [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000
                                                                1.2023810
##
        {type=bird}
                          => {fins=FALSE} 0.1980198 1.0000000
   [2]
                                                                1.2023810
##
   [3]
        {feathers=TRUE}
                          => {fins=FALSE} 0.1980198 1.0000000
##
   [4]
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
                                                                1.2023810
   [5]
                          => {fins=FALSE} 0.3960396 1.0000000
##
        {toothed=FALSE}
                                                                1.2023810
   [6]
                          => {fins=FALSE} 0.7623762 0.9871795
##
        {legs=TRUE}
                                                                1.1869658
                          => {fins=FALSE} 0.4059406 0.9534884
   [7]
        {hair=TRUE}
                                                                1.1464563
   [8]
                          => {fins=FALSE} 0.7524752 0.9500000
##
        {breathes=TRUE}
                                                                1.1422619
##
   [9]
        {domestic=TRUE}
                          => {fins=FALSE} 0.1188119 0.9230769
                                                                1.1098901
                         => {fins=FALSE} 0.4059406 0.9111111
   [10]
       {predator=FALSE}
                                                                1.0955026
  [11] {eggs=FALSE}
                          => {fins=FALSE} 0.3762376 0.9047619
                                                                1.0878685
                          => {fins=FALSE} 0.3663366 0.9024390
##
   [12]
       {milk=TRUE}
                                                                1.0850755
                                                                1.0850755
##
   [13] {type=mammal}
                             {fins=FALSE} 0.3663366 0.9024390
   [14] {catsize=FALSE}
                          => {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
   [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
   [16] {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                0.9837662
        {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
##
   [17]
                                                                0.9837662
## [18] {backbone=TRUE}
                          => {fins=FALSE} 0.6534653 0.7951807
                                                                0.9561102
## [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
## [20] {tail=TRUE}
                          => {fins=FALSE} 0.5841584 0.7866667
                                                                0.9458730
```

```
## [21] {eggs=TRUE}
                         => {fins=FALSE} 0.4554455 0.7796610 0.9374496
  [22] {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                               0.9369202
  [23] {predator=TRUE}
                         => {fins=FALSE} 0.4257426 0.7678571
  [24] {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
                                                                0.8914204
  [25] {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115
                                                                0.8672912
##
   [26] {aquatic=TRUE}
                         => {fins=FALSE} 0.1881188 0.5277778 0.6345899
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
## [1]
        {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
##
   [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
##
  [3]
        {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
  [4]
        {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
  [5]
##
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
##
   [6]
        {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
##
  [7]
        {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
## [8]
                                         => {fins=TRUE} 0.1188119 0.2264151
        {eggs=TRUE, venomous=FALSE}
  [9]
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
##
  [1]
        4.690402
##
  [2]
        3.960784
  [3]
        2.970588
## [4]
        1.667699
##
  [5]
        1.599548
##
  [6]
        1.425882
  [7]
        1.371041
   [8]
##
        1.345172
##
   [9]
        1.338857
##
  [10] 1.302176
## [11] 1.100218
##
       lhs
                                                        support
                                                                  confidence
## [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
  [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
## [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
   [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
## [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
## [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
## [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
  [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
  [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
       lift
## [1] 1.828054
## [2] 1.540305
## [3] 1.397924
## [4] 1.371041
## [5] 1.338857
## [6] 1.338857
## [7] 1.320261
  [8] 1.296257
##
  [9] 1.100218
##
                                           rhs
                                                        support
                                                                  confidence
## [1]
        {backbone=TRUE, breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
## [2]
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
## [3]
        {aquatic=TRUE, backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
```

```
## [4]
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
##
                                        => {fins=TRUE} 0.1287129 0.3095238
  [5]
        {eggs=TRUE,backbone=TRUE}
        {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
  [6]
  [7]
        {predator=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
##
##
   [8]
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
##
  [9]
  [10] {backbone=TRUE.domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [11] {backbone=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
        lift
##
  [1]
        5.516807
  [2]
        5.003096
   [3]
##
        3.366667
##
   [4]
        2.025401
##
  [5]
        1.838936
  [6]
##
        1.838936
##
   [7]
        1.643304
  [8]
##
        1.603175
  [9]
        1.553846
##
  [10] 1.338857
##
   [11] 1.284579
##
        lhs
                                                                    confidence
                                            rhs
                                                         support
## [1]
        {feathers=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
  [2]
                                         => {fins=TRUE} 0.1485149 0.3947368
##
        {hair=FALSE,feathers=FALSE}
##
  [3]
        {feathers=FALSE,eggs=TRUE}
                                            {fins=TRUE} 0.1287129 0.3333333
##
  [4]
        {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
  [5]
        {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
   [6]
        {feathers=FALSE, predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
##
##
  [7]
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
  [8]
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
  [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
        lift
##
  [1]
        3.366667
  [2]
        2.345201
##
   [3]
        1.980392
##
   [4]
##
        1.930882
##
  [5]
        1.728342
##
  [6]
        1.643304
  [7]
##
        1.603175
  [8]
##
        1.383562
  [9]
        1.338857
   [10]
##
       1.302176
##
        lhs
                                       rhs
                                                    support
                                                              confidence
##
  [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
## [2]
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.8333333
## [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
##
  [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
##
  [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
##
  [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
##
  [7]
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
        {feathers=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
##
  [8]
        {predator=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1188119 0.2857143
## [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
## [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
```

```
## [12] {backbone=TRUE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
        lift
## [1]
        5.516807
## [2]
        4.950980
##
  [3]
        3.656109
  [4]
##
        2.121849
  [5]
        1.980392
## [6]
        1.930882
##
  [7]
        1.828054
## [8]
        1.728342
## [9]
        1.697479
## [10] 1.667699
## [11] 1.371041
## [12] 1.284579
##
       lhs
                                      rhs
                                                   support
                                                             confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {fins=TRUE} 0.1287129 0.6500000
  [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
  [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
## [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
## [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
## [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
       lift.
## [1] 3.861765
## [2] 2.087440
## [3] 1.980392
## [4] 1.980392
## [5] 1.838936
## [6] 1.345172
## [7] 1.320261
##
        lhs
                                                         support
                                                                   confidence
## [1]
        {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
## [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [3]
                                         => {fins=TRUE} 0.1287129 0.3513514
        {eggs=TRUE,airborne=FALSE}
   [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
                                         => {fins=TRUE} 0.1683168 0.2881356
##
  [5]
        {airborne=FALSE, toothed=TRUE}
## [6]
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [7]
        {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
## [8]
        {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [9]
## [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
##
        lift
## [1]
        3.258065
## [2]
        2.227941
## [3]
        2.087440
## [4]
        2.032508
## [5]
        1.711864
##
  [6]
        1.667699
##
  [7]
        1.576230
## [8]
        1.553846
## [9]
        1.397924
## [10] 1.383562
## [11] 1.338857
```

```
##
                                                      support
                                                                confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
  [2] {predator=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
## [3] {hair=FALSE,predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
## [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
##
  [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
## [4] 1.697479
## [5] 1.643304
## [6] 1.643304
## [7] 1.576230
## [8] 1.425882
##
       lhs
                                       rhs
                                                   support
                                                             confidence
## [1] {hair=FALSE,toothed=TRUE}
                                   => {fins=TRUE} 0.1485149 0.6521739
## [2] {hair=FALSE,feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
## [4] {hair=FALSE,tail=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3571429
## [5] {hair=FALSE,backbone=TRUE} => {fins=TRUE} 0.1485149 0.3409091
## [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
## [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
  [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
       lift
## [1] 3.874680
## [2] 2.345201
## [3] 2.227941
## [4] 2.121849
## [5] 2.025401
## [6] 1.815359
  [7] 1.599548
##
  [8] 1.540305
##
                                                      support
                                                                confidence
## [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
## [2]
                                       => {fins=TRUE} 0.1683168 0.7391304
## [3]
        {aquatic=TRUE, toothed=TRUE}
## [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
  [5]
        {eggs=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
##
##
  [6]
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
## [7]
        {predator=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1287129 0.3513514
## [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
## [9]
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
## [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
## [11] {toothed=TRUE,venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
        lift.
## [1]
       5.516807
## [2]
       5.003096
## [3]
        4.391304
## [4]
       3.874680
## [5]
       3.861765
```

```
[6]
        3.677871
##
   [7]
        2.087440
   [8]
        1.828054
   [9]
##
        1.828054
##
   [10] 1.711864
##
   [11] 1.667699
##
       lhs
                                                                confidence
                                         rhs
                                                      support
##
  [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
   [2] {aquatic=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
   [3] {aquatic=TRUE, breathes=FALSE}
                                      => {fins=TRUE} 0.1287129 0.6500000
   [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
   [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
   [6] {aquatic=TRUE,backbone=TRUE}
                                     => {fins=TRUE} 0.1683168 0.5666667
   [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
   [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
##
       lift
##
  [1] 5.281046
   [2] 4.391304
   [3] 3.861765
   [4] 3.656109
##
   [5] 3.366667
  [6] 3.366667
##
   [7] 3.258065
##
   [8] 2.970588
##
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                               support
                                                         confidence lift
##
   [1]
        {milk=TRUE}
                             {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
##
   [2]
        {type=mammal}
                             {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
   [3]
##
        {catsize=TRUE}
                             {venomous=FALSE} 0.4257426 0.9772727
                                                                    1.0613392
##
  [4]
                             {venomous=FALSE} 0.4257426 0.9555556
        {predator=FALSE}
                         =>
                                                                    1.0377539
##
   [5]
        {hair=TRUE}
                             {venomous=FALSE} 0.4059406 0.9534884
                                                                    1.0355089
##
   [6]
        {eggs=FALSE}
                             {venomous=FALSE} 0.3960396 0.9523810
                                                                    1.0343062
##
   [7]
        {backbone=TRUE}
                             {venomous=FALSE} 0.7821782 0.9518072
                                                                    1.0336831
   [8]
##
                             {venomous=FALSE} 0.7326733 0.9487179
        {legs=TRUE}
                                                                    1.0303281
   [9]
        {tail=TRUE}
                             {venomous=FALSE} 0.7029703 0.9466667
##
                                                                    1.0281004
##
  [10] {fins=TRUE}
                          => {venomous=FALSE} 0.1584158 0.9411765
                                                                    1.0221379
  [11] {aquatic=FALSE}
                             {venomous=FALSE} 0.6039604 0.9384615
                                                                    1.0191894
                             {venomous=FALSE} 0.7425743 0.9375000
  [12] {breathes=TRUE}
                                                                    1.0181452
                             {venomous=FALSE} 0.5643564 0.9344262
   [13]
       {toothed=TRUE}
                                                                    1.0148070
##
  [14] {domestic=TRUE}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
  [15] {type=fish}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
                             {venomous=FALSE} 0.7029703 0.9220779
   [16] {airborne=FALSE}
                                                                    1.0013965
   [17] {domestic=FALSE}
                             {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
  [18] {feathers=FALSE}
                             {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
  [19] {toothed=FALSE}
                          => {venomous=FALSE} 0.3564356 0.9000000
                                                                    0.9774194
  [20]
       {eggs=TRUE}
                          => {venomous=FALSE} 0.5247525 0.8983051
                                                                    0.9755786
##
   [21] {hair=FALSE}
                             {venomous=FALSE} 0.5148515 0.8965517
                                                                    0.9736745
  [22] {predator=TRUE}
                             {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
  [23] {catsize=FALSE}
                          => {venomous=FALSE} 0.4950495 0.8771930
                                                                    0.9526504
   [24] {milk=FALSE}
                             {venomous=FALSE} 0.5148515 0.8666667
                                                                    0.9412186
##
  [25]
       {breathes=FALSE}
                         => {venomous=FALSE} 0.1782178 0.8571429
                                                                    0.9308756
  [26] {legs=FALSE}
                          => {venomous=FALSE} 0.1881188 0.8260870
## [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
## [1] "Número de reglas con consecuente negado"
```

```
##
                                                        support
                                                                  confidence
##
        {type=fish}
                                         => {fins=TRUE} 0.1287129 1.0000000
  [1]
##
   [2]
        {toothed=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.9285714
   [3]
        {breathes=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.9285714
##
##
   [4]
        {backbone=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.9285714
##
   [5]
        {aquatic=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8888889
##
   [6]
        {toothed=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
        {backbone=TRUE,legs=FALSE}
##
  [7]
                                           {fins=TRUE} 0.1584158 0.8421053
##
   [8]
        {legs=FALSE,tail=TRUE}
                                            {fins=TRUE} 0.1485149 0.8333333
##
   [9]
        {breathes=FALSE,legs=FALSE}
                                           {fins=TRUE} 0.1287129 0.8125000
  [10] {venomous=FALSE,legs=FALSE}
                                           {fins=TRUE} 0.1485149 0.7894737
                                           {fins=TRUE} 0.1683168 0.7391304
   [11] {aquatic=TRUE, toothed=TRUE}
  [12] {predator=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1188119 0.7058824
  [13] {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
                                         => {fins=TRUE} 0.1485149 0.6521739
## [14] {hair=FALSE,toothed=TRUE}
       {aquatic=TRUE, breathes=FALSE}
                                            {fins=TRUE} 0.1287129 0.6500000
   Γ15]
       {eggs=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6500000
  [16]
  [17] {breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6190476
                                         => {fins=TRUE} 0.1287129 0.6190476
  [18] {milk=FALSE,toothed=TRUE}
  [19] {aquatic=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.6153846
## [20] {feathers=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
## [21] {aquatic=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
                                         => {fins=TRUE} 0.1683168 0.5483871
  [22] {airborne=FALSE,aquatic=TRUE}
  [23] {aquatic=TRUE, venomous=FALSE}
                                            {fins=TRUE} 0.1584158 0.5000000
  [24] {hair=FALSE, feathers=FALSE}
                                           {fins=TRUE} 0.1485149 0.3947368
  [25] {hair=FALSE,airborne=FALSE}
                                           {fins=TRUE} 0.1485149 0.3750000
  [26] {hair=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1485149 0.3571429
  [27] {predator=TRUE, toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.3513514
## [28] {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [29] {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
  [30] {hair=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1485149 0.3409091
##
   [31] {eggs=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.3333333
   [32] {feathers=FALSE,eggs=TRUE}
                                           {fins=TRUE} 0.1287129 0.3333333
  [33] {milk=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.3250000
   [34]
       {feathers=FALSE,milk=FALSE}
                                            {fins=TRUE} 0.1287129 0.3250000
##
  [35] {eggs=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [36] {milk=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [37] {toothed=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.3076923
       {toothed=TRUE,domestic=FALSE}
                                            {fins=TRUE} 0.1584158 0.3076923
  [38]
  [39] {hair=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1089109 0.3055556
  [40] {feathers=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.2909091
  [41] {airborne=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1683168 0.2881356
## [42] {predator=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1188119 0.2857143
## [43] {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [44] {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
                                         => {fins=TRUE} 0.1287129 0.2765957
## [45] {feathers=FALSE,predator=TRUE}
  [46] {predator=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
  [47] {feathers=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2698413
## [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
  [49] {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
## [50] {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
## [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
## [52] {hair=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2586207
## [53] {predator=TRUE, venomous=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2400000
```

```
## [54] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
                                         => {fins=TRUE} 0.1188119 0.2307692
  [56] {milk=FALSE, venomous=FALSE}
  [57] {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
##
  [58] {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
  [59] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [60] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [61] {backbone=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2253521
   [62] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
   [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [64] {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
   [65] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
##
   [66]
       {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
## [1]
        5.941176
##
  [2]
        5.516807
  [3]
##
        5.516807
  [4]
        5.516807
  [5]
##
        5.281046
##
   [6]
        5.003096
##
  [7]
        5.003096
  [8]
        4.950980
##
## [9]
        4.827206
## [10] 4.690402
## [11] 4.391304
## [12] 4.193772
## [13] 3.960784
## [14] 3.874680
## [15] 3.861765
## [16] 3.861765
## [17] 3.677871
## [18] 3.677871
## [19] 3.656109
## [20] 3.366667
  [21] 3.366667
## [22] 3.258065
## [23] 2.970588
## [24] 2.345201
## [25] 2.227941
## [26] 2.121849
  [27] 2.087440
  [28] 2.087440
## [29] 2.032508
##
  [30] 2.025401
## [31] 1.980392
## [32] 1.980392
## [33] 1.930882
  [34] 1.930882
## [35] 1.838936
## [36] 1.838936
## [37] 1.828054
## [38] 1.828054
## [39] 1.815359
## [40] 1.728342
```

```
## [41] 1.711864
   [42] 1.697479
   [43] 1.667699
   [44] 1.667699
   [45] 1.643304
##
   [46] 1.643304
   [47] 1.603175
  [48] 1.599548
   [49] 1.576230
   [50] 1.553846
   [51] 1.540305
   [52] 1.536511
##
   [53] 1.425882
##
   [54] 1.397924
   [55] 1.383562
   [56] 1.371041
##
   [57] 1.371041
   [58] 1.345172
   [59] 1.338857
   [60] 1.338857
##
   [61] 1.338857
   [62] 1.320261
##
   [63] 1.302176
##
   [64] 1.296257
   [65] 1.284579
##
   [66]
       1.100218
##
                                                     confidence lift
        lhs
                             rhs
                                          support
##
   [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000
                                                               1.2023810
##
   [2]
                          => {fins=FALSE} 0.1980198 1.0000000
        {type=bird}
                                                                1.2023810
##
   [3]
        {feathers=TRUE}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
   [4]
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
                                                                1.2023810
##
   [5]
        {toothed=FALSE}
                          => {fins=FALSE} 0.3960396 1.0000000
                                                                1.2023810
##
   [6]
        {legs=TRUE}
                          => {fins=FALSE} 0.7623762 0.9871795
                                                                1.1869658
   [7]
##
        {hair=TRUE}
                          => {fins=FALSE} 0.4059406 0.9534884
                                                                1.1464563
   [8]
        {breathes=TRUE}
                          => {fins=FALSE} 0.7524752 0.9500000
##
                                                                1.1422619
##
   [9]
        {domestic=TRUE}
                          => {fins=FALSE} 0.1188119 0.9230769
                                                                1.1098901
   [10] {predator=FALSE}
                         => {fins=FALSE} 0.4059406 0.9111111
                                                                1.0955026
                          => {fins=FALSE} 0.3762376 0.9047619
  [11] {eggs=FALSE}
                                                                1.0878685
   [12] {milk=TRUE}
                          => {fins=FALSE} 0.3663366 0.9024390
##
                                                                1.0850755
                          => {fins=FALSE} 0.3663366 0.9024390
   [13] {type=mammal}
                                                                1.0850755
   [14] {catsize=FALSE}
                          => {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
   [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
   [16] {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                0.9837662
       {domestic=FALSE}
                         => {fins=FALSE} 0.7128713 0.8181818
   Г17]
                                                                0.9837662
  [18] {backbone=TRUE}
                          => {fins=FALSE} 0.6534653 0.7951807
                                                                0.9561102
       {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
  [19]
                                                                0.9500294
##
   [20] {tail=TRUE}
                          => {fins=FALSE} 0.5841584 0.7866667
                                                                0.9458730
   [21] {eggs=TRUE}
                          => {fins=FALSE} 0.4554455 0.7796610
                                                                0.9374496
   [22] {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                0.9369202
   [23] {predator=TRUE}
                          => {fins=FALSE} 0.4257426 0.7678571
                                                                0.9232568
                          => {fins=FALSE} 0.4257426 0.7413793
##
   [24] {hair=FALSE}
                                                                0.8914204
  [25] {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115
                                                                0.8672912
##
  [26] {aquatic=TRUE}
                          => {fins=FALSE} 0.1881188 0.5277778
                                                                0.6345899
##
        lhs
                                                         support
                                             rhs
                                                                    confidence
```

```
{venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
##
  [2]
                                            {fins=TRUE} 0.1188119 0.6666667
        {breathes=FALSE, venomous=FALSE} =>
        {aquatic=TRUE, venomous=FALSE}
##
  [3]
                                         => {fins=TRUE} 0.1584158 0.5000000
  [4]
        {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
##
   [5]
        {hair=FALSE, venomous=FALSE}
                                            {fins=TRUE} 0.1386139 0.2692308
        {predator=TRUE, venomous=FALSE}
##
   [6]
                                         => {fins=TRUE} 0.1188119 0.2400000
##
   [7]
        {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
##
   [8]
        {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
##
   [9]
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
       {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
##
  [1]
        4.690402
##
   [2]
        3.960784
  [3]
##
        2.970588
##
   [4]
        1.667699
   [5]
##
        1.599548
   [6]
        1.425882
##
##
   [7]
        1.371041
##
   [8]
        1.345172
##
   [9]
        1.338857
##
  [10] 1.302176
## [11] 1.100218
##
                                                        support
                                                                  confidence
                                            rhs
## [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
  [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
   [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
  [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
## [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
   [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
   [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
##
   [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
       lift
   [1] 1.828054
##
   [2] 1.540305
  [3] 1.397924
  [4] 1.371041
##
##
   [5] 1.338857
##
  [6] 1.338857
  [7] 1.320261
   [8] 1.296257
##
##
   [9] 1.100218
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
## [1]
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
  [2]
##
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
##
   [3]
        {aquatic=TRUE, backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
##
  [4]
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
##
   [5]
        {eggs=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
##
   [6]
        {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
##
   [7]
        {predator=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
  [8]
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
## [9]
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
## [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
```

```
## [11] {backbone=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
        lift.
## [1]
        5.516807
  [2]
##
        5.003096
   [3]
        3.366667
  [4]
##
        2.025401
  [5]
        1.838936
## [6]
        1.838936
##
   [7]
        1.643304
##
  [8]
        1.603175
  [9]
        1.553846
##
   [10]
       1.338857
##
   [11]
       1.284579
##
        lhs
                                                         support
                                                                    confidence
## [1]
        {feathers=FALSE, aquatic=TRUE}
                                          => {fins=TRUE} 0.1683168 0.5666667
## [2]
        {hair=FALSE, feathers=FALSE}
                                          => {fins=TRUE} 0.1485149 0.3947368
  [3]
                                         => {fins=TRUE} 0.1287129 0.3333333
##
        {feathers=FALSE,eggs=TRUE}
  [4]
        {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
        {feathers=FALSE,tail=TRUE}
   [5]
                                         => {fins=TRUE} 0.1584158 0.2909091
   [6]
        {feathers=FALSE, predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
##
  [7]
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [9]
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
##
        lift
## [1]
        3.366667
   [2]
        2.345201
##
##
   [3]
        1.980392
##
  [4]
        1.930882
##
  [5]
        1.728342
##
  [6]
        1.643304
##
   [7]
        1.603175
##
   [8]
        1.383562
   [9]
##
        1.338857
##
   [10]
        1.302176
##
        lhs
                                       rhs
                                                    support
                                                              confidence
## [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
## [2]
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.8333333
  [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
##
  [4]
                                    => {fins=TRUE} 0.1485149 0.3571429
##
        {hair=FALSE,tail=TRUE}
  [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
   [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
##
##
   [7]
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
##
  [8]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
        {predator=TRUE, tail=TRUE} => {fins=TRUE} 0.1188119 0.2857143
## [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
   [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
   [12] {backbone=TRUE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
##
        lift
## [1]
        5.516807
##
   [2]
        4.950980
## [3]
        3.656109
## [4]
        2.121849
## [5]
        1.980392
```

```
[6]
        1.930882
##
   [7]
        1.828054
  [8]
        1.728342
  [9]
##
        1.697479
##
   [10] 1.667699
##
  [11] 1.371041
##
  [12] 1.284579
##
       lhs
                                      rhs
                                                   support
                                                             confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {fins=TRUE} 0.1287129 0.6500000
   [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
  [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
   [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
   [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
   [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
  [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
       lift
## [1] 3.861765
  [2] 2.087440
  [3] 1.980392
   [4] 1.980392
##
  [5] 1.838936
  [6] 1.345172
  [7] 1.320261
##
##
        lhs
                                                         support
                                                                   confidence
                                            rhs
##
  [1]
        {airborne=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
  [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
   [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
##
##
   [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
##
  [5]
        {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
  [6]
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
  [7]
        {airborne=FALSE, predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
##
  [8]
        {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
   [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
        {airborne=FALSE,venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
   [11]
##
        lift
##
  [1]
        3.258065
##
  [2]
        2.227941
   [3]
##
        2.087440
  [4]
##
        2.032508
  [5]
        1.711864
   [6]
##
        1.667699
##
   [7]
        1.576230
##
  [8]
        1.553846
  [9]
        1.397924
  [10] 1.383562
##
   [11] 1.338857
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
   [2] {predator=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
## [3] {hair=FALSE,predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
## [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE,backbone=TRUE}
                                       => {fins=TRUE} 0.1287129 0.2765957
```

```
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
  [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
       lift
##
## [1] 4.193772
##
  [2] 2.087440
  [3] 1.815359
##
  [4] 1.697479
## [5] 1.643304
  [6] 1.643304
##
  [7] 1.576230
  [8] 1.425882
##
       lhs
                                                   support
                                                              confidence
## [1] {hair=FALSE,toothed=TRUE}
                                    => {fins=TRUE} 0.1485149 0.6521739
## [2] {hair=FALSE,feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
## [4] {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
## [5] {hair=FALSE,backbone=TRUE} => {fins=TRUE} 0.1485149 0.3409091
## [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
## [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
  [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
       lift
## [1] 3.874680
## [2] 2.345201
## [3] 2.227941
## [4] 2.121849
## [5] 2.025401
  [6] 1.815359
##
  [7] 1.599548
  [8] 1.540305
##
##
        lhs
                                          rhs
                                                      support
                                                                 confidence
## [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
##
  [2]
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
  [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
  [4]
##
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
   [5]
        {eggs=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
##
                                       => {fins=TRUE} 0.1287129 0.6190476
##
  [6]
        {milk=FALSE,toothed=TRUE}
  [7]
        {predator=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
## [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
  [9]
  [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
  [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
        lift
## [1]
        5.516807
##
  [2]
        5.003096
## [3]
        4.391304
## [4]
        3.874680
##
  [5]
        3.861765
##
  [6]
        3.677871
##
  [7]
        2.087440
##
   [8]
        1.828054
##
  [9]
        1.828054
## [10] 1.711864
## [11] 1.667699
##
       lhs
                                                     support
                                                                confidence
                                         rhs
```

```
## [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
  [2] {aquatic=TRUE,toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
  [3] {aquatic=TRUE, breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
  [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
##
   [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
   [6] {aquatic=TRUE,backbone=TRUE}
                                     => {fins=TRUE} 0.1683168 0.5666667
   [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
   [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
##
  [1] 5.281046
   [2] 4.391304
   [3] 3.861765
##
   [4] 3.656109
   [5] 3.366667
##
  [6] 3.366667
##
   [7] 3.258065
##
##
   [8] 2.970588
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                              support
##
   [1]
        {toothed=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
   [2]
        {feathers=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
   [3]
        {eggs=TRUE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
  [4]
##
        {milk=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
   [5]
        {hair=FALSE.tail=FALSE}
                                            {backbone=FALSE} 0.1287129
##
   [6]
        {tail=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
   [7]
        {tail=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
   [8]
                                            {backbone=FALSE} 0.1089109
##
        {aquatic=FALSE,tail=FALSE}
   [9]
        {fins=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
  [10] {airborne=FALSE,toothed=FALSE}
                                           {backbone=FALSE} 0.1188119
  [11] {toothed=FALSE,catsize=FALSE}
                                           {backbone=FALSE} 0.1683168
  [12]
       {toothed=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
  [13]
       {milk=FALSE,toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
  [14] {toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
  [15] {feathers=FALSE,milk=FALSE}
                                            {backbone=FALSE} 0.1782178
   [16] {feathers=FALSE,eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
  [17] {milk=FALSE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
  [18] {feathers=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
  [19] {milk=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
  [20] {eggs=TRUE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1089109
##
  [21] {eggs=TRUE,fins=FALSE}
                                            {backbone=FALSE} 0.1683168
  [22] {hair=FALSE, feathers=FALSE}
                                            {backbone=FALSE} 0.1386139
  [23] {milk=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
  [24] {fins=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
                                            {backbone=FALSE} 0.1188119
  [25] {aquatic=FALSE,catsize=FALSE}
  [26] {milk=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
  [27]
        {eggs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
  [28]
       {hair=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1386139
  [29]
       {eggs=TRUE,legs=TRUE}
                                            {backbone=FALSE} 0.1287129
  [30] {domestic=FALSE,catsize=FALSE}
                                           {backbone=FALSE} 0.1584158
   [31] {legs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1287129
##
  [32] {milk=FALSE,airborne=FALSE}
                                            {backbone=FALSE} 0.1188119
## [33] {milk=FALSE,domestic=FALSE}
                                           {backbone=FALSE} 0.1683168
## [34] {airborne=FALSE,catsize=FALSE}
                                           {backbone=FALSE} 0.1089109
## [35] {eggs=TRUE,airborne=FALSE}
                                           {backbone=FALSE} 0.1089109
```

```
## [36] {eggs=TRUE,domestic=FALSE}
                                          => {backbone=FALSE} 0.1584158
##
   [37] {eggs=TRUE}
                                             {backbone=FALSE} 0.1683168
                                             {backbone=FALSE} 0.1782178
   [38] {feathers=FALSE,fins=FALSE}
   [39] {hair=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1386139
   [40] {feathers=FALSE,legs=TRUE}
                                             {backbone=FALSE} 0.1386139
   [41] {feathers=FALSE,domestic=FALSE} =>
                                             {backbone=FALSE} 0.1683168
  [42] {fins=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
   [43] {feathers=FALSE, aquatic=FALSE}
                                             {backbone=FALSE} 0.1188119
   [44]
       {aquatic=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1089109
   [45]
       {legs=TRUE,domestic=FALSE}
                                            {backbone=FALSE} 0.1287129
   [46]
       {aquatic=FALSE}
                                          => {backbone=FALSE} 0.1188119
##
        confidence lift
##
   [1]
        1.0000000
                   5.611111
##
   [2]
        0.9000000
                   5.050000
   [3]
##
        0.8500000
                    4.769444
##
   [4]
        0.8500000
                    4.769444
   [5]
##
        0.8125000
                    4.559028
   [6]
        0.8000000
                    4.488889
   [7]
##
        0.6956522
                   3.903382
   [8]
        0.6875000
                   3.857639
##
   [9]
        0.6800000
                   3.815556
  [10] 0.6666667
                    3.740741
   [11] 0.5483871
                    3.077061
   [12] 0.4722222
                    2.649691
   [13] 0.4615385
                   2.589744
   [14] 0.4500000
                    2.525000
   [15] 0.4500000
                    2.525000
   [16] 0.4358974
                    2.445869
   [17] 0.4000000
                    2.244444
  [18] 0.3953488
                    2.218346
   [19] 0.3829787
                    2.148936
   [20] 0.3793103
                    2.128352
   [21] 0.3695652
                    2.073671
   [22] 0.3684211
                    2.067251
   [23]
        0.3541667
                    1.987269
##
   [24] 0.3541667
                    1.987269
   [25] 0.3529412
                    1.980392
  [26] 0.3500000
                    1.963889
   [27] 0.3478261
                    1.951691
   [28] 0.3255814
                    1.826873
   [29] 0.3250000
                    1.823611
   [30] 0.3200000
                    1.795556
   [31] 0.3170732
                    1.779133
   [32] 0.3157895
                    1.771930
  [33] 0.3090909
                    1.734343
   [34] 0.3055556
                    1.714506
                    1.668168
##
   [35] 0.2972973
   [36] 0.2962963
                    1.662551
   [37]
        0.2881356
                    1.616761
   [38]
        0.2812500
                    1.578125
##
   [39]
        0.2592593
                    1.454733
## [40] 0.2413793
                    1.354406
## [41] 0.2394366
                    1.343505
## [42] 0.2361111
                   1.324846
```

```
## [43] 0.2352941
                   1.320261
  [44] 0.2075472
                   1.164570
  [45] 0.1969697
                   1.105219
   [46] 0.1846154
                   1.035897
##
##
        lhs
                                             support
                                                        confidence lift
##
  [1]
                          => {backbone=TRUE} 0.1287129 1.0000000
                                                                  1.2168675
        {type=fish}
##
  [2]
        {fins=TRUE}
                          => {backbone=TRUE} 0.1683168 1.0000000
                                                                   1.2168675
##
  [3]
        {type=bird}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                   1.2168675
##
   [4]
        {feathers=TRUE}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                   1.2168675
##
  [5]
        {milk=TRUE}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                   1.2168675
  [6]
        {type=mammal}
                          => {backbone=TRUE} 0.4059406 1.0000000
                                                                   1.2168675
   [7]
##
        {toothed=TRUE}
                             {backbone=TRUE} 0.6039604 1.0000000
                                                                   1.2168675
##
   [8]
        {tail=TRUE}
                          => {backbone=TRUE} 0.7326733 0.9866667
                                                                   1.2006426
                         => {backbone=TRUE} 0.4257426 0.9772727
##
  [9]
        {catsize=TRUE}
                                                                   1.1892114
                         => {backbone=TRUE} 0.1188119 0.9230769
## [10] {domestic=TRUE}
                                                                   1.1232623
  [11]
        {breathes=TRUE}
                             {backbone=TRUE} 0.6831683 0.8625000
                                                                   1.0495482
##
       {legs=FALSE}
                          => {backbone=TRUE} 0.1881188 0.8260870
  [12]
                                                                   1.0052383
  [13] {legs=TRUE}
                          => {backbone=TRUE} 0.6336634 0.8205128
                                                                   0.9984554
                          => {backbone=TRUE} 0.5247525 0.8153846
  [14] {aquatic=FALSE}
                                                                   0.9922150
  [15] {predator=FALSE}
                         =>
                             {backbone=TRUE} 0.3564356 0.8000000
                                                                   0.9734940
##
  [16] {feathers=FALSE} => {backbone=TRUE} 0.6237624 0.7777778
                                                                   0.9464525
                          => {backbone=TRUE} 0.1782178 0.7500000
  [17] {airborne=TRUE}
                                                                   0.9126506
                          => {backbone=TRUE} 0.4158416 0.7118644
  [18] {eggs=TRUE}
                                                                   0.8662446
##
   [19] {catsize=FALSE}
                             {backbone=TRUE} 0.3960396 0.7017544
                                                                   0.8539421
  [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                   0.8112450
   [21] {toothed=FALSE} => {backbone=TRUE} 0.2178218 0.5500000
                                                                   0.6692771
##
       lhs
                                      rhs
                                                        support
                                                                  confidence
##
  [1] {milk=FALSE,legs=TRUE}
                                      {backbone=FALSE} 0.1386139 0.3500000
   [2] {eggs=TRUE,legs=TRUE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
   [3] {legs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1287129 0.3170732
   [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
##
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
       lift
  [1] 1.963889
##
   [2] 1.823611
##
   [3] 1.779133
  [4] 1.354406
##
  [5] 1.105219
##
       lhs
                                                            support
##
  [1] {aquatic=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1089109
  [2] {milk=FALSE,aquatic=FALSE}
                                       => {backbone=FALSE} 0.1188119
   [3] {eggs=TRUE,aquatic=FALSE}
                                       => {backbone=FALSE} 0.1089109
   [4] {aquatic=FALSE, catsize=FALSE}
                                       => {backbone=FALSE} 0.1188119
   [5] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
##
   [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
##
       confidence lift
##
  [1] 0.6875000
                  3.857639
   [2] 0.4000000
                  2.244444
   [3] 0.3793103
                  2.128352
   [4] 0.3529412
                  1.980392
##
   [5] 0.2352941
                  1.320261
##
   [6] 0.2075472
                  1.164570
##
       lhs
                                           rhs
                                                             support
## [1] {feathers=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1782178
```

```
## [2] {feathers=FALSE,milk=FALSE}
                                        => {backbone=FALSE} 0.1782178
  [3] {feathers=FALSE,eggs=TRUE}
                                        => {backbone=FALSE} 0.1683168
                                        => {backbone=FALSE} 0.1683168
  [4] {feathers=FALSE, catsize=FALSE}
## [5] {hair=FALSE,feathers=FALSE}
                                        => {backbone=FALSE} 0.1386139
  [6] {feathers=FALSE,fins=FALSE}
                                        => {backbone=FALSE} 0.1782178
  [7] {feathers=FALSE,legs=TRUE}
                                        => {backbone=FALSE} 0.1386139
  [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
  [9] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
##
       confidence lift
## [1] 0.9000000 5.050000
  [2] 0.4500000
                  2.525000
  [3] 0.4358974
                  2.445869
  [4] 0.3953488
                  2.218346
## [5] 0.3684211
                  2.067251
## [6] 0.2812500
                  1.578125
   [7] 0.2413793
                  1.354406
  [8] 0.2394366
                  1.343505
  [9] 0.2352941
                  1.320261
##
       lhs
                                      rhs
                                                       support
                                                                  confidence
## [1] {eggs=TRUE,tail=FALSE}
                                   => {backbone=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE} => {backbone=FALSE} 0.1683168 0.4358974
## [3] {eggs=TRUE,aquatic=FALSE}
                                   => {backbone=FALSE} 0.1089109 0.3793103
                                   => {backbone=FALSE} 0.1683168 0.3695652
## [4] {eggs=TRUE,fins=FALSE}
## [5] {eggs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1584158 0.3478261
  [6] {eggs=TRUE,legs=TRUE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
  [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
   [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
       lift
## [1] 4.769444
## [2] 2.445869
## [3] 2.128352
##
  [4] 2.073671
  [5] 1.951691
  [6] 1.823611
      1.668168
   [7]
   [8] 1.662551
##
##
        lhs
                                           rhs
                                                             support
## [1]
        {tail=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
        {toothed=FALSE,catsize=FALSE}
  [2]
                                        => {backbone=FALSE} 0.1683168
##
  [3]
        {feathers=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1683168
  [4]
        {milk=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
        {fins=FALSE,catsize=FALSE}
##
  [5]
                                        => {backbone=FALSE} 0.1683168
##
   [6]
        {aquatic=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1188119
##
  [7]
        {eggs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
##
  [8]
        {domestic=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1584158
        {legs=TRUE,catsize=FALSE}
  [9]
                                        => {backbone=FALSE} 0.1287129
##
##
   [10] {airborne=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1089109
##
        confidence lift
##
  [1]
        0.8000000 4.488889
##
   [2]
        0.5483871
                   3.077061
  [3]
##
        0.3953488
                   2.218346
## [4]
        0.3541667
                   1.987269
## [5]
        0.3541667
                   1.987269
## [6]
        0.3529412 1.980392
```

```
[7]
        0.3478261
                   1.951691
   [8]
        0.3200000
                   1.795556
       0.3170732
  [9]
                   1.779133
   [10] 0.3055556
##
                   1.714506
##
                                                           support
## [1] {toothed=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1683168
  [2] {feathers=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1782178
  [3] {airborne=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1188119
  [4] {toothed=FALSE,catsize=FALSE}
                                         {backbone=FALSE} 0.1683168
   [5] {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
   [6] {milk=FALSE, toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
##
       confidence lift
## [1] 1.0000000
                  5.611111
  [2] 0.9000000
                  5.050000
  [3] 0.6666667
                  3.740741
   [4] 0.5483871
                  3.077061
   [5] 0.4722222
                  2.649691
   [6] 0.4615385
                  2.589744
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                        support
                                                                   confidence
##
  [1]
        {type=fish}
                                         => {fins=TRUE} 0.1287129 1.0000000
  [2]
        {toothed=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
  [3]
                                         => {fins=TRUE} 0.1287129 0.9285714
##
        {breathes=FALSE,tail=TRUE}
##
   [4]
        {backbone=TRUE, breathes=FALSE}
                                            {fins=TRUE} 0.1287129 0.9285714
##
  [5]
        {aquatic=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8888889
  [6]
        {toothed=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1584158 0.8421053
   [7]
                                           {fins=TRUE} 0.1584158 0.8421053
##
        {backbone=TRUE,legs=FALSE}
##
   [8]
        {legs=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.8333333
##
  [9]
        {breathes=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1287129 0.8125000
  [10] {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
  [11] {aquatic=TRUE, toothed=TRUE}
                                           {fins=TRUE} 0.1683168 0.7391304
  [12] {predator=TRUE,legs=FALSE}
                                            {fins=TRUE} 0.1188119 0.7058824
  [13] {breathes=FALSE, venomous=FALSE} =>
                                           {fins=TRUE} 0.1188119 0.6666667
                                         => {fins=TRUE} 0.1485149 0.6521739
  [14] {hair=FALSE,toothed=TRUE}
   [15] {aquatic=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.6500000
  [16] {eggs=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6500000
  [17] {breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6190476
## [18] {milk=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6190476
## [19] {aquatic=TRUE,tail=TRUE}
                                            {fins=TRUE} 0.1584158 0.6153846
  [20] {feathers=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
  [21] {aquatic=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
  [22] {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
## [23] {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
                                         => {fins=TRUE} 0.1485149 0.3947368
## [24] {hair=FALSE,feathers=FALSE}
## [25] {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
                                           {fins=TRUE} 0.1485149 0.3571429
## [26] {hair=FALSE,tail=TRUE}
## [27] {predator=TRUE, toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.3513514
  [28] {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
  [29] {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
  [30] {hair=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1485149 0.3409091
##
  [31] {eggs=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
## [32] {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
## [33] {milk=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3250000
## [34] {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
```

```
## [35] {eggs=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
                                         => {fins=TRUE} 0.1287129 0.3095238
   [36] {milk=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1584158 0.3076923
  [37] {toothed=TRUE,tail=TRUE}
  [38] {toothed=TRUE,domestic=FALSE}
                                           {fins=TRUE} 0.1584158 0.3076923
##
  [39] {hair=FALSE,predator=TRUE}
                                            {fins=TRUE} 0.1089109 0.3055556
  [40] {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
  [41] {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
## [42] {predator=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1188119 0.2857143
  [43] {toothed=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1584158 0.2807018
  [44] {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
  [45] {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
   [46] {predator=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.2765957
  [47] {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
                                         => {fins=TRUE} 0.1386139 0.2692308
## [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1287129 0.2653061
## [49] {airborne=FALSE,predator=TRUE}
       {airborne=FALSE,backbone=TRUE}
                                            {fins=TRUE} 0.1683168 0.2615385
                                         => {fins=TRUE} 0.1386139 0.2592593
##
   [51]
       {hair=FALSE,domestic=FALSE}
   [52] {hair=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2586207
  [53] {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
   [54] {airborne=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2352941
##
  [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [57] {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
       {eggs=TRUE, venomous=FALSE}
##
   [58]
                                            {fins=TRUE} 0.1188119 0.2264151
   [59]
       {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [60] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [61] {backbone=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2253521
##
   [62] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
   [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [64] {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
   [65]
       {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
##
   [66]
       {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
##
   [1]
        5.941176
##
   [2]
        5.516807
   [3]
##
       5.516807
##
  [4]
        5.516807
  [5]
##
        5.281046
   [6]
##
        5.003096
##
  [7]
        5.003096
  [8]
        4.950980
   [9]
##
        4.827206
##
   [10] 4.690402
##
  [11] 4.391304
## [12] 4.193772
## [13] 3.960784
##
  [14] 3.874680
  [15] 3.861765
  [16] 3.861765
  [17] 3.677871
## [18] 3.677871
## [19] 3.656109
## [20] 3.366667
## [21] 3.366667
```

```
## [22] 3.258065
   [23] 2.970588
   [24] 2.345201
   [25] 2.227941
##
   [26] 2.121849
   [27] 2.087440
##
   [28] 2.087440
  [29] 2.032508
   [30] 2.025401
   [31] 1.980392
   [32] 1.980392
   [33] 1.930882
##
   [34] 1.930882
   [35] 1.838936
   [36] 1.838936
   [37] 1.828054
   [38] 1.828054
##
   [39] 1.815359
  [40] 1.728342
   [41] 1.711864
## [42] 1.697479
  [43] 1.667699
## [44] 1.667699
   [45] 1.643304
##
  [46] 1.643304
  [47] 1.603175
  [48] 1.599548
##
   [49] 1.576230
  [50] 1.553846
   [51] 1.540305
   [52] 1.536511
##
   [53] 1.425882
   [54] 1.397924
   [55] 1.383562
   [56] 1.371041
##
   [57] 1.371041
   [58] 1.345172
   [59] 1.338857
##
   [60] 1.338857
   [61] 1.338857
##
   [62] 1.320261
   [63] 1.302176
##
   [64] 1.296257
##
   [65] 1.284579
##
   [66] 1.100218
##
        lhs
                             rhs
                                          support
                                                     confidence lift
##
   [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000 1.2023810
   [2]
                          => {fins=FALSE} 0.1980198 1.0000000
        {type=bird}
                                                                1.2023810
##
   [3]
        {feathers=TRUE}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
   [4]
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
                                                                1.2023810
##
   [5]
                          => {fins=FALSE} 0.3960396 1.0000000
        {toothed=FALSE}
                                                                1.2023810
##
   [6]
        {legs=TRUE}
                          => {fins=FALSE} 0.7623762 0.9871795
## [7]
        {hair=TRUE}
                          => {fins=FALSE} 0.4059406 0.9534884
                                                                1.1464563
## [8]
        {breathes=TRUE}
                         => {fins=FALSE} 0.7524752 0.9500000
```

```
{domestic=TRUE} => {fins=FALSE} 0.1188119 0.9230769
                                                                1.1098901
  [10] {predator=FALSE} => {fins=FALSE} 0.4059406 0.9111111
                                                                1.0955026
  [11] {eggs=FALSE}
                          => {fins=FALSE} 0.3762376 0.9047619
                          => {fins=FALSE} 0.3663366 0.9024390
  [12] {milk=TRUE}
                                                                1.0850755
##
  [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
  [14] {catsize=FALSE}
                         => {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
  [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
  [16] {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                0.9837662
  [17] {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                0.9837662
  [18] {backbone=TRUE}
                         => {fins=FALSE} 0.6534653 0.7951807
                                                                0.9561102
## [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
                         => {fins=FALSE} 0.5841584 0.7866667
  [20] {tail=TRUE}
                                                                0.9458730
## [21] {eggs=TRUE}
                          => {fins=FALSE} 0.4554455 0.7796610
                                                                0.9374496
       {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                0.9369202
                         => {fins=FALSE} 0.4257426 0.7678571
## [23] {predator=TRUE}
                                                                0.9232568
        {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
   [24]
                                                                0.8914204
                          => {fins=FALSE} 0.4356436 0.7213115
##
   [25]
        {toothed=TRUE}
                                                                0.8672912
   [26]
        {aquatic=TRUE}
                          => {fins=FALSE} 0.1881188 0.5277778
                                                                0.6345899
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
   [1]
        {venomous=FALSE,legs=FALSE}
                                            {fins=TRUE} 0.1485149 0.7894737
##
   [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
        {aquatic=TRUE, venomous=FALSE}
##
  [3]
                                         => {fins=TRUE} 0.1584158 0.5000000
  [4]
                                         => {fins=TRUE} 0.1584158 0.2807018
##
        {toothed=TRUE, venomous=FALSE}
##
   [5]
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
##
   [6]
        {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
   [7]
        {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
        {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
##
   [8]
##
   [9]
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
   [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
##
  [1]
        4.690402
##
   [2]
        3.960784
   [3]
##
        2.970588
   [4]
##
        1.667699
##
   [5]
        1.599548
##
   [6]
        1.425882
  [7]
        1.371041
##
  [8]
##
        1.345172
##
  [9]
        1.338857
  [10] 1.302176
##
   [11] 1.100218
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
  [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
##
  [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
## [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
  [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
   [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
   [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
##
   [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
       lift
## [1] 1.828054
```

```
## [2] 1.540305
   [3] 1.397924
   [4] 1.371041
  [5] 1.338857
   [6] 1.338857
##
   [7] 1.320261
   [8] 1.296257
##
   [9] 1.100218
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
   [1]
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
   [3]
##
        {aquatic=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
##
   [4]
        {hair=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3409091
        {eggs=TRUE,backbone=TRUE}
##
   [5]
                                         => {fins=TRUE} 0.1287129 0.3095238
   [6]
##
        {milk=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
##
   [7]
        {predator=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
##
   [8]
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
   [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [11] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
##
        lift
##
  [1]
        5.516807
   [2]
        5.003096
##
   [3]
##
        3.366667
##
   [4]
        2.025401
   [5]
        1.838936
   [6]
##
        1.838936
##
   [7]
        1.643304
   [8]
##
        1.603175
##
   [9]
        1.553846
##
   [10] 1.338857
##
   [11] 1.284579
##
        lhs
                                                          support
                                                                    confidence
##
   [1]
        {feathers=FALSE, aquatic=TRUE}
                                          => {fins=TRUE} 0.1683168 0.5666667
##
   [2]
        {hair=FALSE, feathers=FALSE}
                                          => {fins=TRUE} 0.1485149 0.3947368
##
   [3]
        {feathers=FALSE,eggs=TRUE}
                                          => {fins=TRUE} 0.1287129 0.3333333
   [4]
        {feathers=FALSE,milk=FALSE}
                                          => {fins=TRUE} 0.1287129 0.3250000
   [5]
        {feathers=FALSE,tail=TRUE}
                                          => {fins=TRUE} 0.1584158 0.2909091
##
   [6]
        {feathers=FALSE,predator=TRUE}
                                          =>
                                            {fins=TRUE} 0.1287129 0.2765957
##
                                         => {fins=TRUE} 0.1683168 0.2698413
##
   [7]
        {feathers=FALSE,backbone=TRUE}
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
   Γ10]
##
        lift
## [1]
        3.366667
   [2]
        2.345201
##
##
   [3]
        1.980392
##
   [4]
        1.930882
##
   [5]
        1.728342
##
   [6]
        1.643304
   [7]
        1.603175
##
## [8]
        1.383562
## [9]
        1.338857
## [10] 1.302176
```

```
##
        lhs
                                                   support
                                                              confidence
##
  [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
        {legs=FALSE,tail=TRUE}
   [2]
                                    => {fins=TRUE} 0.1485149 0.8333333
  [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
##
##
   [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
##
   [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
  [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
##
  [7]
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
##
  [8]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
##
  [9]
        {predator=TRUE, tail=TRUE} => {fins=TRUE} 0.1188119 0.2857143
  [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
   [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
       {backbone=TRUE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
##
        lift
## [1]
        5.516807
##
  [2]
        4.950980
   [3]
##
        3.656109
  [4]
##
        2.121849
  [5]
##
        1.980392
##
   [6]
        1.930882
##
  [7]
        1.828054
  [8]
##
        1.728342
## [9]
        1.697479
  [10] 1.667699
  [11] 1.371041
  [12] 1.284579
##
       lhs
                                      rhs
                                                   support
                                                             confidence
##
  [1] {eggs=TRUE,toothed=TRUE}
                                   => {fins=TRUE} 0.1287129 0.6500000
  [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
## [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
  [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
   [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
   [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
##
       lift
## [1] 3.861765
## [2] 2.087440
## [3] 1.980392
  [4] 1.980392
##
  [5] 1.838936
  [6] 1.345172
  [7] 1.320261
##
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
        {airborne=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
  [1]
## [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [3]
                                         => {fins=TRUE} 0.1287129 0.3513514
        {eggs=TRUE,airborne=FALSE}
##
  [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
##
  [5]
        {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
  [6]
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
  [7]
        {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
                                         => {fins=TRUE} 0.1683168 0.2615385
##
  [8]
        {airborne=FALSE,backbone=TRUE}
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
## [11] {airborne=FALSE,venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
```

```
##
        lift
##
        3.258065
  [1]
   [2]
        2.227941
  [3]
        2.087440
##
##
   [4]
        2.032508
##
   [5]
        1.711864
##
  [6]
        1.667699
  [7]
##
        1.576230
##
   [8]
        1.553846
##
  [9]
        1.397924
  [10] 1.383562
##
   [11] 1.338857
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
                                       => {fins=TRUE} 0.1287129 0.3513514
## [2] {predator=TRUE,toothed=TRUE}
  [3] {hair=FALSE,predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
  [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
  [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
  [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
  [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
##
   [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift.
## [1] 4.193772
   [2] 2.087440
##
## [3] 1.815359
  [4] 1.697479
  [5] 1.643304
##
   [6] 1.643304
##
  [7] 1.576230
## [8] 1.425882
##
       lhs
                                                    support
                                                              confidence
## [1] {hair=FALSE,toothed=TRUE}
                                    => {fins=TRUE} 0.1485149 0.6521739
  [2] {hair=FALSE, feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
   [4] {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
## [5] {hair=FALSE,backbone=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3409091
  [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
## [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
  [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
##
       lift.
## [1] 3.874680
  [2] 2.345201
##
  [3] 2.227941
##
  [4] 2.121849
## [5] 2.025401
## [6] 1.815359
##
  [7] 1.599548
##
  [8] 1.540305
##
        lhs
                                                       support
                                                                 confidence
                                          rhs
##
  [1]
        {toothed=TRUE,breathes=FALSE} =>
                                          {fins=TRUE} 0.1287129 0.9285714
##
  [2]
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
  [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
## [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
## [5]
        {eggs=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
```

```
{milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
                                      => {fins=TRUE} 0.1287129 0.3513514
  [7]
        {predator=TRUE,toothed=TRUE}
  [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
  [9]
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
##
  [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
   [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
        lift
## [1]
        5.516807
##
  [2]
        5.003096
  [3]
##
        4.391304
  [4]
        3.874680
  [5]
##
        3.861765
##
   [6]
        3.677871
##
  [7]
        2.087440
## [8]
        1.828054
##
  [9]
        1.828054
##
  [10] 1.711864
  [11] 1.667699
##
       lhs
                                         rhs
                                                     support
                                                                confidence
## [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
## [2] {aquatic=TRUE,toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
## [3] {aquatic=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
                                      => {fins=TRUE} 0.1584158 0.6153846
## [4] {aquatic=TRUE,tail=TRUE}
## [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [6] {aquatic=TRUE, backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
   [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
## [1] 5.281046
## [2] 4.391304
## [3] 3.861765
##
  [4] 3.656109
## [5] 3.366667
## [6] 3.366667
      3.258065
   [7]
##
  [8] 2.970588
  [1] "Número de reglas con consecuente negado"
##
                                                             support
                                         => {feathers=TRUE} 0.1980198
##
  [1]
        {type=bird}
##
  [2]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [3]
        {hair=FALSE,airborne=TRUE}
                                         => {feathers=TRUE} 0.1584158
  [4]
        {airborne=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1584158
##
##
  [5]
        {airborne=TRUE, backbone=TRUE}
                                         => {feathers=TRUE} 0.1584158
##
  [6]
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [7]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
## [8]
                                         => {feathers=TRUE} 0.1584158
        {eggs=TRUE,airborne=TRUE}
## [9]
        {milk=FALSE,airborne=TRUE}
                                         => {feathers=TRUE} 0.1584158
## [10] {airborne=TRUE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1584158
                                         => {feathers=TRUE} 0.1980198
## [11] {toothed=FALSE,breathes=TRUE}
## [12] {hair=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [13] {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [14] {toothed=FALSE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [15] {hair=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [16] {hair=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
```

```
## [17] {hair=FALSE,aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
  [18] {predator=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1089109
  [19] {aquatic=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1386139
  [20] {eggs=TRUE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
  [21] {milk=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
##
  [22] {eggs=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
  [23] {eggs=TRUE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
  [24] {milk=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
   [25]
       {hair=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [26] {eggs=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [27] {milk=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
   [28] {milk=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
       {eggs=TRUE,aquatic=FALSE}
   [29]
                                            {feathers=TRUE} 0.1386139
  [30]
       {hair=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
   [31] {eggs=TRUE,backbone=TRUE}
        {milk=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [33]
       {milk=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
       {hair=FALSE,fins=FALSE}
                                           {feathers=TRUE} 0.1980198
   [34]
                                           {feathers=TRUE} 0.1980198
   [35] {hair=FALSE,backbone=TRUE}
   [36] {eggs=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
  [37]
       {milk=FALSE,fins=FALSE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1089109
  [38] {eggs=TRUE,predator=FALSE}
       {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
  [39]
                                            {feathers=TRUE} 0.1980198
##
   [40] {hair=FALSE, venomous=FALSE}
  [41] {milk=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
  [42] {tail=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
   [43] {eggs=TRUE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
##
   [44] {hair=FALSE,eggs=TRUE}
                                            {feathers=TRUE} 0.1980198
  [45] {hair=FALSE,milk=FALSE}
                                           {feathers=TRUE} 0.1980198
  [46] {legs=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
   [47]
       {backbone=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   [48]
        {hair=FALSE}
                                            {feathers=TRUE} 0.1980198
       {eggs=TRUE,milk=FALSE}
                                           {feathers=TRUE} 0.1980198
   [49]
   [50] {legs=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
       {breathes=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   [52] {fins=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
   [53] {predator=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1089109
  [54] {breathes=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
##
        {backbone=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [55]
##
   [56]
       {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
       {backbone=TRUE,fins=FALSE}
   [57]
                                           {feathers=TRUE} 0.1980198
   [58] {fins=FALSE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
##
   [59]
       {backbone=TRUE, breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
   [60] {aquatic=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1386139
  [61] {predator=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1089109
   [62]
        {venomous=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
##
   [63]
        {venomous=FALSE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [64]
       {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [65] {backbone=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [66]
       {venomous=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
##
   [67]
       {predator=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1089109
  [68] {predator=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1089109
## [69] {breathes=TRUE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [70] {aquatic=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1386139
```

```
## [71] {breathes=TRUE,fins=FALSE}
                                          => {feathers=TRUE} 0.1980198
   [72] {fins=FALSE,legs=TRUE}
                                          => {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1980198
  [73] {venomous=FALSE,fins=FALSE}
  [74] {legs=TRUE,domestic=FALSE}
                                            {feathers=TRUE} 0.1683168
##
   [75] {predator=FALSE, venomous=FALSE} =>
                                             {feathers=TRUE} 0.1089109
   [76] {backbone=TRUE, venomous=FALSE}
##
                                         => {feathers=TRUE} 0.1980198
   [77] {aquatic=FALSE, venomous=FALSE}
                                          => {feathers=TRUE} 0.1386139
   [78] {aquatic=FALSE}
                                          => {feathers=TRUE} 0.1386139
##
   [79]
       {venomous=FALSE}
                                          => {feathers=TRUE} 0.1980198
   [80]
##
       {domestic=FALSE}
                                         => {feathers=TRUE} 0.1683168
##
        confidence lift
##
   [1]
        1.0000000
                   5.0500000
##
   [2]
        0.9090909
                   4.5909091
##
   [3]
        0.888889
                    4.4888889
##
  [4]
        0.888889
                    4.4888889
##
   [5]
        0.888889
                    4.4888889
   [6]
##
        0.8695652
                    4.3913043
   [7]
        0.7272727
                    3.6727273
   [8]
##
        0.7272727
                    3.6727273
   [9]
        0.7272727
                    3.6727273
##
   [10] 0.7272727
                    3.6727273
  [11] 0.6060606
                    3.0606061
  [12] 0.5714286
                    2.8857143
   [13] 0.555556
                    2.8055556
   [14] 0.5555556
                    2.8055556
   [15] 0.5555556
                    2.8055556
   [16] 0.5405405
                    2.7297297
   [17] 0.5384615
                    2.7192308
  [18] 0.5238095
                    2.6452381
  [19] 0.5185185
                    2.6185185
   [20] 0.5128205
                    2.5897436
   [21] 0.5128205
                    2.5897436
   [22] 0.5128205
                    2.5897436
   [23] 0.5128205
                    2.5897436
   [24] 0.5128205
                    2.5897436
##
   [25] 0.5000000
                   2.5250000
   [26] 0.5000000
                    2.5250000
  [27] 0.5000000
                    2.5250000
   [28] 0.5000000
                    2.5250000
   [29] 0.4827586
                   2.4379310
   [30] 0.4761905
                    2.4047619
   [31] 0.4761905
                   2.4047619
   [32] 0.4761905
                    2.4047619
   [33] 0.4666667
                    2.3566667
                    2.3488372
  [34] 0.4651163
   [35] 0.4545455
                    2.2954545
##
   [36] 0.4347826
                    2.1956522
   [37] 0.4255319
                    2.1489362
   [38] 0.4230769
                    2.1365385
   [39]
        0.4230769
                    2.1365385
##
   [40] 0.3846154
                    1.9423077
## [41] 0.3846154
                    1.9423077
## [42] 0.3783784
                    1.9108108
## [43] 0.3773585
                   1.9056604
```

```
## [44] 0.3703704
                    1.8703704
   [45] 0.3571429
                    1.8035714
   [46] 0.3508772
                    1.7719298
   [47] 0.3500000
                    1.7675000
##
   [48] 0.3448276
                    1.7413793
                    1.7413793
##
   [49] 0.3448276
   [50] 0.3414634
                    1.7243902
   [51] 0.3414634
                    1.7243902
##
   [52] 0.3389831
                    1.7118644
   [53] 0.3333333
                    1.6833333
   [54] 0.3278689
                    1.6557377
   [55] 0.3125000
                    1.5781250
##
   [56] 0.3055556
                    1.5430556
   [57] 0.3030303
                    1.5303030
   [58] 0.2916667
                    1.4729167
   [59]
        0.2898551
                    1.4637681
##
   [60] 0.2857143
                    1.4428571
   [61] 0.2820513
                    1.4243590
   [62] 0.2816901
                    1.4225352
   [63] 0.2800000
                    1.4140000
##
   [64] 0.2739726
                    1.3835616
   [65] 0.2702703
                    1.3648649
   [66] 0.2702703
                    1.3648649
##
##
   [67] 0.2682927
                    1.3548780
##
   [68] 0.2682927
                    1.3548780
   [69] 0.2666667
                    1.3466667
   [70] 0.2641509
                    1.3339623
##
   [71] 0.2631579
                    1.3289474
   [72] 0.2597403
                    1.3116883
   [73] 0.2597403
                    1.3116883
   [74] 0.2575758
                    1.3007576
   [75] 0.2558140
                    1.2918605
   [76] 0.2531646
                    1.2784810
   [77] 0.2295082
                    1.1590164
   [78] 0.2153846
                    1.0876923
##
   [79] 0.2150538
                    1.0860215
##
   [80] 0.1931818
                   0.9755682
##
        lhs
                                               support
                                                          confidence lift
                          => {feathers=FALSE} 0.1287129 1.0000000
##
   [1]
        {type=fish}
                                                                     1.2469136
##
   [2]
        {fins=TRUE}
                          => {feathers=FALSE} 0.1683168 1.0000000
                                                                     1.2469136
   [3]
        {backbone=FALSE} => {feathers=FALSE} 0.1782178 1.0000000
                                                                     1.2469136
   [4]
        {breathes=FALSE} => {feathers=FALSE} 0.2079208 1.0000000
##
                                                                     1.2469136
##
   [5]
        {legs=FALSE}
                          => {feathers=FALSE} 0.2277228 1.0000000
                                                                     1.2469136
##
   [6]
                          => {feathers=FALSE} 0.2574257 1.0000000
        {tail=FALSE}
                                                                     1.2469136
##
   [7]
        {eggs=FALSE}
                          => {feathers=FALSE} 0.4158416 1.0000000
                                                                     1.2469136
                          => {feathers=FALSE} 0.4257426 1.0000000
   [8]
##
        {hair=TRUE}
                                                                     1.2469136
##
   [9]
        {airborne=FALSE} =>
                             {feathers=FALSE} 0.7227723 0.9480519
                                                                     1.1821388
   [10]
       {catsize=TRUE}
                          => {feathers=FALSE} 0.3762376 0.8636364
                                                                     1.0768799
   [11]
       {predator=TRUE}
                          => {feathers=FALSE} 0.4653465 0.8392857
                                                                     1.0465168
        {aquatic=TRUE}
                          => {feathers=FALSE} 0.2970297 0.8333333
                                                                     1.0390947
   [12]
##
       {aquatic=FALSE}
                          => {feathers=FALSE} 0.5049505 0.7846154
   [13]
                                                                     0.9783476
  [14] {predator=FALSE} => {feathers=FALSE} 0.3366337 0.7555556
                                                                     0.9421125
## [15] {catsize=FALSE}
                          => {feathers=FALSE} 0.4257426 0.7543860
                                                                     0.9406541
## [16] {breathes=TRUE}
                         => {feathers=FALSE} 0.5940594 0.7500000
```

```
## [17] {legs=TRUE}
                          => {feathers=FALSE} 0.5742574 0.7435897
                                                                    0.9271921
  [18] {milk=FALSE}
                          => {feathers=FALSE} 0.3960396 0.6666667
                                                                    0.8312757
                          => {feathers=FALSE} 0.3861386 0.6610169
  [19] {eggs=TRUE}
                          => {feathers=FALSE} 0.3762376 0.6551724
  [20] {hair=FALSE}
                                                                    0.8169434
##
   [21] {toothed=FALSE}
                          => {feathers=FALSE} 0.1980198 0.5000000
                                                                    0.6234568
##
       lhs
                                          rhs
                                                           support
                                                                      confidence
## [1] {hair=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5384615
  [2] {aquatic=FALSE, toothed=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5185185
   [3] {eggs=TRUE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4827586
   [4] {milk=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
  [5] {aquatic=FALSE,tail=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2857143
   [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
##
   [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
       lift
## [1] 2.719231
   [2] 2.618519
##
  [3] 2.437931
  [4] 2.356667
  [5] 1.442857
   [6] 1.333962
##
   [7] 1.159016
##
        lhs
                                                             support
##
  [1]
        {predator=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [2]
        {hair=FALSE, predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
  [3]
        {eggs=TRUE,predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
   [4]
        {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [5]
##
        {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [6]
        {predator=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1089109
   [7]
##
        {predator=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1089109
   [8]
        {predator=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1089109
##
##
   [9]
        {predator=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1089109
##
   [10]
       {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
        confidence lift
##
   [1]
        0.5238095
                   2.645238
   [2]
        0.5000000
                   2.525000
##
##
   [3]
        0.4230769
                   2.136538
  [4]
        0.4230769
                   2.136538
  [5]
        0.3333333
##
                   1.683333
##
   [6]
        0.3055556
                   1.543056
##
  [7]
        0.2820513
                   1.424359
  [8]
        0.2682927
                   1.354878
   [9]
        0.2682927
                   1.354878
##
   [10] 0.2558140
                   1.291860
##
       lhs
                                          rhs
                                                           support
                                                                      confidence
## [1] {tail=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3783784
   [2] {backbone=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3500000
   [3] {legs=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
   [4] {breathes=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
   [5] {fins=FALSE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.2916667
##
   [6] {venomous=FALSE, catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
       lift
## [1] 1.910811
## [2] 1.767500
## [3] 1.724390
```

```
[4] 1.724390
   [5] 1.472917
##
   [6] 1.414000
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1980198
##
   [2]
        {hair=FALSE, breathes=TRUE}
        {eggs=TRUE,breathes=TRUE}
##
   [3]
                                         => {feathers=TRUE} 0.1980198
   [4]
##
        {milk=FALSE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [5]
        {breathes=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   [6]
        {breathes=TRUE, tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [7]
        {backbone=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [8]
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [9]
        {predator=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1089109
       {breathes=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198
   [11] {breathes=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
##
        confidence lift
##
   [1]
        0.6060606
                   3.060606
   [2]
        0.5405405
                    2.729730
   [3]
        0.5128205
##
                   2.589744
##
   [4]
        0.5128205
                    2.589744
##
   [5]
        0.3414634
                    1.724390
        0.3278689
##
   [6]
                    1.655738
##
   [7]
        0.2898551
                    1.463768
##
   [8]
        0.2739726
                    1.383562
##
   [9]
        0.2682927
                    1.354878
   [10] 0.2666667
                    1.346667
        0.2631579
                    1.328947
##
   [11]
##
        lhs
                                                         support
                                                                    confidence
##
  [1]
        {toothed=FALSE,legs=TRUE}
                                        {feathers=TRUE} 0.1980198 0.5555556
        {hair=FALSE,legs=TRUE}
   [2]
                                     => {feathers=TRUE} 0.1980198 0.5555556
##
   [3]
        {eggs=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [4]
        {milk=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
        {legs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3508772
##
   [6]
        {legs=TRUE,catsize=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.3414634
   [7]
        {backbone=TRUE,legs=TRUE}
                                        {feathers=TRUE} 0.1980198 0.3125000
##
                                    => {feathers=TRUE} 0.1089109 0.2820513
##
   [8]
        {predator=FALSE,legs=TRUE}
        {breathes=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2739726
   [10] {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
   [11] {fins=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2597403
   [12] {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
##
##
        lift
##
   [1]
        2.805556
##
   [2]
        2.805556
##
   [3]
        2.525000
   [4]
##
        2.525000
   [5]
##
        1.771930
##
   [6]
        1.724390
##
   [7]
        1.578125
##
   [8]
        1.424359
##
   [9]
        1.383562
##
   [10]
       1.364865
##
  [11] 1.311688
##
  [12] 1.300758
##
        lhs
                                                          support
                                                                     confidence
                                         rhs
```

```
{milk=FALSE,airborne=TRUE}
                                     => {feathers=TRUE} 0.1584158 0.7272727
                                     => {feathers=TRUE} 0.1980198 0.5128205
   [2]
        {milk=FALSE, toothed=FALSE}
   [3]
        {milk=FALSE, breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
   [4]
        {milk=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
##
   [5]
        {milk=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
                                     => {feathers=TRUE} 0.1980198 0.4761905
   [6]
        {milk=FALSE,backbone=TRUE}
   [7]
        {milk=FALSE, aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.4666667
                                      => {feathers=TRUE} 0.1980198 0.4255319
##
   [8]
        {milk=FALSE,fins=FALSE}
##
   [9]
        {milk=FALSE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
   [10] {milk=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
   [11] {hair=FALSE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3571429
                                     => {feathers=TRUE} 0.1980198 0.3448276
##
   [12]
       {eggs=TRUE,milk=FALSE}
##
        lift
##
   [1]
        3.672727
   [2]
        2.589744
##
##
   [3]
        2.589744
   [4]
##
        2.525000
   [5]
        2.525000
   [6]
##
        2.404762
##
   [7]
        2.356667
##
   [8]
        2.148936
  [9]
        2.136538
## [10] 1.942308
   [11] 1.803571
##
   [12] 1.741379
        lhs
                                                        support
                                                                   confidence
##
                                       {feathers=TRUE} 0.1584158 0.7272727
   [1]
        {eggs=TRUE,airborne=TRUE}
##
   [2]
        {eggs=TRUE,toothed=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
   [3]
##
        {eggs=TRUE,tail=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
##
   [4]
        {eggs=TRUE,breathes=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
##
   [5]
        {eggs=TRUE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5000000
##
   [6]
        {eggs=TRUE,aquatic=FALSE}
                                       {feathers=TRUE} 0.1386139 0.4827586
   [7]
        {eggs=TRUE,backbone=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.4761905
                                    => {feathers=TRUE} 0.1980198 0.4347826
##
   [8]
        {eggs=TRUE,fins=FALSE}
        {eggs=TRUE,predator=FALSE} =>
                                       {feathers=TRUE} 0.1089109 0.4230769
   [9]
   [10] {eggs=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3773585
##
   [11] {hair=FALSE,eggs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.3703704
   [12] {eggs=TRUE,milk=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.3448276
##
##
        lift
##
  [1]
        3.672727
   [2]
        2.589744
   [3]
        2.589744
##
##
   [4]
        2.589744
##
   [5]
        2.525000
##
   [6]
        2.437931
   [7]
        2.404762
##
##
   [8]
        2.195652
   [9]
        2.136538
   [10] 1.905660
   [11] 1.870370
##
##
   [12]
       1.741379
##
        lhs
                                         rhs
                                                         support
## [1]
        {hair=FALSE,airborne=TRUE}
                                     => {feathers=TRUE} 0.1584158 0.8888889
## [2]
        {hair=FALSE, toothed=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.5714286
```

```
{hair=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5555556
##
   [4]
                                      => {feathers=TRUE} 0.1980198 0.5405405
        {hair=FALSE,breathes=TRUE}
        {hair=FALSE,aquatic=FALSE}
   [5]
                                      => {feathers=TRUE} 0.1386139 0.5384615
   [6]
        {hair=FALSE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.5000000
##
##
   [7]
        {hair=FALSE,tail=TRUE}
                                         {feathers=TRUE} 0.1980198 0.4761905
                                      => {feathers=TRUE} 0.1980198 0.4651163
##
   [8]
        {hair=FALSE,fins=FALSE}
   [9]
        {hair=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4545455
   [10]
       {hair=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
   [11] {hair=FALSE,eggs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.3703704
##
   [12] {hair=FALSE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3571429
##
        lift
        4.488889
##
   [1]
##
   [2]
        2.885714
##
   [3]
        2.805556
   [4]
##
        2.729730
##
   [5]
        2.719231
##
   [6]
        2.525000
   [7]
        2.404762
   [8]
##
        2.348837
##
   [9]
        2.295455
##
   [10] 1.942308
   [11] 1.870370
   [12] 1.803571
##
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [2]
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [3]
        {airborne=TRUE, toothed=FALSE}
##
                                         => {feathers=TRUE} 0.1584158
##
   [4]
        {toothed=FALSE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [5]
##
        {hair=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
   [6]
        {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [7]
        {toothed=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198
##
   [8]
        {predator=FALSE, toothed=FALSE} => {feathers=TRUE} 0.1089109
        {aquatic=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1386139
       {eggs=TRUE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [10]
        {milk=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
##
        confidence lift
##
   [1]
        0.9090909 4.590909
##
   [2]
                   4.391304
        0.8695652
   [3]
##
        0.7272727
                    3.672727
   [4]
##
        0.6060606
                   3.060606
   [5]
        0.5714286
                    2.885714
##
   [6]
        0.555556
                   2.805556
##
   [7]
        0.555556
                    2.805556
##
   [8]
        0.5238095
                    2.645238
   [9]
        0.5185185
                    2.618519
   [10] 0.5128205
                    2.589744
##
   [11] 0.5128205
                  2.589744
##
       "Número de reglas con consecuente negado"
##
        lhs
                                             rhs
                                                                    confidence
                                                          support
##
   [1]
        {hair=TRUE,eggs=FALSE}
                                             {milk=TRUE} 0.3762376 1.0000000
##
   [2]
        {eggs=FALSE,catsize=TRUE}
                                             {milk=TRUE} 0.3069307 1.0000000
##
   [3]
        {eggs=FALSE,predator=FALSE}
                                             {milk=TRUE} 0.1881188 1.0000000
##
  [4]
        {eggs=FALSE, venomous=FALSE}
                                          =>
                                             {milk=TRUE} 0.3960396 1.0000000
## [5]
        {hair=TRUE, catsize=TRUE}
                                             {milk=TRUE} 0.2970297 1.0000000
```

```
{hair=TRUE, predator=TRUE}
                                           {milk=TRUE} 0.1980198 1.0000000
##
        {hair=TRUE, toothed=TRUE}
   [7]
                                            {milk=TRUE} 0.3762376 1.0000000
        {hair=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 1.0000000
##
   [8]
                                            {milk=TRUE} 0.3663366 1.0000000
   [9]
##
        {hair=TRUE,airborne=FALSE}
##
   [10]
       {hair=TRUE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 1.0000000
       {eggs=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.9756098
##
   [11]
       {eggs=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3960396 0.9756098
  [12]
   [13] {eggs=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3663366 0.9736842
   Γ147
       {hair=TRUE, venomous=FALSE}
                                            fmilk=TRUE} 0.3861386 0.9512195
   [15] {aquatic=FALSE, toothed=TRUE}
                                            {milk=TRUE} 0.3465347 0.9210526
   [16] {hair=TRUE,domestic=FALSE}
                                            {milk=TRUE} 0.3069307 0.9117647
   [17] {toothed=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3069307 0.8857143
   [18] {toothed=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3663366 0.8809524
   [19] {toothed=TRUE,breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.8510638
  [20] {feathers=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.8421053
        {aquatic=FALSE, catsize=TRUE}
                                            {milk=TRUE} 0.2574257 0.8387097
   [21]
   [22]
        {breathes=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.8205128
       {toothed=TRUE,fins=FALSE}
                                            {milk=TRUE} 0.3564356 0.8181818
   [23]
   [24] {predator=FALSE,toothed=TRUE}
                                            {milk=TRUE} 0.1881188 0.7916667
   [25] {legs=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2871287 0.7837838
##
   [26] {airborne=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.7804878
       {fins=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.2772277 0.7777778
       {predator=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.1188119 0.7500000
   [28]
##
   [29]
       {backbone=TRUE.catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.7441860
   [30]
       {venomous=FALSE, catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.7441860
   [31] {airborne=FALSE,aquatic=FALSE}
                                            {milk=TRUE} 0.3267327 0.7173913
   [32] {toothed=TRUE, venomous=FALSE}
                                            {milk=TRUE} 0.3960396 0.7017544
##
   [33] {airborne=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.3861386 0.6964286
   [34] {feathers=FALSE,aquatic=FALSE}
                                           {milk=TRUE} 0.3465347 0.6862745
   [35] {feathers=FALSE,breathes=TRUE}
                                           {milk=TRUE} 0.4059406 0.6833333
   [36]
       {airborne=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3564356 0.6666667
##
   [37]
        {aquatic=FALSE, backbone=TRUE}
                                            {milk=TRUE} 0.3465347 0.6603774
   [38]
       {toothed=TRUE}
                                            {milk=TRUE} 0.3960396 0.6557377
##
   [39] {feathers=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.6551724
        {feathers=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.4059406 0.6507937
   Γ401
##
   [41] {feathers=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.3465347 0.6363636
  [42] {aquatic=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.2970297 0.6122449
  [43] {airborne=FALSE,predator=FALSE} =>
                                            {milk=TRUE} 0.1683168 0.6071429
       {airborne=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 0.6000000
##
   [44]
##
   [45] {backbone=TRUE,breathes=TRUE}
                                            {milk=TRUE} 0.4059406 0.5942029
   [46] {backbone=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.5937500
   [47] {aquatic=FALSE,predator=TRUE}
                                            {milk=TRUE} 0.1584158 0.5925926
##
   [48] {aquatic=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3465347 0.5833333
   [49] {airborne=FALSE,fins=FALSE}
                                            {milk=TRUE} 0.3465347 0.5833333
  [50] {airborne=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
   [51] {legs=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 0.5789474
##
   [52]
       {feathers=FALSE,fins=FALSE}
                                            {milk=TRUE} 0.3663366 0.5781250
       {aquatic=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3465347 0.5737705
   [54]
       {breathes=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.5737705
   [55]
       {predator=TRUE, breathes=TRUE}
                                            {milk=TRUE} 0.2178218 0.5641026
##
   [56]
       {feathers=FALSE, venomous=FALSE} =>
                                           {milk=TRUE} 0.4059406 0.5616438
  [57] {backbone=TRUE,fins=FALSE}
                                         => {milk=TRUE} 0.3663366 0.5606061
  [58] {feathers=FALSE,predator=FALSE} => {milk=TRUE} 0.1881188 0.5588235
## [59] {airborne=FALSE,venomous=FALSE} => {milk=TRUE} 0.3861386 0.5492958
```

```
## [60] {aquatic=FALSE, breathes=TRUE}
                                         => {milk=TRUE} 0.3465347 0.5468750
   [61] {breathes=TRUE, venomous=FALSE}
                                         => {milk=TRUE} 0.4059406 0.5466667
  [62] {fins=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3168317 0.5423729
  [63] {feathers=FALSE,airborne=FALSE} => {milk=TRUE} 0.3861386 0.5342466
  [64] {predator=FALSE,backbone=TRUE}
##
                                            {milk=TRUE} 0.1881188 0.5277778
  [65] {breathes=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5205479
  [66] {backbone=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.4059406 0.5189873
  [67]
        {predator=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.1683168 0.5151515
   [68]
       {venomous=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5135135
  [69] {feathers=FALSE}
                                         => {milk=TRUE} 0.4059406 0.5061728
  [70] {venomous=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.3465347 0.4929577
                                         => {milk=TRUE} 0.3663366 0.4805195
  [71] {venomous=FALSE,fins=FALSE}
   [72] {predator=FALSE, venomous=FALSE} => {milk=TRUE} 0.1881188 0.4418605
                                         => {milk=TRUE} 0.2178218 0.3928571
##
   [73] {predator=TRUE}
##
        lift
##
  [1]
        2.463415
##
   [2]
        2.463415
   [3]
        2.463415
  [4]
##
        2.463415
##
   [5]
        2.463415
##
  [6]
        2.463415
  [7]
        2.463415
        2.463415
## [8]
  [9]
        2.463415
##
## [10] 2.463415
## [11] 2.403331
## [12] 2.403331
## [13] 2.398588
## [14] 2.343248
## [15] 2.268935
## [16] 2.246055
  [17] 2.181882
  [18] 2.170151
## [19] 2.096523
   [20] 2.074454
## [21] 2.066090
## [22] 2.021263
## [23] 2.015521
  [24] 1.950203
  [25] 1.930784
  [26] 1.922665
  [27] 1.915989
## [28] 1.847561
## [29] 1.833239
## [30] 1.833239
## [31] 1.767232
##
  [32] 1.728712
  [33] 1.715592
  [34] 1.690579
  [35] 1.683333
## [36] 1.642276
## [37] 1.626783
## [38] 1.615354
## [39] 1.613961
```

```
## [40] 1.603175
  [41] 1.567627
   [42] 1.508213
  [43] 1.495645
   [44] 1.478049
  [45] 1.463768
##
   [46] 1.462652
## [47] 1.459801
   [48] 1.436992
   [49] 1.436992
   [50] 1.426187
   [51] 1.426187
   [52] 1.424162
   [53] 1.413435
  [54] 1.413435
   [55] 1.389619
   [56] 1.383562
   [57] 1.381005
   [58] 1.376614
   [59] 1.353143
##
   [60] 1.347180
   [61] 1.346667
   [62] 1.336089
   [63] 1.316071
   [64] 1.300136
   [65] 1.282325
   [66] 1.278481
##
   [67] 1.269032
   [68] 1.264997
   [69] 1.246914
   [70] 1.214359
   [71] 1.183719
   [72] 1.088486
   [73] 0.967770
##
##
                                          support
                                                     confidence lift
        lhs
                             rhs
##
  [1]
                          => {milk=FALSE} 0.1287129 1.0000000
        {type=fish}
                                                               1.6833333
   [2]
        {backbone=FALSE} => {milk=FALSE} 0.1782178 1.0000000
##
   [3]
                          => {milk=FALSE} 0.1980198 1.0000000
        {type=bird}
                                                                1.6833333
##
   [4]
        {feathers=TRUE}
                          => {milk=FALSE} 0.1980198 1.0000000
                                                                1.6833333
##
   [5]
        {breathes=FALSE} => {milk=FALSE} 0.2079208 1.0000000
                                                                1.6833333
                          => {milk=FALSE} 0.5742574 0.9830508
   [6]
        {eggs=TRUE}
                                                                1.6548023
   [7]
        {hair=FALSE}
                          => {milk=FALSE} 0.5544554 0.9655172
##
                                                                1.6252874
                          => {milk=FALSE} 0.2178218 0.9166667
##
   [8]
        {airborne=TRUE}
                                                                1.5430556
##
        {legs=FALSE}
                          => {milk=FALSE} 0.1980198 0.8695652
   [9]
                                                                1.4637681
                                                                1.4027778
## [10] {aquatic=TRUE}
                          => {milk=FALSE} 0.2970297 0.8333333
## [11] {tail=FALSE}
                          => {milk=FALSE} 0.1980198 0.7692308
                                                                1.2948718
                                                                1.2872549
   [12] {fins=TRUE}
                             {milk=FALSE} 0.1287129 0.7647059
   [13] {predator=TRUE}
                          => {milk=FALSE} 0.3366337 0.6071429
                                                                1.0220238
   [14] {fins=FALSE}
                          => {milk=FALSE} 0.4653465 0.5595238
                                                                0.9418651
   [15] {tail=TRUE}
                          => {milk=FALSE} 0.3960396 0.5333333
                                                                0.8977778
                          => {milk=FALSE} 0.4158416 0.5060241
   [16] {backbone=TRUE}
                                                                0.8518072
## [17] {aquatic=FALSE}
                          => {milk=FALSE} 0.2970297 0.4615385
                                                                0.7769231
                          => {milk=FALSE} 0.2079208 0.3442623
##
  [18] {toothed=TRUE}
                                                                0.5795082
##
       lhs
                                          rhs
                                                      support
                                                                confidence
```

```
## [1] {hair=TRUE,predator=TRUE}
                                     => {milk=TRUE} 0.1980198 1.0000000
  [2] {aquatic=FALSE,predator=TRUE} => {milk=TRUE} 0.1584158 0.5925926
   [3] {predator=TRUE,breathes=TRUE} => {milk=TRUE} 0.2178218 0.5641026
##
       lift
##
   [1] 2.463415
##
  [2] 1.459801
##
  [3] 1.389619
##
       lhs
                                       rhs
                                                   support
                                                             confidence
## [1] {toothed=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3564356 0.8181818
   [2] {fins=FALSE,catsize=TRUE}
                                    => {milk=TRUE} 0.2772277 0.7777778
  [3] {airborne=FALSE,fins=FALSE} => {milk=TRUE} 0.3465347 0.5833333
  [4] {feathers=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5781250
   [5] {backbone=TRUE,fins=FALSE}
                                   => {milk=TRUE} 0.3663366 0.5606061
  [6] {fins=FALSE,tail=TRUE}
                                    => {milk=TRUE} 0.3168317 0.5423729
  [7] {venomous=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.4805195
##
##
       lift
## [1] 2.015521
  [2] 1.915989
  [3] 1.436992
   [4] 1.424162
##
  [5] 1.381005
## [6] 1.336089
## [7] 1.183719
##
       lhs
                                                  support
                                                            confidence
                                      rhs
## [1] {hair=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 1.0000000
  [2] {feathers=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.6363636
  [3] {aquatic=FALSE,tail=TRUE}
                                  => {milk=TRUE} 0.2970297 0.6122449
  [4] {airborne=FALSE,tail=TRUE} => {milk=TRUE} 0.3267327 0.5789474
  [5] {legs=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 0.5789474
## [6] {breathes=TRUE,tail=TRUE}
                                  => {milk=TRUE} 0.3465347 0.5737705
  [7] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
   [8] {predator=FALSE,tail=TRUE} => {milk=TRUE} 0.1683168 0.5151515
##
   [9] {venomous=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.4929577
##
       lift
   [1] 2.463415
##
##
  [2] 1.567627
  [3] 1.508213
## [4] 1.426187
##
  [5] 1.426187
##
  [6] 1.413435
  [7] 1.336089
##
   [8] 1.269032
##
   [9] 1.214359
##
        lhs
                                           rhs
                                                       support
                                                                  confidence
## [1]
        {hair=TRUE,backbone=TRUE}
                                        => {milk=TRUE} 0.3861386 1.0000000
  [2]
##
        {eggs=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3960396 0.9756098
##
  [3]
        {backbone=TRUE, catsize=TRUE}
                                        => {milk=TRUE} 0.3168317 0.7441860
##
  [4]
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
##
  [5]
        {feathers=FALSE,backbone=TRUE} => {milk=TRUE} 0.4059406 0.6507937
   [6]
        {airborne=FALSE,backbone=TRUE} => {milk=TRUE} 0.3861386 0.6000000
##
##
   [7]
        {backbone=TRUE, breathes=TRUE}
                                        => {milk=TRUE} 0.4059406 0.5942029
## [8]
        {backbone=TRUE,legs=TRUE}
                                        => {milk=TRUE} 0.3762376 0.5937500
## [9]
        {backbone=TRUE,fins=FALSE}
                                        => {milk=TRUE} 0.3663366 0.5606061
## [10] {predator=FALSE,backbone=TRUE} => {milk=TRUE} 0.1881188 0.5277778
```

```
## [11] {backbone=TRUE, venomous=FALSE} => {milk=TRUE} 0.4059406 0.5189873
##
        lift.
## [1]
        2.463415
  [2]
##
        2.403331
##
   [3]
        1.833239
  [4]
##
        1.626783
  [5]
##
        1.603175
## [6]
        1.478049
##
  [7]
        1.463768
##
  [8]
        1.462652
  [9]
        1.381005
##
  [10]
       1.300136
##
  [11] 1.278481
##
        lhs
                                           rhs
                                                        support
                                                                  confidence
## [1]
        {aquatic=FALSE,toothed=TRUE}
                                        => {milk=TRUE} 0.3465347 0.9210526
## [2]
        {aquatic=FALSE, catsize=TRUE}
                                        => {milk=TRUE} 0.2574257 0.8387097
##
  [3]
        {airborne=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3267327 0.7173913
  [4]
        {feathers=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3465347 0.6862745
##
  [5]
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
##
   [6]
        {aquatic=FALSE,tail=TRUE}
                                        => {milk=TRUE} 0.2970297 0.6122449
##
  [7]
        {aquatic=FALSE,predator=TRUE}
                                        => {milk=TRUE} 0.1584158 0.5925926
        {aquatic=FALSE,legs=TRUE}
                                        => {milk=TRUE} 0.3465347 0.5833333
##
  [8]
  [9]
        {aquatic=FALSE, venomous=FALSE} => {milk=TRUE} 0.3465347 0.5737705
  [10] {aquatic=FALSE,breathes=TRUE} => {milk=TRUE} 0.3465347 0.5468750
##
##
        lift
## [1]
        2.268935
  [2]
        2.066090
##
##
   [3]
        1.767232
##
  [4]
        1.690579
##
  [5]
        1.626783
##
  [6]
        1.508213
##
  [7]
        1.459801
  [8]
        1.436992
##
  [9]
        1.413435
##
   [10] 1.347180
##
       lhs
                                         rhs
                                                      support
                                                                confidence
## [1] {hair=TRUE, toothed=TRUE}
                                      => {milk=TRUE} 0.3762376 1.0000000
## [2] {aquatic=FALSE,toothed=TRUE}
                                      => {milk=TRUE} 0.3465347 0.9210526
## [3] {toothed=TRUE,catsize=TRUE}
                                      => {milk=TRUE} 0.3069307 0.8857143
## [4] {toothed=TRUE,legs=TRUE}
                                      => {milk=TRUE} 0.3663366 0.8809524
## [5] {toothed=TRUE,breathes=TRUE}
                                      => {milk=TRUE} 0.3960396 0.8510638
## [6] {toothed=TRUE,fins=FALSE}
                                      => {milk=TRUE} 0.3564356 0.8181818
  [7] {predator=FALSE,toothed=TRUE} => {milk=TRUE} 0.1881188 0.7916667
  [8] {toothed=TRUE, venomous=FALSE} => {milk=TRUE} 0.3960396 0.7017544
##
##
       lift
## [1] 2.463415
##
  [2] 2.268935
## [3] 2.181882
## [4] 2.170151
## [5] 2.096523
## [6] 2.015521
## [7] 1.950203
## [8] 1.728712
## [1] "Número de reglas con consecuente negado"
```

```
##
        lhs
                                               support
                                                         confidence lift
##
                                                                    1.0860215
   [1]
        {milk=TRUE}
                          => {venomous=FALSE} 0.4059406 1.0000000
##
   [2]
        {type=mammal}
                            {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
   [3]
                             {venomous=FALSE} 0.4257426 0.9772727
##
        {catsize=TRUE}
                                                                    1.0613392
##
   [4]
        {predator=FALSE}
                             {venomous=FALSE} 0.4257426 0.9555556
                                                                    1.0377539
   [5]
##
        {hair=TRUE}
                             {venomous=FALSE} 0.4059406 0.9534884
                                                                    1.0355089
##
   [6]
        {eggs=FALSE}
                             {venomous=FALSE} 0.3960396 0.9523810
                                                                    1.0343062
   [7]
##
        {backbone=TRUE}
                             {venomous=FALSE} 0.7821782 0.9518072
                                                                    1.0336831
##
   [8]
        {legs=TRUE}
                             {venomous=FALSE} 0.7326733 0.9487179
                                                                    1.0303281
##
   [9]
        {tail=TRUE}
                             {venomous=FALSE} 0.7029703 0.9466667
                                                                    1.0281004
   [10]
       {fins=TRUE}
                             {venomous=FALSE} 0.1584158 0.9411765
                                                                    1.0221379
   [11]
       {aquatic=FALSE}
                             {venomous=FALSE} 0.6039604 0.9384615
                                                                    1.0191894
##
        {breathes=TRUE}
                             {venomous=FALSE} 0.7425743 0.9375000
   [12]
                                                                    1.0181452
##
   [13]
       {toothed=TRUE}
                             {venomous=FALSE} 0.5643564 0.9344262
                                                                    1.0148070
  [14]
       {domestic=TRUE}
                          =>
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
   [15]
        {type=fish}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
##
        {airborne=FALSE}
                             {venomous=FALSE} 0.7029703 0.9220779
   [16]
                                                                    1.0013965
        {domestic=FALSE}
                             {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
   [18] {feathers=FALSE}
                             {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
   [19]
       {toothed=FALSE}
                             {venomous=FALSE} 0.3564356 0.9000000
                                                                    0.9774194
##
  [20]
       {eggs=TRUE}
                          => {venomous=FALSE} 0.5247525 0.8983051
                                                                    0.9755786
                          => {venomous=FALSE} 0.5148515 0.8965517
  [21]
       {hair=FALSE}
                                                                    0.9736745
   [22] {predator=TRUE}
                         =>
                             {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
   [23]
       {catsize=FALSE}
                             {venomous=FALSE} 0.4950495 0.8771930
                                                                    0.9526504
##
   [24] {milk=FALSE}
                             {venomous=FALSE} 0.5148515 0.8666667
                                                                    0.9412186
   [25] {breathes=FALSE}
                         => {venomous=FALSE} 0.1782178 0.8571429
                                                                    0.9308756
                          => {venomous=FALSE} 0.1881188 0.8260870
   [26] {legs=FALSE}
                                                                    0.8971482
   [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
##
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {type=bird}
                                         => {feathers=TRUE} 0.1980198
##
   [2]
        {toothed=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [3]
        {hair=FALSE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
   [4]
##
        {airborne=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1584158
   [5]
        {airborne=TRUE,backbone=TRUE}
                                            {feathers=TRUE} 0.1584158
##
##
   [6]
        {toothed=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [7]
        {airborne=TRUE, toothed=FALSE}
                                            {feathers=TRUE} 0.1584158
  [8]
        {eggs=TRUE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
##
        {milk=FALSE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
##
   [9]
##
   [10] {airborne=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1584158
   [11] {toothed=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
   [12] {hair=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
   [13] {toothed=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [14] {toothed=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
  [15] {hair=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [16]
       {hair=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [17]
       {hair=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
       {predator=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1089109
   [19] {aquatic=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1386139
   [20] {eggs=TRUE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
##
  [21] {milk=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
  [22] {eggs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
## [23] {eggs=TRUE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
## [24] {milk=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
```

```
## [25] {hair=FALSE,predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
   [26] {eggs=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [27] {milk=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [28] {milk=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [29] {eggs=TRUE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   [30] {hair=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [31] {eggs=TRUE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [32] {milk=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [33]
       {milk=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   [34]
       {hair=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [35] {hair=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [36] {eggs=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [37]
       {milk=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1089109
   [38] {eggs=TRUE,predator=FALSE}
   [39] {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [40] {hair=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [41] {milk=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [42] {tail=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
                                            {feathers=TRUE} 0.1980198
   [43] {eggs=TRUE, venomous=FALSE}
   [44] {hair=FALSE,eggs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
  [45] {hair=FALSE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
  [46] {legs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
  [47] {backbone=TRUE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
                                            {feathers=TRUE} 0.1980198
##
   Г481
       {hair=FALSE}
##
   [49]
       {eggs=TRUE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
   [50] {legs=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [51] {breathes=TRUE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   [52] {fins=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [53]
       {predator=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1089109
   [54] {breathes=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
   [55]
        {backbone=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [56]
        {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
       {backbone=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [58] {fins=FALSE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
        {backbone=TRUE, breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [60]
       {aquatic=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1386139
       {predator=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1089109
       {venomous=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [62]
        {venomous=FALSE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   [63]
##
   [64]
       {breathes=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [65]
       {backbone=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
       {venomous=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [66]
##
   Γ671
       {predator=FALSE, breathes=TRUE}
                                            {feathers=TRUE} 0.1089109
   [68] {predator=FALSE,fins=FALSE}
                                           {feathers=TRUE} 0.1089109
##
   [69] {breathes=TRUE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [70] {aquatic=FALSE,backbone=TRUE}
                                           {feathers=TRUE} 0.1386139
##
   [71] {breathes=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [72] {fins=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
  [73] {venomous=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [74] {legs=TRUE,domestic=FALSE}
                                           {feathers=TRUE} 0.1683168
##
  [75] {predator=FALSE, venomous=FALSE}
                                        =>
                                            {feathers=TRUE} 0.1089109
  [76] {backbone=TRUE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
## [77] {aquatic=FALSE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1386139
## [78] {aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
```

```
## [79] {venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
  [80] {domestic=FALSE}
                                        => {feathers=TRUE} 0.1683168
##
        confidence lift
##
##
        1.0000000 5.0500000
  [1]
##
   [2]
        0.9090909
                   4.5909091
  [3]
        0.8888889
##
                   4.4888889
        0.888889
  ۲4٦
                   4.4888889
##
  [5]
        0.8888889
                   4.4888889
##
  [6]
        0.8695652
                   4.3913043
##
  [7]
        0.7272727
                   3.6727273
  [8]
        0.7272727
                   3.6727273
  [9]
        0.7272727
                   3.6727273
## [10] 0.7272727
                   3.6727273
                   3.0606061
## [11] 0.6060606
## [12] 0.5714286
                   2.8857143
## [13] 0.555556
                   2.8055556
## [14] 0.555556
                   2.8055556
  [15] 0.5555556
                   2.8055556
## [16] 0.5405405
                   2.7297297
## [17] 0.5384615
                   2.7192308
## [18] 0.5238095
                   2.6452381
## [19] 0.5185185
                   2.6185185
## [20] 0.5128205
                   2.5897436
## [21] 0.5128205
                   2.5897436
## [22] 0.5128205
                   2.5897436
## [23] 0.5128205
                   2.5897436
## [24] 0.5128205
                   2.5897436
## [25] 0.5000000
                   2.5250000
## [26] 0.5000000
                   2.5250000
                   2.5250000
## [27] 0.5000000
## [28] 0.5000000
                   2.5250000
  [29] 0.4827586
                   2.4379310
  [30] 0.4761905
                   2.4047619
                   2.4047619
## [31] 0.4761905
  [32] 0.4761905
                   2.4047619
## [33] 0.4666667
                   2.3566667
## [34] 0.4651163
                   2.3488372
## [35] 0.4545455
                   2.2954545
## [36] 0.4347826
                   2.1956522
  [37] 0.4255319
                   2.1489362
  [38] 0.4230769
                   2.1365385
  [39] 0.4230769
                   2.1365385
## [40] 0.3846154
                   1.9423077
## [41] 0.3846154
                   1.9423077
## [42] 0.3783784
                   1.9108108
## [43] 0.3773585
                   1.9056604
## [44] 0.3703704
                   1.8703704
## [45] 0.3571429
                   1.8035714
## [46] 0.3508772
                   1.7719298
## [47] 0.3500000
                   1.7675000
## [48] 0.3448276
                   1.7413793
## [49] 0.3448276
                   1.7413793
## [50] 0.3414634
                   1.7243902
## [51] 0.3414634 1.7243902
```

```
[52] 0.3389831
                    1.7118644
                    1.6833333
##
   [53] 0.3333333
   [54] 0.3278689
                    1.6557377
   [55] 0.3125000
                    1.5781250
##
   [56] 0.3055556
                    1.5430556
   [57] 0.3030303
##
                    1.5303030
   [58] 0.2916667
                    1.4729167
   [59] 0.2898551
                    1.4637681
   [60] 0.2857143
                    1.4428571
   [61] 0.2820513
                    1.4243590
   [62] 0.2816901
                    1.4225352
   [63] 0.2800000
                    1.4140000
##
   [64] 0.2739726
                    1.3835616
   [65] 0.2702703
                    1.3648649
   [66] 0.2702703
                    1.3648649
   [67]
        0.2682927
                    1.3548780
##
   [68] 0.2682927
                    1.3548780
   [69] 0.2666667
                    1.3466667
   [70] 0.2641509
                    1.3339623
   [71] 0.2631579
                    1.3289474
##
   [72] 0.2597403
                    1.3116883
   [73] 0.2597403
                    1.3116883
   [74] 0.2575758
##
                    1.3007576
   [75] 0.2558140
                    1.2918605
   [76] 0.2531646
                    1.2784810
   [77] 0.2295082
                    1.1590164
   [78] 0.2153846
                    1.0876923
##
   [79] 0.2150538
                    1.0860215
   [80] 0.1931818
                   0.9755682
##
        lhs
##
                                                         confidence lift
                             rhs
                                               support
##
   [1]
        {type=fish}
                          => {feathers=FALSE} 0.1287129 1.0000000
                                                                     1.2469136
##
   [2]
        {fins=TRUE}
                          => {feathers=FALSE} 0.1683168 1.0000000
                                                                     1.2469136
##
   [3]
        {backbone=FALSE} => {feathers=FALSE} 0.1782178 1.0000000
                                                                     1.2469136
   [4]
##
        {breathes=FALSE} => {feathers=FALSE} 0.2079208 1.0000000
                                                                     1.2469136
   [5]
                             {feathers=FALSE} 0.2277228 1.0000000
##
        {legs=FALSE}
                                                                     1.2469136
                          => {feathers=FALSE} 0.2574257 1.0000000
##
   [6]
        {tail=FALSE}
                                                                     1.2469136
##
   [7]
        {eggs=FALSE}
                          => {feathers=FALSE} 0.4158416 1.0000000
                                                                     1.2469136
##
   [8]
        {hair=TRUE}
                          => {feathers=FALSE} 0.4257426 1.0000000
                                                                     1.2469136
   [9]
                             {feathers=FALSE} 0.7227723 0.9480519
##
        {airborne=FALSE} =>
                                                                     1.1821388
##
   [10] {catsize=TRUE}
                          => {feathers=FALSE} 0.3762376 0.8636364
                                                                     1.0768799
   [11] {predator=TRUE}
                          => {feathers=FALSE} 0.4653465 0.8392857
                                                                     1.0465168
                          => {feathers=FALSE} 0.2970297 0.8333333
   [12] {aquatic=TRUE}
                                                                     1.0390947
##
   [13] {aquatic=FALSE}
                          => {feathers=FALSE} 0.5049505 0.7846154
                                                                     0.9783476
                          => {feathers=FALSE} 0.3366337 0.7555556
##
   [14] {predator=FALSE}
                                                                     0.9421125
   [15] {catsize=FALSE}
                          => {feathers=FALSE} 0.4257426 0.7543860
                                                                     0.9406541
   [16] {breathes=TRUE}
                          => {feathers=FALSE} 0.5940594 0.7500000
                                                                     0.9351852
##
   [17]
       {legs=TRUE}
                             {feathers=FALSE} 0.5742574 0.7435897
                                                                     0.9271921
   [18] {milk=FALSE}
                          => {feathers=FALSE} 0.3960396 0.6666667
                                                                     0.8312757
                          => {feathers=FALSE} 0.3861386 0.6610169
                                                                     0.8242310
   [19] {eggs=TRUE}
##
   [20] {hair=FALSE}
                          => {feathers=FALSE} 0.3762376 0.6551724
                                                                     0.8169434
##
                          => {feathers=FALSE} 0.1980198 0.5000000
   [21] {toothed=FALSE}
                                                                     0.6234568
##
                                                           support
                                                                      confidence
##
  [1] {hair=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5384615
  [2] {aquatic=FALSE,toothed=FALSE} => {feathers=TRUE} 0.1386139 0.5185185
```

```
## [3] {eggs=TRUE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4827586
## [4] {milk=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
## [5] {aquatic=FALSE,tail=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2857143
  [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
##
   [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
       lift
## [1] 2.719231
## [2] 2.618519
## [3] 2.437931
  [4] 2.356667
  [5] 1.442857
  [6] 1.333962
##
   [7] 1.159016
##
        lhs
                                                             support
## [1]
                                         => {feathers=TRUE} 0.1089109
        {predator=FALSE, toothed=FALSE}
## [2]
        {hair=FALSE, predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
##
  [3]
        {eggs=TRUE,predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
  [4]
        {milk=FALSE,predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
##
  [5]
        {predator=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1089109
   [6]
        {predator=FALSE, backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
##
  [7]
        {predator=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1089109
        {predator=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1089109
  [8]
                                         => {feathers=TRUE} 0.1089109
  [9]
        {predator=FALSE,fins=FALSE}
  [10] {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
##
        confidence lift
  Г17
        0.5238095 2.645238
  [2]
        0.5000000
                   2.525000
##
   [3]
        0.4230769
                   2.136538
  [4]
##
        0.4230769
                   2.136538
  [5]
        0.3333333
                   1.683333
##
  [6]
        0.3055556
                   1.543056
##
  [7]
        0.2820513
                   1.424359
  [8]
        0.2682927
                   1.354878
##
  [9]
        0.2682927
                   1.354878
   [10] 0.2558140
                   1.291860
##
##
       lhs
                                          rhs
                                                           support
                                                                     confidence
## [1] {tail=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3783784
## [2] {backbone=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3500000
## [3] {legs=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
  [4] {breathes=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
  [5] {fins=FALSE, catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.2916667
  [6] {venomous=FALSE,catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
       lift
## [1] 1.910811
## [2] 1.767500
## [3] 1.724390
## [4] 1.724390
## [5] 1.472917
##
  [6] 1.414000
##
        lhs
                                           rhs
                                                            support
## [1]
        {toothed=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
## [2]
        {hair=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
                                        => {feathers=TRUE} 0.1980198
## [3]
        {eggs=TRUE,breathes=TRUE}
## [4]
        {milk=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
```

```
{breathes=TRUE,catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
##
   [6]
        {breathes=TRUE, tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [7]
        {backbone=TRUE, breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [8]
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
##
   [9]
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
       {breathes=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198
##
   Γ107
##
   [11] {breathes=TRUE.fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
        confidence lift
##
   [1]
        0.6060606
                   3.060606
##
   [2]
        0.5405405
                    2.729730
   [3]
        0.5128205
                    2.589744
   [4]
##
        0.5128205
                    2.589744
##
   [5]
        0.3414634
                    1.724390
##
   [6]
        0.3278689
                    1.655738
   [7]
##
        0.2898551
                    1.463768
##
   [8]
        0.2739726
                    1.383562
##
   [9]
        0.2682927
                    1.354878
                    1.346667
   [10] 0.2666667
##
   [11]
        0.2631579
                    1.328947
##
        lhs
                                                         support
                                                                   confidence
##
   [1]
        {toothed=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5555556
                                     => {feathers=TRUE} 0.1980198 0.5555556
   [2]
        {hair=FALSE,legs=TRUE}
   [3]
                                     => {feathers=TRUE} 0.1980198 0.5000000
        {eggs=TRUE,legs=TRUE}
##
                                        {feathers=TRUE} 0.1980198 0.5000000
##
   [4]
        {milk=FALSE,legs=TRUE}
##
   [5]
        {legs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3508772
   [6]
        {legs=TRUE,catsize=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.3414634
   [7]
        {backbone=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3125000
##
##
   [8]
        {predator=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1089109 0.2820513
        {breathes=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2739726
##
   [10] {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
        {fins=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2597403
##
   [12]
        {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
##
        lift
##
   [1]
        2.805556
##
   [2]
        2.805556
   [3]
##
        2.525000
##
   [4]
        2.525000
   [5]
        1.771930
##
   [6]
##
        1.724390
##
   [7]
        1.578125
   [8]
        1.424359
   [9]
##
        1.383562
##
   Γ10]
       1.364865
##
   [11] 1.311688
##
   [12] 1.300758
##
        lhs
                                         rhs
                                                          support
                                                                    confidence
##
   [1]
        {milk=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.7272727
   [2]
        {milk=FALSE,toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
                                      => {feathers=TRUE} 0.1980198 0.5128205
   [3]
        {milk=FALSE,breathes=TRUE}
##
   [4]
        {milk=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
        {milk=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
   [6]
        {milk=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
##
  [7]
        {milk=FALSE,aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.4666667
## [8]
        {milk=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4255319
```

```
{milk=FALSE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
   [10] {milk=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
                                     => {feathers=TRUE} 0.1980198 0.3571429
   [11] {hair=FALSE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3448276
   [12] {eggs=TRUE,milk=FALSE}
        lift.
##
  [1]
        3.672727
   [2]
        2.589744
   [3]
        2.589744
##
##
   [4]
        2.525000
##
   [5]
        2.525000
   [6]
        2.404762
   [7]
##
        2.356667
##
   [8]
        2.148936
##
   [9]
        2.136538
  [10] 1.942308
   [11] 1.803571
##
   [12] 1.741379
##
        lhs
                                                        support
                                                                   confidence
##
   [1]
                                    => {feathers=TRUE} 0.1584158 0.7272727
        {eggs=TRUE,airborne=TRUE}
   [2]
        {eggs=TRUE,toothed=FALSE}
                                       {feathers=TRUE} 0.1980198 0.5128205
##
   [3]
        {eggs=TRUE,tail=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
   [4]
                                       {feathers=TRUE} 0.1980198 0.5128205
##
        {eggs=TRUE,breathes=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5000000
   [5]
        {eggs=TRUE,legs=TRUE}
##
                                       {feathers=TRUE} 0.1386139 0.4827586
##
   [6]
        {eggs=TRUE,aquatic=FALSE}
        {eggs=TRUE,backbone=TRUE}
##
   [7]
                                    => {feathers=TRUE} 0.1980198 0.4761905
   [8]
        {eggs=TRUE,fins=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.4347826
   [9]
        {eggs=TRUE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
##
   [10] {eggs=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3773585
                                    => {feathers=TRUE} 0.1980198 0.3703704
   [11] {hair=FALSE,eggs=TRUE}
   [12] {eggs=TRUE,milk=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.3448276
##
##
        lift
##
   [1]
        3.672727
##
   [2]
        2.589744
   [3]
##
        2.589744
   [4]
        2.589744
##
   [5]
##
        2.525000
   [6]
        2.437931
   [7]
        2.404762
##
   [8]
        2.195652
##
   [9]
##
        2.136538
   [10] 1.905660
   [11] 1.870370
##
   Γ12]
       1.741379
##
        lhs
                                        rhs
                                                         support
                                                                    confidence
## [1]
        {hair=FALSE,airborne=TRUE}
                                     => {feathers=TRUE} 0.1584158 0.8888889
   [2]
                                     => {feathers=TRUE} 0.1980198 0.5714286
##
        {hair=FALSE,toothed=FALSE}
##
   [3]
        {hair=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5555556
##
   [4]
        {hair=FALSE,breathes=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5405405
   [5]
        {hair=FALSE,aquatic=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.5384615
##
   [6]
        {hair=FALSE, predator=FALSE}
                                     => {feathers=TRUE} 0.1089109 0.5000000
                                     => {feathers=TRUE} 0.1980198 0.4761905
##
   [7]
        {hair=FALSE,tail=TRUE}
  [8]
        {hair=FALSE,fins=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.4651163
## [9]
        {hair=FALSE,backbone=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.4545455
## [10] {hair=FALSE,venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
```

```
## [11] {hair=FALSE,eggs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3703704
   [12] {hair=FALSE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3571429
##
        lift
##
  [1]
        4.488889
##
   [2]
        2.885714
   [3]
##
        2.805556
   [4]
        2.729730
##
  [5]
        2.719231
##
   [6]
        2.525000
##
   [7]
        2.404762
   [8]
        2.348837
   [9]
##
        2.295455
   [10] 1.942308
##
  [11] 1.870370
   [12] 1.803571
##
##
        lhs
                                            rhs
                                                            support
##
  [1]
        {toothed=FALSE,backbone=TRUE}
                                        => {feathers=TRUE} 0.1980198
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [3]
        {airborne=TRUE, toothed=FALSE}
                                        => {feathers=TRUE} 0.1584158
##
   [4]
        {toothed=FALSE, breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
##
   [5]
        {hair=FALSE,toothed=FALSE}
                                        => {feathers=TRUE} 0.1980198
  [6]
        {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [7]
        {toothed=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198
##
   [8]
        {predator=FALSE,toothed=FALSE} => {feathers=TRUE} 0.1089109
##
   [9]
        {aquatic=FALSE, toothed=FALSE}
                                        => {feathers=TRUE} 0.1386139
   [10]
       {eggs=TRUE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [11] {milk=FALSE, toothed=FALSE}
                                        => {feathers=TRUE} 0.1980198
##
##
        confidence lift
##
  [1]
        0.9090909
                   4.590909
   [2]
        0.8695652
                   4.391304
##
   [3]
        0.7272727
                   3.672727
##
   [4]
        0.6060606
                   3.060606
##
   [5]
        0.5714286
                   2.885714
##
   [6]
        0.555556
                   2.805556
   [7]
        0.555556
                   2.805556
##
   [8]
        0.5238095
                   2.645238
  [9]
        0.5185185
                   2.618519
## [10] 0.5128205
                   2.589744
   [11] 0.5128205
                   2.589744
##
   [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                         support
                                                                    confidence
                                            {fins=TRUE} 0.1287129 1.0000000
##
  [1]
        {type=fish}
##
   [2]
        {toothed=TRUE, breathes=FALSE}
                                          => {fins=TRUE} 0.1287129 0.9285714
##
   [3]
        {breathes=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.9285714
  [4]
        {backbone=TRUE, breathes=FALSE}
                                          => {fins=TRUE} 0.1287129 0.9285714
## [5]
                                            {fins=TRUE} 0.1584158 0.8888889
        {aquatic=TRUE,legs=FALSE}
##
   [6]
        {toothed=TRUE,legs=FALSE}
                                            {fins=TRUE} 0.1584158 0.8421053
##
   [7]
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
  [8]
        {legs=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.8333333
   [9]
        {breathes=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1287129 0.8125000
                                          => {fins=TRUE} 0.1485149 0.7894737
  [10]
       {venomous=FALSE,legs=FALSE}
## [11] {aquatic=TRUE,toothed=TRUE}
                                          => {fins=TRUE} 0.1683168 0.7391304
## [12] {predator=TRUE,legs=FALSE}
                                          => {fins=TRUE} 0.1188119 0.7058824
## [13] {breathes=FALSE,venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
```

```
## [14] {hair=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1485149 0.6521739
                                           {fins=TRUE} 0.1287129 0.6500000
  [15] {aquatic=TRUE, breathes=FALSE}
  [16] {eggs=TRUE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.6500000
  [17] {breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.6190476
  [18] {milk=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.6190476
  [19] {aquatic=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.6153846
## [20] {feathers=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
## [21] {aquatic=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
## [22] {airborne=FALSE,aquatic=TRUE}
                                           {fins=TRUE} 0.1683168 0.5483871
  [23] {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
  [24] {hair=FALSE,feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
                                           {fins=TRUE} 0.1485149 0.3750000
  [25] {hair=FALSE,airborne=FALSE}
  [26] {hair=FALSE,tail=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3571429
## [27] {predator=TRUE, toothed=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3513514
                                         => {fins=TRUE} 0.1287129 0.3513514
## [28] {eggs=TRUE,airborne=FALSE}
       {milk=FALSE,airborne=FALSE}
                                           {fins=TRUE} 0.1287129 0.3421053
   [29]
                                         => {fins=TRUE} 0.1485149 0.3409091
  [30] {hair=FALSE,backbone=TRUE}
   [31] {eggs=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
                                         => {fins=TRUE} 0.1287129 0.3333333
  [32] {feathers=FALSE,eggs=TRUE}
  [33] {milk=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.3250000
##
  [34] {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
## [35] {eggs=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [36] {milk=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [37] {toothed=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.3076923
  [38] {toothed=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.3076923
  [39] {hair=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1089109 0.3055556
  [40] {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
## [41] {airborne=FALSE,toothed=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2881356
## [42] {predator=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1188119 0.2857143
## [43] {toothed=TRUE, venomous=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2807018
## [44] {airborne=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.2807018
  [45] {feathers=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
  [46] {predator=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
                                        => {fins=TRUE} 0.1683168 0.2698413
  [47] {feathers=FALSE,backbone=TRUE}
   [48] {hair=FALSE, venomous=FALSE}
                                           {fins=TRUE} 0.1386139 0.2692308
## [49] {airborne=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2653061
  [50] {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
  [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
       {hair=FALSE}
                                           {fins=TRUE} 0.1485149 0.2586207
##
  [52]
##
  [53] {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
  [54] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [57] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
## [58] {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
                                           {fins=TRUE} 0.1584158 0.2253521
  [59]
       {airborne=FALSE, venomous=FALSE} =>
  [60]
       {feathers=FALSE,domestic=FALSE} =>
                                           {fins=TRUE} 0.1584158 0.2253521
   [61] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
   [62] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
   [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
                                        => {fins=TRUE} 0.1188119 0.2181818
  [64] {milk=FALSE,domestic=FALSE}
  [65] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
  [66] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
```

- ## [1] 5.941176
- ## [2] 5.516807
- 5.516807 [3]
- ##
- [4] 5.516807
- ## [5] 5.281046 [6] 5.003096
- ##
- ## [7] 5.003096
- [8] ## 4.950980
- ## [9] 4.827206
- ## [10] 4.690402
- [11] 4.391304
- [12] 4.193772
- ## [13] 3.960784
- ## [14] 3.874680
- ## [15] 3.861765
- [16] 3.861765
- ##
- [17] 3.677871
- [18] 3.677871
- [19] 3.656109
- ## [20] 3.366667
- ## [21] 3.366667
- ## [22] 3.258065
- ## [23] 2.970588
- ## [24] 2.345201
- [25] 2.227941
- [26] 2.121849
- [27] 2.087440
- [28] 2.087440 ##
- [29] 2.032508
- ## [30] 2.025401
- ## [31] 1.980392
- ## [32] 1.980392
- [33] 1.930882
- [34] 1.930882
- [35] 1.838936
- ## [36] 1.838936
- ## [37] 1.828054
- ## [38] 1.828054
- ## [39] 1.815359
- ## [40] 1.728342
- ## [41] 1.711864
- [42] 1.697479
- ## [43] 1.667699
- ## [44] 1.667699
- ## [45] 1.643304
- ## [46] 1.643304
- [47] 1.603175 ##
- ## [48] 1.599548
- ## [49] 1.576230
- ## [50] 1.553846
- ## [51] 1.540305 ## [52] 1.536511
- ## [53] 1.425882
- ## [54] 1.397924

```
[55] 1.383562
##
   [56] 1.371041
   [57] 1.371041
   [58] 1.345172
##
##
   [59] 1.338857
   [60] 1.338857
##
   [61] 1.338857
##
   [62] 1.320261
##
   [63] 1.302176
##
   [64] 1.296257
   [65] 1.284579
##
   [66]
       1.100218
##
        lhs
                                                     confidence lift
                             rhs
                                           support
        {backbone=FALSE} =>
##
   [1]
                             {fins=FALSE} 0.1782178 1.0000000
   [2]
##
        {type=bird}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                 1.2023810
##
   [3]
        {feathers=TRUE}
                             {fins=FALSE} 0.1980198 1.0000000
                                                                 1.2023810
   [4]
##
                          => {fins=FALSE} 0.2376238 1.0000000
        {airborne=TRUE}
                                                                 1.2023810
   [5]
        {toothed=FALSE}
                          => {fins=FALSE} 0.3960396 1.0000000
##
                                                                 1.2023810
##
   [6]
                          => {fins=FALSE} 0.7623762 0.9871795
        {legs=TRUE}
                                                                 1.1869658
##
   [7]
        {hair=TRUE}
                          => {fins=FALSE} 0.4059406 0.9534884
                                                                 1.1464563
##
   [8]
        {breathes=TRUE}
                          => {fins=FALSE} 0.7524752 0.9500000
                                                                 1.1422619
                          => {fins=FALSE} 0.1188119 0.9230769
   [9]
        {domestic=TRUE}
                                                                 1.1098901
       {predator=FALSE}
                          => {fins=FALSE} 0.4059406 0.9111111
   [10]
                                                                 1.0955026
##
   [11] {eggs=FALSE}
                          => {fins=FALSE} 0.3762376 0.9047619
                                                                 1.0878685
##
   [12] {milk=TRUE}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                 1.0850755
   [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                 1.0850755
                          => {fins=FALSE} 0.4752475 0.8421053
   [14] {catsize=FALSE}
                                                                 1.0125313
   [15] {venomous=FALSE}
                          => {fins=FALSE} 0.7623762 0.8279570
                                                                 0.9955197
   [16] {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                 0.9837662
       {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
   Γ17]
                                                                 0.9837662
   [18]
        {backbone=TRUE}
                          => {fins=FALSE} 0.6534653 0.7951807
                                                                 0.9561102
   [19]
        {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                 0.9500294
   [20] {tail=TRUE}
                          => {fins=FALSE} 0.5841584 0.7866667
                                                                 0.9458730
   [21] {eggs=TRUE}
                          => {fins=FALSE} 0.4554455 0.7796610
                                                                 0.9374496
        {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
   [22]
                                                                 0.9369202
   [23] {predator=TRUE}
##
                          => {fins=FALSE} 0.4257426 0.7678571
                                                                 0.9232568
   [24] {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
   [25] {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115
##
                                                                 0.8672912
                          => {fins=FALSE} 0.1881188 0.5277778
##
   [26] {aquatic=TRUE}
                                                                 0.6345899
##
        lhs
                                             rhs
                                                         support
                                                                    confidence
##
   [1]
        {venomous=FALSE,legs=FALSE}
                                          => {fins=TRUE} 0.1485149 0.7894737
   [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
##
##
   [3]
        {aquatic=TRUE, venomous=FALSE}
                                          => {fins=TRUE} 0.1584158 0.5000000
##
   [4]
        {toothed=TRUE, venomous=FALSE}
                                          => {fins=TRUE} 0.1584158 0.2807018
##
   [5]
        {hair=FALSE, venomous=FALSE}
                                          => {fins=TRUE} 0.1386139 0.2692308
   [6]
                                            {fins=TRUE} 0.1188119 0.2400000
##
        {predator=TRUE, venomous=FALSE}
                                         =>
##
   [7]
        {milk=FALSE, venomous=FALSE}
                                            {fins=TRUE} 0.1188119 0.2307692
##
   [8]
        {eggs=TRUE, venomous=FALSE}
                                          => {fins=TRUE} 0.1188119 0.2264151
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
        {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
        {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
        lift
## [1]
        4.690402
## [2]
        3.960784
```

```
## [3]
        2.970588
##
   [4]
        1.667699
##
   [5]
        1.599548
   [6]
##
        1.425882
##
   [7]
        1.371041
##
   [8]
        1.345172
   [9]
        1.338857
## [10] 1.302176
##
  [11] 1.100218
##
       lhs
                                            rhs
                                                        support
                                                                   confidence
  [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
   [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
   [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
## [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
   [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
   [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
   [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
       lift.
##
  [1] 1.828054
  [2] 1.540305
  [3] 1.397924
##
##
   [4] 1.371041
  [5] 1.338857
##
   [6] 1.338857
##
   [7] 1.320261
##
   [8] 1.296257
   [9] 1.100218
##
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
## [1]
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
##
   [2]
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
##
   [3]
        {aquatic=TRUE, backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
   [4]
##
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
   [5]
        {eggs=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
##
##
   [6]
        {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
   [7]
        {predator=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
   [8]
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
##
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
##
   [9]
   [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
   [11] {backbone=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
        lift
##
   Г17
        5.516807
##
   [2]
        5.003096
   [3]
##
        3.366667
   [4]
        2.025401
##
##
   [5]
        1.838936
##
   [6]
        1.838936
##
   [7]
        1.643304
##
   [8]
        1.603175
##
   [9]
        1.553846
## [10] 1.338857
## [11] 1.284579
##
        lhs
                                                         support
                                                                    confidence
                                             rhs
```

```
{feathers=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
##
  [2]
                                         => {fins=TRUE} 0.1485149 0.3947368
        {hair=FALSE, feathers=FALSE}
        {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
  [3]
  [4]
        {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
##
##
   [5]
        {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
##
  [6]
        {feathers=FALSE, predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
  [7]
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
##
  [8]
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
   [9]
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
        lift
        3.366667
##
  [1]
##
   [2]
        2.345201
##
  [3]
        1.980392
  ۲4٦
##
        1.930882
##
   [5]
        1.728342
   [6]
##
        1.643304
   [7]
        1.603175
##
  [8]
##
        1.383562
##
   [9]
        1.338857
   [10] 1.302176
##
##
        lhs
                                       rhs
                                                    support
                                                              confidence
##
  [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
##
   [2]
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.8333333
##
  [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
  [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
   [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
##
##
   [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
  [7]
##
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
## [8]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
## [9]
        {predator=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1188119 0.2857143
  [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
  [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
   [12] {backbone=TRUE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
##
        lift
## [1]
        5.516807
## [2]
        4.950980
## [3]
        3.656109
  [4]
##
        2.121849
##
  [5]
        1.980392
  [6]
        1.930882
  [7]
##
        1.828054
##
   [8]
        1.728342
##
  [9]
        1.697479
## [10] 1.667699
## [11] 1.371041
##
  [12] 1.284579
##
       lhs
                                      rhs
                                                   support
                                                             confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {fins=TRUE} 0.1287129 0.6500000
  [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
##
  [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
## [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
## [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
```

```
## [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
       lift.
## [1] 3.861765
## [2] 2.087440
## [3] 1.980392
## [4] 1.980392
## [5] 1.838936
## [6] 1.345172
## [7] 1.320261
##
        lhs
                                                        support
                                                                   confidence
## [1]
        {airborne=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
## [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
  [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
## [5]
        {airborne=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
## [6]
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
                                         => {fins=TRUE} 0.1287129 0.2653061
## [7]
        {airborne=FALSE,predator=TRUE}
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
##
  [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
## [1]
        3.258065
  [2]
        2.227941
##
## [3]
        2.087440
## [4]
        2.032508
  [5]
##
        1.711864
##
  [6]
        1.667699
## [7]
        1.576230
## [8]
        1.553846
## [9]
        1.397924
## [10] 1.383562
## [11] 1.338857
##
       lhs
                                                                 confidence
                                          rhs
                                                      support
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
## [2] {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
## [3] {hair=FALSE, predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
## [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
  [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
## [4] 1.697479
## [5] 1.643304
## [6] 1.643304
## [7] 1.576230
## [8] 1.425882
##
       lhs
                                       rhs
                                                   support
                                                             confidence
## [1] {hair=FALSE,toothed=TRUE}
                                    => {fins=TRUE} 0.1485149 0.6521739
## [2] {hair=FALSE, feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
```

```
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
                                    => {fins=TRUE} 0.1485149 0.3571429
## [4] {hair=FALSE,tail=TRUE}
## [5] {hair=FALSE,backbone=TRUE} => {fins=TRUE} 0.1485149 0.3409091
## [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
  [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
   [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
##
       lift
## [1] 3.874680
## [2] 2.345201
## [3] 2.227941
## [4] 2.121849
## [5] 2.025401
##
  [6] 1.815359
## [7] 1.599548
## [8] 1.540305
##
        lhs
                                          rhs
                                                      support
                                                                 confidence
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
## [1]
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
##
  [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
##
  [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
##
  [5]
        {eggs=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
## [6]
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
## [7]
        {predator=TRUE,toothed=TRUE}
                                      => {fins=TRUE} 0.1287129 0.3513514
## [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
## [9]
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
  [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
   [11] {toothed=TRUE,venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
##
        lift
## [1]
       5.516807
## [2]
       5.003096
## [3]
        4.391304
##
  [4]
        3.874680
##
  [5]
        3.861765
  [6]
##
        3.677871
   [7]
##
        2.087440
  [8]
        1.828054
##
## [9]
       1.828054
## [10] 1.711864
## [11] 1.667699
##
       lhs
                                         rhs
                                                     support
                                                                confidence
## [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
  [2] {aquatic=TRUE,toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
## [3] {aquatic=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
  [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
## [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [6] {aquatic=TRUE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
   [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
   [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
##
       lift
## [1] 5.281046
## [2] 4.391304
## [3] 3.861765
## [4] 3.656109
## [5] 3.366667
```

```
[6] 3.366667
   [7] 3.258065
   [8] 2.970588
       "Número de reglas con consecuente negado"
##
##
                                                        support
                                                                  confidence
##
  [1]
        {type=fish}
                                         => {fins=TRUE} 0.1287129 1.0000000
   [2]
        {toothed=TRUE.breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
##
   [3]
        {breathes=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.9285714
##
   [4]
        {backbone=TRUE, breathes=FALSE}
                                            {fins=TRUE} 0.1287129 0.9285714
##
   [5]
        {aquatic=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8888889
   [6]
        {toothed=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1584158 0.8421053
   [7]
##
        {backbone=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1584158 0.8421053
##
   [8]
        {legs=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1485149 0.8333333
        {breathes=FALSE,legs=FALSE}
##
  [9]
                                         => {fins=TRUE} 0.1287129 0.8125000
                                         => {fins=TRUE} 0.1485149 0.7894737
  [10]
       {venomous=FALSE,legs=FALSE}
       {aquatic=TRUE, toothed=TRUE}
                                            {fins=TRUE} 0.1683168 0.7391304
   [11]
  [12] {predator=TRUE,legs=FALSE}
                                           {fins=TRUE} 0.1188119 0.7058824
  [13] {breathes=FALSE, venomous=FALSE} =>
                                           {fins=TRUE} 0.1188119 0.6666667
  [14] {hair=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1485149 0.6521739
  [15] {aquatic=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.6500000
##
  [16] {eggs=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6500000
  [17] {breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6190476
## [18] {milk=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6190476
  [19] {aquatic=TRUE,tail=TRUE}
                                            {fins=TRUE} 0.1584158 0.6153846
  [20] {feathers=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
  [21] {aquatic=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1683168 0.5666667
                                           {fins=TRUE} 0.1683168 0.5483871
  [22] {airborne=FALSE,aquatic=TRUE}
  [23] {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
## [24] {hair=FALSE,feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
## [25] {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
  [26] {hair=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1485149 0.3571429
  [27]
       {predator=TRUE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.3513514
  [28] {eggs=TRUE,airborne=FALSE}
                                           {fins=TRUE} 0.1287129 0.3513514
                                         => {fins=TRUE} 0.1287129 0.3421053
  [29] {milk=FALSE,airborne=FALSE}
       {hair=FALSE,backbone=TRUE}
                                            {fins=TRUE} 0.1485149 0.3409091
   [30]
##
  [31] {eggs=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
  [32] {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
  [33] {milk=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3250000
                                            {fins=TRUE} 0.1287129 0.3250000
  [34] {feathers=FALSE,milk=FALSE}
  [35] {eggs=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [36] {milk=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.3095238
  [37] {toothed=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.3076923
  [38] {toothed=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.3076923
                                         => {fins=TRUE} 0.1089109 0.3055556
  [39] {hair=FALSE,predator=TRUE}
## [40] {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
                                         => {fins=TRUE} 0.1683168 0.2881356
## [41] {airborne=FALSE,toothed=TRUE}
## [42] {predator=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1188119 0.2857143
## [43] {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [44] {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [45] {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
                                         => {fins=TRUE} 0.1287129 0.2765957
## [46] {predator=TRUE,backbone=TRUE}
## [47] {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
## [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
## [49] {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
```

```
## [50] {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
                                         => {fins=TRUE} 0.1386139 0.2592593
  [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2586207
  [52] {hair=FALSE}
  [53] {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
  [54] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [57] {tail=TRUE,domestic=FALSE}
                                           {fins=TRUE} 0.1485149 0.2307692
##
   [58]
       {eggs=TRUE, venomous=FALSE}
                                            {fins=TRUE} 0.1188119 0.2264151
   [59]
       {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [60] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [61] {backbone=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2253521
   [62]
       {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
   [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
                                         => {fins=TRUE} 0.1188119 0.2181818
   [64] {milk=FALSE,domestic=FALSE}
   [65] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
       {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
   [66]
##
        lift
##
  [1]
        5.941176
##
   [2]
        5.516807
##
   [3]
        5.516807
  [4]
##
        5.516807
  [5]
##
        5.281046
##
   [6]
        5.003096
##
  [7]
        5.003096
  [8]
        4.950980
   [9]
##
        4.827206
##
  [10] 4.690402
## [11] 4.391304
## [12] 4.193772
## [13] 3.960784
##
  [14] 3.874680
  [15] 3.861765
  [16] 3.861765
   [17] 3.677871
## [18] 3.677871
## [19] 3.656109
## [20] 3.366667
  [21] 3.366667
##
  [22] 3.258065
  [23] 2.970588
  [24] 2.345201
##
  [25] 2.227941
  [26] 2.121849
##
## [27] 2.087440
## [28] 2.087440
##
  [29] 2.032508
  [30] 2.025401
  [31] 1.980392
  [32] 1.980392
##
  [33] 1.930882
## [34] 1.930882
## [35] 1.838936
## [36] 1.838936
```

```
## [37] 1.828054
   [38] 1.828054
  [39] 1.815359
  [40] 1.728342
  [41] 1.711864
##
  [42] 1.697479
  [43] 1.667699
## [44] 1.667699
   [45] 1.643304
  [46] 1.643304
  [47] 1.603175
  [48] 1.599548
  [49] 1.576230
  [50] 1.553846
  [51] 1.540305
   [52] 1.536511
##
   [53] 1.425882
   [54] 1.397924
  [55] 1.383562
   [56] 1.371041
##
  [57] 1.371041
  [58] 1.345172
##
  [59] 1.338857
##
   [60] 1.338857
   [61] 1.338857
   [62] 1.320261
   [63] 1.302176
##
##
   [64] 1.296257
##
   [65] 1.284579
##
   [66] 1.100218
##
        lhs
                                          support
                                                     confidence lift
##
  [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000 1.2023810
##
   [2]
        {type=bird}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
   [3]
##
        {feathers=TRUE}
                         => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
   [4]
        {airborne=TRUE}
                         => {fins=FALSE} 0.2376238 1.0000000
                                                                1.2023810
##
                         => {fins=FALSE} 0.3960396 1.0000000
   [5]
        {toothed=FALSE}
                                                                1.2023810
##
  [6]
        {legs=TRUE}
                          => {fins=FALSE} 0.7623762 0.9871795
##
  [7]
        {hair=TRUE}
                          => {fins=FALSE} 0.4059406 0.9534884
                                                                1.1464563
   [8]
        {breathes=TRUE}
                         => {fins=FALSE} 0.7524752 0.9500000
##
                                                                1.1422619
                         => {fins=FALSE} 0.1188119 0.9230769
##
  [9]
        {domestic=TRUE}
                                                                1.1098901
  [10] {predator=FALSE} => {fins=FALSE} 0.4059406 0.9111111
                                                                1.0955026
                          => {fins=FALSE} 0.3762376 0.9047619
  [11] {eggs=FALSE}
                                                                1.0878685
##
  [12] {milk=TRUE}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
  [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
  [14] {catsize=FALSE}
                         => {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
  [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
  [16] {catsize=TRUE}
                         => {fins=FALSE} 0.3564356 0.8181818
                                                                0.9837662
  [17] {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                0.9837662
  [18] {backbone=TRUE}
                         => {fins=FALSE} 0.6534653 0.7951807
                                                                0.9561102
  [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
## [20] {tail=TRUE}
                         => {fins=FALSE} 0.5841584 0.7866667
                                                                0.9458730
## [21] {eggs=TRUE}
                         => {fins=FALSE} 0.4554455 0.7796610
                                                                0.9374496
## [22] {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                0.9369202
## [23] {predator=TRUE} => {fins=FALSE} 0.4257426 0.7678571 0.9232568
```

```
## [24] {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793 0.8914204
  [25] {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115
                                                                0.8672912
   [26] {aquatic=TRUE}
                          => {fins=FALSE} 0.1881188 0.5277778
                                                               0.6345899
##
        lhs
                                            rhs
                                                         support
                                                                    confidence
##
   [1]
        {venomous=FALSE,legs=FALSE}
                                            {fins=TRUE} 0.1485149 0.7894737
##
   [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
##
   [3]
        {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
##
  [4]
        {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
   [5]
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
##
   [6]
        {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
   [7]
        {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
                                         => {fins=TRUE} 0.1188119 0.2264151
##
   [8]
        {eggs=TRUE, venomous=FALSE}
##
   [9]
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
        lift
##
  [1]
        4.690402
   [2]
        3.960784
   [3]
##
        2.970588
##
   [4]
        1.667699
##
   [5]
        1.599548
##
  [6]
        1.425882
  [7]
##
        1.371041
##
   [8]
        1.345172
##
  [9]
        1.338857
  [10] 1.302176
##
   [11] 1.100218
##
       lhs
                                            rhs
                                                        support
                                                                  confidence
## [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
  [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
  [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
  [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
   [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
##
  [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
   [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
       lift.
  [1] 1.828054
##
##
  [2] 1.540305
  [3] 1.397924
  [4] 1.371041
##
   [5] 1.338857
##
  [6] 1.338857
  [7] 1.320261
  [8] 1.296257
##
##
   [9] 1.100218
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
## [1]
##
   [2]
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
  [3]
##
        {aquatic=TRUE, backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
## [4]
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
## [5]
        {eggs=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
## [6]
        {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
```

```
{predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
  [8]
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
  [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
   [11] {backbone=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
        lift
## [1]
        5.516807
## [2]
        5.003096
##
  [3]
        3.366667
  [4]
##
        2.025401
  [5]
        1.838936
  [6]
##
        1.838936
##
   [7]
        1.643304
##
  [8]
        1.603175
## [9]
        1.553846
  [10] 1.338857
##
  [11] 1.284579
##
        lhs
                                                         support
                                                                   confidence
##
  [1]
        {feathers=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
   [2]
        {hair=FALSE, feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
##
  [3]
        {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
## [4]
        {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
## [5]
        {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
##
  [6]
        {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
##
  [7]
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [9]
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
   [10]
##
        lift
## [1]
        3.366667
## [2]
        2.345201
##
  [3]
        1.980392
##
  [4]
        1.930882
  [5]
##
        1.728342
   [6]
        1.643304
##
##
  [7]
        1.603175
## [8]
        1.383562
## [9]
        1.338857
  [10] 1.302176
##
##
                                                              confidence
        lhs
                                                    support
                                       rhs
  [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
  [2]
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.8333333
##
##
  [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
##
  [4]
                                    => {fins=TRUE} 0.1485149 0.3571429
        {hair=FALSE,tail=TRUE}
## [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
## [6]
                                    => {fins=TRUE} 0.1287129 0.3250000
        {milk=FALSE,tail=TRUE}
##
  [7]
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
  [8]
        {feathers=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
  [9]
        {predator=TRUE, tail=TRUE} => {fins=TRUE} 0.1188119 0.2857143
  [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
## [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
## [12] {backbone=TRUE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
        lift
## [1] 5.516807
```

```
## [2]
        4.950980
##
   [3]
        3.656109
##
  [4]
        2.121849
  [5]
##
        1.980392
##
   [6]
        1.930882
##
  [7]
        1.828054
  [8]
        1.728342
## [9]
        1.697479
  [10] 1.667699
  [11] 1.371041
  [12] 1.284579
##
       lhs
                                      rhs
                                                   support
                                                             confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {fins=TRUE} 0.1287129 0.6500000
  [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
                                   => {fins=TRUE} 0.1287129 0.3333333
## [3] {eggs=TRUE,tail=TRUE}
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
  [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
  [6] {eggs=TRUE,venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
   [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
##
       lift.
## [1] 3.861765
## [2] 2.087440
## [3] 1.980392
## [4] 1.980392
## [5] 1.838936
  [6] 1.345172
##
  [7] 1.320261
##
        lhs
                                                                    confidence
                                            rhs
                                                         support
## [1]
        {airborne=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
## [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
##
  [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
##
  [5]
        {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
                                         => {fins=TRUE} 0.1584158 0.2807018
##
  [6]
        {airborne=FALSE,tail=TRUE}
   [7]
        {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
        {airborne=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2615385
##
  [8]
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
##
        lift
  [1]
        3.258065
##
##
  [2]
        2.227941
##
   [3]
        2.087440
##
  [4]
        2.032508
##
  [5]
        1.711864
  [6]
##
        1.667699
##
  [7]
        1.576230
##
  [8]
        1.553846
        1.397924
  [9]
##
  [10] 1.383562
##
  [11] 1.338857
##
       lhs
                                                       support
                                                                 confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
## [2] {predator=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
```

```
## [3] {hair=FALSE,predator=TRUE}
                                      => {fins=TRUE} 0.1089109 0.3055556
                                       => {fins=TRUE} 0.1188119 0.2857143
## [4] {predator=TRUE,tail=TRUE}
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
  [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
       lift
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
## [4] 1.697479
## [5] 1.643304
## [6] 1.643304
## [7] 1.576230
## [8] 1.425882
##
       lhs
                                       rhs
                                                   support
                                                             confidence
## [1] {hair=FALSE,toothed=TRUE}
                                   => {fins=TRUE} 0.1485149 0.6521739
## [2] {hair=FALSE,feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
## [4] {hair=FALSE,tail=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3571429
## [5] {hair=FALSE,backbone=TRUE} => {fins=TRUE} 0.1485149 0.3409091
## [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
## [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
## [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
       lift
## [1] 3.874680
## [2] 2.345201
## [3] 2.227941
## [4] 2.121849
## [5] 2.025401
## [6] 1.815359
## [7] 1.599548
## [8] 1.540305
##
        lhs
                                          rhs
                                                      support
                                                                confidence
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
## [1]
                                       => {fins=TRUE} 0.1584158 0.8421053
## [2]
        {toothed=TRUE,legs=FALSE}
## [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
## [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
        {eggs=TRUE,toothed=TRUE}
## [5]
                                       => {fins=TRUE} 0.1287129 0.6500000
## [6]
                                       => {fins=TRUE} 0.1287129 0.6190476
        {milk=FALSE,toothed=TRUE}
## [7]
        {predator=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1287129 0.3513514
## [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
## [9]
       {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
## [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
## [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
        lift
## [1]
       5.516807
## [2]
       5.003096
## [3]
        4.391304
## [4]
        3.874680
## [5]
        3.861765
## [6]
        3.677871
## [7]
       2.087440
## [8]
       1.828054
```

```
[9]
        1.828054
  [10] 1.711864
   [11] 1.667699
##
       lhs
                                         rhs
                                                      support
                                                                confidence
##
   [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
  [2] {aquatic=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
  [3] {aquatic=TRUE, breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
  [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
   [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
   [6] {aquatic=TRUE,backbone=TRUE}
                                      => {fins=TRUE} 0.1683168 0.5666667
   [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
##
   [8]
       {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
  [1] 5.281046
##
   [2] 4.391304
##
   [3] 3.861765
   [4] 3.656109
##
   [5] 3.366667
  [6] 3.366667
##
   [7]
      3.258065
##
   [8] 2.970588
##
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                            support
##
  Г17
        {type=fish}
                                         => {aquatic=TRUE} 0.1287129
##
   [2]
        {fins=TRUE}
                                            {aquatic=TRUE} 0.1683168
   [3]
        {breathes=FALSE,tail=TRUE}
                                         => {aquatic=TRUE} 0.1386139
   [4]
        {backbone=TRUE, breathes=FALSE}
##
                                            {aquatic=TRUE} 0.1386139
##
   [5]
        {breathes=FALSE}
                                         => {aquatic=TRUE} 0.1980198
##
   [6]
        {backbone=TRUE,legs=FALSE}
                                            {aquatic=TRUE} 0.1683168
##
  [7]
                                            {aquatic=TRUE} 0.1980198
        {hair=FALSE,toothed=TRUE}
##
  [8]
        {milk=FALSE,toothed=TRUE}
                                            {aquatic=TRUE} 0.1782178
##
  [9]
        {eggs=TRUE,toothed=TRUE}
                                         => {aquatic=TRUE} 0.1683168
  [10] {predator=TRUE,legs=FALSE}
                                           {aquatic=TRUE} 0.1386139
  [11] {venomous=FALSE,legs=FALSE}
                                         => {aquatic=TRUE} 0.1485149
   [12] {legs=FALSE}
                                           {aguatic=TRUE} 0.1782178
##
  [13] {eggs=TRUE,predator=TRUE}
                                         => {aquatic=TRUE} 0.2277228
  [14] {hair=FALSE,predator=TRUE}
                                           {aquatic=TRUE} 0.2475248
  [15] {hair=FALSE,feathers=FALSE}
                                           {aquatic=TRUE} 0.2574257
##
  [16] {milk=FALSE,predator=TRUE}
                                            {aquatic=TRUE} 0.2277228
  [17] {eggs=TRUE,airborne=FALSE}
                                           {aquatic=TRUE} 0.2475248
  [18] {hair=FALSE,airborne=FALSE}
                                           {aquatic=TRUE} 0.2673267
  [19] {milk=FALSE,airborne=FALSE}
                                           {aquatic=TRUE} 0.2475248
## [20] {feathers=FALSE,eggs=TRUE}
                                         => {aquatic=TRUE} 0.2376238
## [21] {predator=TRUE,catsize=FALSE}
                                         => {aquatic=TRUE} 0.1683168
## [22] {feathers=FALSE,milk=FALSE}
                                         => {aquatic=TRUE} 0.2376238
## [23] {hair=FALSE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2574257
                                           {aquatic=TRUE} 0.1089109
## [24] {predator=TRUE, toothed=FALSE}
  [25] {hair=FALSE,domestic=FALSE}
                                           {aquatic=TRUE} 0.3069307
  [26] {eggs=TRUE,backbone=TRUE}
                                         => {aquatic=TRUE} 0.2376238
  [27] {milk=FALSE,backbone=TRUE}
                                         => {aquatic=TRUE} 0.2376238
## [28] {toothed=TRUE,catsize=FALSE}
                                         => {aquatic=TRUE} 0.1386139
## [29] {eggs=TRUE,tail=TRUE}
                                         => {aquatic=TRUE} 0.2079208
## [30] {predator=TRUE,domestic=FALSE}
                                         => {aquatic=TRUE} 0.2871287
## [31] {eggs=TRUE,domestic=FALSE}
                                           {aquatic=TRUE} 0.2871287
```

```
## [32] {airborne=FALSE,catsize=FALSE}
                                          => {aquatic=TRUE} 0.1881188
   [33]
       {milk=FALSE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
   [34] {milk=FALSE,tail=TRUE}
                                             {aquatic=TRUE} 0.2079208
   [35] {backbone=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1782178
##
   [36] {feathers=FALSE, catsize=FALSE}
                                             {aquatic=TRUE} 0.1881188
       {airborne=FALSE,domestic=FALSE}
                                             {aquatic=TRUE} 0.2970297
       {domestic=FALSE, catsize=FALSE}
   [38]
                                             {aquatic=TRUE} 0.2178218
   [39]
        {toothed=TRUE,domestic=FALSE}
                                             {aquatic=TRUE} 0.2178218
   Γ401
       {feathers=FALSE,domestic=FALSE} =>
                                             {aquatic=TRUE} 0.2871287
   [41]
       {backbone=TRUE,domestic=FALSE}
                                             {aquatic=TRUE} 0.2871287
   [42]
       {tail=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1485149
   [43]
        {feathers=FALSE, backbone=TRUE}
                                            {aquatic=TRUE} 0.2376238
   [44]
        {backbone=TRUE}
                                             {aquatic=TRUE} 0.2970297
   [45]
        {tail=TRUE}
                                             {aquatic=TRUE} 0.2574257
   [46]
       {venomous=FALSE}
                                            {aquatic=TRUE} 0.3168317
   [47]
        {toothed=FALSE}
                                             {aquatic=TRUE} 0.1287129
   [48]
##
        {breathes=TRUE}
                                            {aquatic=TRUE} 0.1584158
##
        confidence lift
##
   [1]
        1.0000000
                   2.8055556
##
   [2]
        1.0000000
                   2.8055556
##
   [3]
        1.0000000
                   2.8055556
   [4]
        1.0000000
                   2.8055556
   [5]
##
        0.9523810
                   2.6719577
##
   [6]
        0.8947368
                   2.5102339
##
   [7]
        0.8695652
                   2.4396135
   [8]
        0.8571429
                    2.4047619
   [9]
##
        0.8500000
                    2.3847222
                    2.3104575
##
   [10] 0.8235294
   [11] 0.7894737
                    2.2149123
   [12] 0.7826087
                    2.1956522
   [13] 0.6969697
                    1.9553872
##
   [14] 0.6944444
                    1.9483025
   [15] 0.6842105
                    1.9195906
   [16] 0.6764706
                    1.8978758
        0.6756757
                    1.8956456
   [17]
##
   [18] 0.6750000
                    1.8937500
   [19] 0.6578947
                    1.8457602
   [20] 0.6153846
                    1.7264957
   [21] 0.6071429
                    1.7033730
   [22] 0.6000000
                    1.6833333
   [23] 0.5909091
                    1.6578283
   [24] 0.5789474
                    1.6242690
   [25] 0.5740741
                    1.6105967
   [26] 0.5714286
                    1.6031746
   [27] 0.5714286
                    1.6031746
   [28] 0.5384615
                    1.5106838
                    1.5106838
##
   [29] 0.5384615
   [30] 0.5370370
                    1.5066872
   [31]
        0.5370370
                    1.5066872
   [32]
        0.5277778
                    1.4807099
   [33]
##
                    1.4792929
        0.5272727
   [34] 0.5250000
                    1.4729167
  [35] 0.4500000
                    1.2625000
## [36] 0.4418605
                   1.2396641
```

```
[37] 0.4411765
                   1.2377451
   [38] 0.4400000
                   1.2344444
   [39] 0.4230769
                   1.1869658
  [40] 0.4084507
                   1.1459311
   [41] 0.4084507
                   1.1459311
  [42] 0.4054054
                   1.1373874
  [43] 0.3809524
                   1.0687831
  [44] 0.3614458
                   1.0140562
   [45] 0.3466667
                   0.9725926
   [46] 0.3440860
                   0.9653524
  [47] 0.3250000
                   0.9118056
##
   [48]
        0.2000000
                   0.5611111
##
        lhs
                                             support
                                                        confidence lift
##
  [1]
        {domestic=TRUE}
                         => {aquatic=FALSE} 0.1188119 0.9230769
  [2]
                          => {aquatic=FALSE} 0.3861386 0.9069767
##
        {hair=TRUE}
                                                                   1.4093023
##
  [3]
        {eggs=FALSE}
                          => {aquatic=FALSE} 0.3564356 0.8571429
                                                                   1.3318681
   [4]
##
                          => {aquatic=FALSE} 0.3465347 0.8536585
        {milk=TRUE}
                                                                   1.3264540
   [5]
                          => {aquatic=FALSE} 0.3465347 0.8536585
        {type=mammal}
                                                                   1.3264540
##
   [6]
        {predator=FALSE}
                         => {aquatic=FALSE} 0.3762376 0.8444444
                                                                   1.3121368
   [7]
        {fins=FALSE}
                          => {aquatic=FALSE} 0.6435644 0.7738095
                                                                   1.2023810
##
   [8]
        {toothed=FALSE}
                         => {aquatic=FALSE} 0.2673267 0.6750000
                                                                   1.0488462
                          => {aquatic=FALSE} 0.3762376 0.6229508
  [9]
        {toothed=TRUE}
                                                                   0.9679697
  [10] {tail=FALSE}
                          => {aquatic=FALSE} 0.1584158 0.6153846
                                                                   0.9562130
   [11] {domestic=FALSE} => {aquatic=FALSE} 0.5247525 0.6022727
                                                                   0.9358392
   [12] {catsize=FALSE}
                         => {aquatic=FALSE} 0.3366337 0.5964912
                                                                   0.9268556
##
   [13] {eggs=TRUE}
                          => {aquatic=FALSE} 0.2871287 0.4915254
                                                                   0.7637549
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
   [1] {predator=TRUE,toothed=FALSE} => {aquatic=TRUE} 0.1089109 0.5789474
##
##
       lift
##
   [1] 1.624269
##
       lhs
                                                         support
                                                                   confidence
##
   [1] {hair=FALSE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1980198 0.8695652
   [2] {milk=FALSE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1782178 0.8571429
   [3] {eggs=TRUE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1683168 0.8500000
   [4] {toothed=TRUE,catsize=FALSE}
                                      => {aquatic=TRUE} 0.1386139 0.5384615
   [5] {toothed=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2178218 0.4230769
##
##
       lift
## [1] 2.439614
   [2] 2.404762
  [3] 2.384722
  [4] 1.510684
   [5] 1.186966
##
##
       lhs
                                           rhs
                                                           support
                                                                     confidence
  [1] {hair=FALSE,domestic=FALSE}
                                           {aquatic=TRUE} 0.3069307 0.5740741
##
  [2] {predator=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
   [3] {eggs=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
   [4] {milk=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5272727
   [5] {airborne=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2970297 0.4411765
  [6] {domestic=FALSE,catsize=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4400000
   [7] {toothed=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4230769
   [8] {feathers=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.4084507
##
   [9] {backbone=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.4084507
##
       lift
## [1] 1.610597
```

```
## [2] 1.506687
  [3] 1.506687
  [4] 1.479293
  [5] 1.237745
##
   [6] 1.234444
   [7] 1.186966
##
  [8] 1.145931
##
  [9] 1.145931
##
       lhs
                                          rhs
                                                          support
                                                                    confidence
##
  [1] {predator=TRUE, catsize=FALSE}
                                       => {aquatic=TRUE} 0.1683168 0.6071429
  [2] {toothed=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1386139 0.5384615
   [3] {airborne=FALSE, catsize=FALSE}
                                       => {aquatic=TRUE} 0.1881188 0.5277778
                                       => {aquatic=TRUE} 0.1782178 0.4500000
  [4] {backbone=TRUE, catsize=FALSE}
  [5] {feathers=FALSE,catsize=FALSE} =>
                                          {aquatic=TRUE} 0.1881188 0.4418605
  [6] {domestic=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.2178218 0.4400000
   [7] {tail=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1485149 0.4054054
##
##
       lift
  [1] 1.703373
##
##
   [2] 1.510684
   [3] 1.480710
##
  [4] 1.262500
  [5] 1.239664
  [6] 1.234444
##
##
   [7] 1.137387
##
       lhs
                                      rhs
                                                      support
                                                                confidence
  [1] {eggs=TRUE,toothed=TRUE}
                                   => {aquatic=TRUE} 0.1683168 0.8500000
   [2] {eggs=TRUE,predator=TRUE}
                                   => {aquatic=TRUE} 0.2277228 0.6969697
   [3] {eggs=TRUE,airborne=FALSE} => {aquatic=TRUE} 0.2475248 0.6756757
   [4] {feathers=FALSE,eggs=TRUE} => {aquatic=TRUE} 0.2376238 0.6153846
   [5] {eggs=TRUE,backbone=TRUE}
                                   => {aquatic=TRUE} 0.2376238 0.5714286
   [6] {eggs=TRUE,tail=TRUE}
                                   => {aquatic=TRUE} 0.2079208 0.5384615
##
   [7] {eggs=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.5370370
##
       lift
  [1] 2.384722
##
   [2] 1.955387
   [3] 1.895646
##
   [4] 1.726496
  [5] 1.603175
##
   [6] 1.510684
##
   [7] 1.506687
##
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
##
  [1]
        {type=bird}
                                            {feathers=TRUE} 0.1980198
##
   [2]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
  [3]
        {hair=FALSE,airborne=TRUE}
                                         => {feathers=TRUE} 0.1584158
  [4]
##
        {airborne=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1584158
##
   [5]
        {airborne=TRUE, backbone=TRUE}
                                            {feathers=TRUE} 0.1584158
##
   [6]
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [7]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
   [8]
        {eggs=TRUE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
##
##
   [9]
        {milk=FALSE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
  [10] {airborne=TRUE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1584158
## [11] {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [12] {hair=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
```

```
## [13] {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [14] {toothed=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
  [15] {hair=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
  [16] {hair=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
##
  [17] {hair=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
  [18] {predator=FALSE,toothed=FALSE}
                                           {feathers=TRUE} 0.1089109
##
  [19] {aquatic=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1386139
  [20] {eggs=TRUE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
   [21]
       {milk=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
   [22]
       {eggs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [23] {eggs=TRUE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
   [24] {milk=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
   [25]
       {hair=FALSE, predator=FALSE}
                                            {feathers=TRUE} 0.1089109
                                           {feathers=TRUE} 0.1980198
   [26] {eggs=TRUE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
  [27] {milk=FALSE,tail=TRUE}
   [28]
        {milk=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [29]
                                            {feathers=TRUE} 0.1386139
       {eggs=TRUE,aquatic=FALSE}
   [30] {hair=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
   [31] {eggs=TRUE,backbone=TRUE}
   [32] {milk=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
##
  [33] {milk=FALSE,aquatic=FALSE}
                                           {feathers=TRUE} 0.1386139
  [34] {hair=FALSE,fins=FALSE}
                                           {feathers=TRUE} 0.1980198
  [35] {hair=FALSE,backbone=TRUE}
                                           {feathers=TRUE} 0.1980198
##
       {eggs=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [36]
   [37]
       {milk=FALSE,fins=FALSE}
                                           {feathers=TRUE} 0.1980198
   [38] {eggs=TRUE,predator=FALSE}
                                           {feathers=TRUE} 0.1089109
   [39] {milk=FALSE,predator=FALSE}
                                           {feathers=TRUE} 0.1089109
   [40] {hair=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
  [41] {milk=FALSE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
  [42] {tail=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
   [43]
        {eggs=TRUE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
##
   [44]
        {hair=FALSE,eggs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [45]
       {hair=FALSE,milk=FALSE}
                                           {feathers=TRUE} 0.1980198
   [46] {legs=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
   [47]
        {backbone=TRUE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
       {hair=FALSE}
##
   Г481
                                            {feathers=TRUE} 0.1980198
  [49] {eggs=TRUE,milk=FALSE}
                                           {feathers=TRUE} 0.1980198
  [50] {legs=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
##
        {breathes=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [51]
##
   [52]
       {fins=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [53] {predator=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1089109
   [54] {breathes=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
##
   [55] {backbone=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1089109
##
   [56] {predator=FALSE,backbone=TRUE}
  [57] {backbone=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
  [58]
       {fins=FALSE,catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
##
   [59]
        {backbone=TRUE, breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
   [60]
       {aquatic=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1386139
   [61] {predator=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1089109
   [62]
        {venomous=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
##
   [63]
        {venomous=FALSE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
       {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [65] {backbone=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [66] {venomous=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
```

```
## [67] {predator=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1089109
                                             {feathers=TRUE} 0.1089109
   [68] {predator=FALSE,fins=FALSE}
   [69] {breathes=TRUE, venomous=FALSE}
                                             {feathers=TRUE} 0.1980198
   [70] {aquatic=FALSE,backbone=TRUE}
                                             {feathers=TRUE} 0.1386139
##
   [71] {breathes=TRUE,fins=FALSE}
                                             {feathers=TRUE} 0.1980198
   [72] {fins=FALSE,legs=TRUE}
##
                                             {feathers=TRUE} 0.1980198
   [73] {venomous=FALSE,fins=FALSE}
                                             {feathers=TRUE} 0.1980198
   [74] {legs=TRUE,domestic=FALSE}
                                             {feathers=TRUE} 0.1683168
   [75]
       {predator=FALSE, venomous=FALSE} =>
                                             {feathers=TRUE} 0.1089109
   [76] {backbone=TRUE, venomous=FALSE}
                                             {feathers=TRUE} 0.1980198
   [77] {aquatic=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1386139
   [78]
       {aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   [79]
        {venomous=FALSE}
                                          => {feathers=TRUE} 0.1980198
##
   [80]
       {domestic=FALSE}
                                         => {feathers=TRUE} 0.1683168
##
        confidence lift
##
   [1]
        1.0000000
                   5.0500000
   [2]
##
        0.9090909
                    4.5909091
   [3]
        0.888889
                    4.4888889
   [4]
                    4.4888889
##
        0.888889
##
   [5]
        0.888889
                    4.4888889
##
   [6]
        0.8695652
                    4.3913043
   [7]
        0.7272727
                    3.6727273
##
   [8]
        0.7272727
                    3.6727273
##
   [9]
        0.7272727
                    3.6727273
   [10] 0.7272727
                    3.6727273
   [11] 0.6060606
                    3.0606061
   [12] 0.5714286
                    2.8857143
   [13] 0.5555556
                    2.8055556
   [14] 0.5555556
                    2.8055556
   [15] 0.5555556
                    2.8055556
   [16] 0.5405405
                    2.7297297
   [17] 0.5384615
                    2.7192308
   [18] 0.5238095
                    2.6452381
   [19] 0.5185185
                    2.6185185
        0.5128205
   [20]
                    2.5897436
##
   [21] 0.5128205
                    2.5897436
   [22] 0.5128205
                    2.5897436
   [23] 0.5128205
                    2.5897436
   [24] 0.5128205
                    2.5897436
   [25] 0.5000000
                    2.5250000
   [26] 0.5000000
                    2.5250000
   [27] 0.5000000
                   2.5250000
   [28] 0.5000000
                    2.5250000
   [29] 0.4827586
                    2.4379310
   [30] 0.4761905
                    2.4047619
   [31] 0.4761905
                    2.4047619
                    2.4047619
##
   [32] 0.4761905
   [33] 0.4666667
                    2.3566667
   [34]
        0.4651163
                    2.3488372
   [35]
        0.4545455
                    2.2954545
##
   [36]
        0.4347826
                    2.1956522
   [37] 0.4255319
                    2.1489362
## [38] 0.4230769
                   2.1365385
## [39] 0.4230769
                   2.1365385
```

```
## [40] 0.3846154
                   1.9423077
   [41] 0.3846154
                    1.9423077
   [42] 0.3783784
                    1.9108108
   [43] 0.3773585
                    1.9056604
   [44] 0.3703704
                    1.8703704
##
   [45] 0.3571429
                    1.8035714
   [46] 0.3508772
                    1.7719298
   [47] 0.3500000
                    1.7675000
   [48] 0.3448276
                    1.7413793
   [49] 0.3448276
                    1.7413793
   [50] 0.3414634
                    1.7243902
   [51] 0.3414634
                    1.7243902
##
   [52] 0.3389831
                    1.7118644
   [53] 0.3333333
                    1.6833333
   [54] 0.3278689
                    1.6557377
   [55] 0.3125000
                    1.5781250
##
   [56] 0.3055556
                    1.5430556
   [57] 0.3030303
                    1.5303030
   [58] 0.2916667
                    1.4729167
   [59] 0.2898551
                    1.4637681
##
   [60] 0.2857143
                    1.4428571
   [61] 0.2820513
                    1.4243590
   [62] 0.2816901
                    1.4225352
   [63] 0.2800000
##
                    1.4140000
   [64] 0.2739726
                    1.3835616
   [65] 0.2702703
                    1.3648649
   [66] 0.2702703
                    1.3648649
##
   [67] 0.2682927
                    1.3548780
   [68] 0.2682927
                    1.3548780
   [69] 0.2666667
                    1.3466667
   [70] 0.2641509
                    1.3339623
   [71] 0.2631579
                    1.3289474
   [72] 0.2597403
                    1.3116883
   [73] 0.2597403
                    1.3116883
   [74] 0.2575758
                    1.3007576
##
   [75] 0.2558140
                    1.2918605
   [76] 0.2531646
                    1.2784810
   [77] 0.2295082
                    1.1590164
   [78] 0.2153846
                    1.0876923
   [79] 0.2150538
                    1.0860215
   [80] 0.1931818
                   0.9755682
##
        lhs
                                               support
                                                          confidence lift
##
   [1]
        {type=fish}
                          => {feathers=FALSE} 0.1287129 1.0000000
                                                                    1.2469136
##
   [2]
                          => {feathers=FALSE} 0.1683168 1.0000000
        {fins=TRUE}
                                                                     1.2469136
   [3]
##
        {backbone=FALSE} => {feathers=FALSE} 0.1782178 1.0000000
                                                                     1.2469136
   [4]
##
        {breathes=FALSE} => {feathers=FALSE} 0.2079208 1.0000000
                                                                     1.2469136
##
   [5]
        {legs=FALSE}
                             {feathers=FALSE} 0.2277228 1.0000000
                                                                     1.2469136
   [6]
##
        {tail=FALSE}
                          => {feathers=FALSE} 0.2574257 1.0000000
                                                                     1.2469136
##
   [7]
        {eggs=FALSE}
                          => {feathers=FALSE} 0.4158416 1.0000000
                                                                     1.2469136
##
   [8]
        {hair=TRUE}
                             {feathers=FALSE} 0.4257426 1.0000000
                                                                     1.2469136
##
   [9]
        {airborne=FALSE} =>
                             {feathers=FALSE} 0.7227723 0.9480519
                                                                     1.1821388
  [10] {catsize=TRUE}
                          => {feathers=FALSE} 0.3762376 0.8636364
                                                                     1.0768799
## [11] {predator=TRUE}
                          => {feathers=FALSE} 0.4653465 0.8392857
                                                                     1.0465168
## [12] {aquatic=TRUE}
                          => {feathers=FALSE} 0.2970297 0.8333333
```

```
## [13] {aquatic=FALSE} => {feathers=FALSE} 0.5049505 0.7846154
                                                                    0.9783476
  [14] {predator=FALSE} => {feathers=FALSE} 0.3366337 0.7555556
                                                                    0.9421125
  [15] {catsize=FALSE}
                          => {feathers=FALSE} 0.4257426 0.7543860
                                                                    0.9406541
  [16] {breathes=TRUE}
                          => {feathers=FALSE} 0.5940594 0.7500000
                                                                    0.9351852
##
   [17] {legs=TRUE}
                          => {feathers=FALSE} 0.5742574 0.7435897
                                                                    0.9271921
  [18] {milk=FALSE}
                          => {feathers=FALSE} 0.3960396 0.6666667
                                                                    0.8312757
##
  [19] {eggs=TRUE}
                          => {feathers=FALSE} 0.3861386 0.6610169
                                                                    0.8242310
  [20] {hair=FALSE}
                          => {feathers=FALSE} 0.3762376 0.6551724
                                                                    0.8169434
##
   [21] {toothed=FALSE}
                          => {feathers=FALSE} 0.1980198 0.5000000
                                                                    0.6234568
##
       lhs
                                          rhs
                                                           support
                                                                      confidence
  [1] {hair=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5384615
   [2] {aquatic=FALSE, toothed=FALSE}
##
                                       => {feathers=TRUE} 0.1386139 0.5185185
   [3] {eggs=TRUE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4827586
   [4] {milk=FALSE, aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
   [5] {aquatic=FALSE,tail=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2857143
   [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
##
   [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
       lift
  [1] 2.719231
##
   [2] 2.618519
##
   [3] 2.437931
  [4] 2.356667
  [5] 1.442857
##
##
   [6] 1.333962
##
  [7] 1.159016
##
        lhs
                                                             support
##
        {predator=FALSE, toothed=FALSE}
   [1]
                                            {feathers=TRUE} 0.1089109
##
   [2]
        {hair=FALSE, predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [3]
        {eggs=TRUE,predator=FALSE}
##
                                         => {feathers=TRUE} 0.1089109
##
  [4]
        {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [5]
        {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [6]
        {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [7]
        {predator=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [8]
        {predator=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1089109
   [9]
        {predator=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1089109
##
       {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
   Γ10]
##
        confidence lift
##
  [1]
        0.5238095
                   2.645238
   [2]
##
        0.5000000
                   2.525000
   [3]
##
        0.4230769
                   2.136538
   [4]
        0.4230769
                   2.136538
   [5]
##
        0.3333333
                   1.683333
##
   [6]
        0.3055556
                   1.543056
##
   [7]
        0.2820513
                   1.424359
##
  [8]
        0.2682927
                   1.354878
   [9]
##
        0.2682927
                   1.354878
##
   [10] 0.2558140
                   1.291860
##
       lhs
                                          rhs
                                                           support
                                                                      confidence
  [1] {tail=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3783784
   [2] {backbone=TRUE, catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3500000
##
   [3] {legs=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
  [4] {breathes=TRUE, catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
## [5] {fins=FALSE, catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.2916667
## [6] {venomous=FALSE,catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
```

```
##
       lift
##
  [1] 1.910811
   [2] 1.767500
   [3] 1.724390
##
   [4] 1.724390
##
   [5] 1.472917
##
   [6] 1.414000
##
        lhs
                                            rhs
                                                             support
##
   Γ17
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [2]
##
        {hair=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [3]
        {eggs=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [4]
##
        {milk=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [5]
        {breathes=TRUE,catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
                                         => {feathers=TRUE} 0.1980198
##
   [6]
        {breathes=TRUE,tail=TRUE}
   [7]
        {backbone=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
##
   [8]
        {breathes=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [9]
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
       {breathes=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1980198
##
   Γ117
       {breathes=TRUE,fins=FALSE}
##
        confidence lift
##
   [1]
        0.6060606 3.060606
   [2]
        0.5405405
                   2.729730
   [3]
##
        0.5128205
                   2.589744
##
   [4]
        0.5128205
                    2.589744
##
   [5]
        0.3414634
                    1.724390
   [6]
        0.3278689
                    1.655738
   [7]
##
        0.2898551
                    1.463768
##
   [8]
        0.2739726
                    1.383562
   [9]
##
        0.2682927
                    1.354878
   [10] 0.2666667
                    1.346667
##
   [11] 0.2631579
                   1.328947
##
        lhs
                                        rhs
                                                                    confidence
                                                         support
##
   [1]
        {toothed=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5555556
                                     => {feathers=TRUE} 0.1980198 0.5555556
##
   [2]
        {hair=FALSE,legs=TRUE}
   [3]
        {eggs=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [4]
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
        {milk=FALSE,legs=TRUE}
##
   [5]
        {legs=TRUE,tail=TRUE}
                                        {feathers=TRUE} 0.1980198 0.3508772
##
   [6]
        {legs=TRUE,catsize=FALSE}
                                       {feathers=TRUE} 0.1386139 0.3414634
   [7]
        {backbone=TRUE,legs=TRUE}
                                        {feathers=TRUE} 0.1980198 0.3125000
##
##
   [8]
        {predator=FALSE,legs=TRUE} => {feathers=TRUE} 0.1089109 0.2820513
        {breathes=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2739726
       {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
   [10]
##
   Γ117
       {fins=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2597403
##
       {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
   [12]
##
        lift
   [1]
        2.805556
##
##
   [2]
        2.805556
##
   [3]
        2.525000
##
   [4]
        2.525000
##
   [5]
        1.771930
   [6]
        1.724390
##
##
   [7]
        1.578125
##
  [8]
        1.424359
## [9]
        1.383562
```

```
## [10] 1.364865
   [11] 1.311688
   [12] 1.300758
##
        lhs
                                         rhs
                                                          support
                                                                    confidence
##
   [1]
        {milk=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.7272727
                                      => {feathers=TRUE} 0.1980198 0.5128205
##
   [2]
        {milk=FALSE, toothed=FALSE}
   [3]
        {milk=FALSE, breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
   [4]
        {milk=FALSE,tail=TRUE}
##
   [5]
        {milk=FALSE,legs=TRUE}
                                         {feathers=TRUE} 0.1980198 0.5000000
##
   [6]
        {milk=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
   [7]
        {milk=FALSE,aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.4666667
                                      => {feathers=TRUE} 0.1980198 0.4255319
##
   [8]
        {milk=FALSE,fins=FALSE}
##
   [9]
        {milk=FALSE,predator=FALSE}
                                     => {feathers=TRUE} 0.1089109 0.4230769
   [10] {milk=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
                                      => {feathers=TRUE} 0.1980198 0.3571429
   [11]
       {hair=FALSE,milk=FALSE}
##
   [12] {eggs=TRUE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3448276
##
        lift
##
   [1]
        3.672727
   [2]
##
        2.589744
##
   [3]
        2.589744
##
   [4]
        2.525000
   [5]
##
        2.525000
   [6]
        2.404762
##
##
   [7]
        2.356667
##
   [8]
        2.148936
   [9]
        2.136538
##
   [10] 1.942308
##
   [11] 1.803571
##
   [12] 1.741379
##
        lhs
                                        rhs
                                                         support
                                                                   confidence
##
   [1]
        {eggs=TRUE,airborne=TRUE}
                                       {feathers=TRUE} 0.1584158 0.7272727
##
   [2]
        {eggs=TRUE,toothed=FALSE}
                                       {feathers=TRUE} 0.1980198 0.5128205
##
   [3]
        {eggs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
   [4]
##
        {eggs=TRUE,breathes=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
        {eggs=TRUE,legs=TRUE}
   [5]
                                        {feathers=TRUE} 0.1980198 0.5000000
##
                                       {feathers=TRUE} 0.1386139 0.4827586
##
   [6]
        {eggs=TRUE,aquatic=FALSE}
   [7]
        {eggs=TRUE,backbone=TRUE}
                                        {feathers=TRUE} 0.1980198 0.4761905
   [8]
        {eggs=TRUE,fins=FALSE}
                                       {feathers=TRUE} 0.1980198 0.4347826
##
                                        {feathers=TRUE} 0.1089109 0.4230769
##
   [9]
        {eggs=TRUE,predator=FALSE} =>
   [10] {eggs=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3773585
                                     => {feathers=TRUE} 0.1980198 0.3703704
   [11] {hair=FALSE,eggs=TRUE}
   [12] {eggs=TRUE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3448276
##
##
        lift
##
   [1]
        3.672727
   [2]
##
        2.589744
   [3]
        2.589744
##
##
   [4]
        2.589744
##
   [5]
        2.525000
##
   [6]
        2.437931
##
   [7]
        2.404762
##
   [8]
        2.195652
## [9]
        2.136538
## [10] 1.905660
## [11] 1.870370
```

```
[12] 1.741379
        lhs
##
                                         rhs
                                                          support
                                                                    confidence
                                      => {feathers=TRUE} 0.1584158 0.8888889
##
   [1]
        {hair=FALSE,airborne=TRUE}
   [2]
        {hair=FALSE,toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5714286
##
   [3]
        {hair=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5555556
   [4]
##
        {hair=FALSE, breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5405405
##
   [5]
        {hair=FALSE,aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.5384615
##
   [6]
        {hair=FALSE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.5000000
##
   [7]
        {hair=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
##
   [8]
        {hair=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4651163
   [9]
        {hair=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4545455
        {hair=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
   [10]
        {hair=FALSE,eggs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.3703704
   [11]
                                      => {feathers=TRUE} 0.1980198 0.3571429
##
   [12]
        {hair=FALSE,milk=FALSE}
##
        lift
##
   [1]
        4.488889
   [2]
##
        2.885714
   [3]
        2.805556
   [4]
##
        2.729730
        2.719231
##
   [5]
##
   [6]
        2.525000
   [7]
        2.404762
   [8]
        2.348837
##
##
   [9]
        2.295455
  [10] 1.942308
   「11 1.870370
##
   [12]
       1.803571
##
        lhs
                                            rhs
                                                             support
##
  [1]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [2]
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [3]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
##
   [4]
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [5]
        {hair=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
   [6]
        {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [7]
        {toothed=FALSE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
   [8]
        {predator=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1089109
        {aquatic=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1386139
   [10] {eggs=TRUE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [11] {milk=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
##
        confidence lift
   [1]
        0.9090909
                   4.590909
   [2]
        0.8695652
                   4.391304
##
##
   [3]
        0.7272727
                    3.672727
##
   [4]
        0.6060606
                   3.060606
##
   [5]
        0.5714286
                    2.885714
   [6]
##
        0.555556
                    2.805556
##
   [7]
        0.555556
                    2.805556
##
   [8]
        0.5238095
                    2.645238
   [9]
        0.5185185
                    2.618519
   [10] 0.5128205
                    2.589744
   [11] 0.5128205
                   2.589744
##
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                             rhs
                                                                     confidence
                                                           support
## [1] {type=fish}
                                          => {legs=FALSE} 0.1287129 1.0000000
```

```
[2]
        {hair=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1485149 1.0000000
   [3]
##
                                           {legs=FALSE} 0.1287129 1.0000000
        {eggs=TRUE,fins=TRUE}
##
   [4]
        {milk=FALSE,fins=TRUE}
                                           {legs=FALSE} 0.1287129 1.0000000
   [5]
##
        {toothed=TRUE, breathes=FALSE}
                                           {legs=FALSE} 0.1386139 1.0000000
##
   [6]
        {breathes=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1386139 1.0000000
##
   [7]
        {backbone=TRUE, breathes=FALSE}
                                           {legs=FALSE} 0.1386139 1.0000000
##
   [8]
        {fins=TRUE}
                                           {legs=FALSE} 0.1584158 0.9411765
##
   [9]
        {hair=FALSE,toothed=TRUE}
                                           {legs=FALSE} 0.1782178 0.7826087
##
   [10] {breathes=FALSE}
                                            {legs=FALSE} 0.1584158 0.7619048
   [11] {milk=FALSE,toothed=TRUE}
                                           {legs=FALSE} 0.1584158 0.7619048
  [12] {eggs=TRUE,toothed=TRUE}
                                           {legs=FALSE} 0.1485149 0.7500000
   [13] {aquatic=TRUE, toothed=TRUE}
                                           {legs=FALSE} 0.1683168 0.7391304
   [14] {aquatic=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1584158 0.6153846
##
                                           {legs=FALSE} 0.1782178 0.6000000
   [15] {feathers=FALSE, aquatic=TRUE}
                                           {legs=FALSE} 0.1782178 0.5806452
   [16] {airborne=FALSE,aquatic=TRUE}
       {hair=FALSE, feathers=FALSE}
                                            {legs=FALSE} 0.2178218 0.5789474
   [17]
                                           {legs=FALSE} 0.2178218 0.5500000
   [18]
       {hair=FALSE,airborne=FALSE}
   [19] {hair=FALSE,aquatic=TRUE}
                                           {legs=FALSE} 0.1683168 0.5312500
   [20] {milk=FALSE,airborne=FALSE}
                                           {legs=FALSE} 0.1980198 0.5263158
   [21] {eggs=TRUE,airborne=FALSE}
                                           {legs=FALSE} 0.1881188 0.5135135
##
  [22] {feathers=FALSE,milk=FALSE}
                                           {legs=FALSE} 0.1980198 0.5000000
  [23] {feathers=FALSE,eggs=TRUE}
                                           {legs=FALSE} 0.1881188 0.4871795
  [24] {toothed=TRUE,catsize=FALSE}
                                            {legs=FALSE} 0.1188119 0.4615385
##
   [25]
       {hair=FALSE,predator=TRUE}
                                            {legs=FALSE} 0.1584158 0.4444444
   [26] {airborne=FALSE,catsize=FALSE}
                                            {legs=FALSE} 0.1584158 0.4444444
   [27] {hair=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1782178 0.4285714
   [28] {milk=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1386139 0.4117647
  [29] {hair=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4090909
       {predator=TRUE, toothed=TRUE}
                                           {legs=FALSE} 0.1485149 0.4054054
                                           {legs=FALSE} 0.1584158 0.4000000
  [31] {milk=FALSE,tail=TRUE}
   [32]
        {eggs=TRUE,predator=TRUE}
                                           {legs=FALSE} 0.1287129 0.3939394
##
   [33]
       {hair=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.2079208 0.3888889
       {eggs=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1485149 0.3846154
   [34]
   [35] {milk=FALSE,backbone=TRUE}
                                           {legs=FALSE} 0.1584158 0.3809524
       {feathers=FALSE,catsize=FALSE}
                                           {legs=FALSE} 0.1584158 0.3720930
##
   [37]
       {feathers=FALSE, predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3617021
  [38] {eggs=TRUE,backbone=TRUE}
                                           {legs=FALSE} 0.1485149 0.3571429
  [39] {airborne=FALSE,predator=TRUE}
                                            {legs=FALSE} 0.1683168 0.3469388
   [40] {toothed=TRUE,domestic=FALSE}
##
                                            {legs=FALSE} 0.1782178 0.3461538
   [41] {milk=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.1881188 0.3454545
##
  [42] {predator=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1386139 0.3333333
   [43] {eggs=TRUE,domestic=FALSE}
                                           {legs=FALSE} 0.1782178 0.3333333
   [44] {feathers=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3272727
  [45] {tail=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3243243
  [46] {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
        {airborne=FALSE, toothed=TRUE}
                                           {legs=FALSE} 0.1881188 0.3220339
   Г481
       {airborne=FALSE,tail=TRUE}
                                            {legs=FALSE} 0.1782178 0.3157895
  [49]
       {feathers=FALSE,airborne=FALSE}
                                            {legs=FALSE} 0.2277228 0.3150685
  [50] {feathers=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3098592
   [51] {predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3035714
       {feathers=FALSE,backbone=TRUE}
                                        => {legs=FALSE} 0.1881188 0.3015873
##
   [52]
  [53] {backbone=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
  [54] {domestic=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1485149 0.3000000
## [55] {tail=TRUE,domestic=FALSE}
                                           {legs=FALSE} 0.1683168 0.2615385
```

```
## [56] {backbone=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.2535211
##
        lift
## [1]
        4.391304
## [2]
        4.391304
##
  [3]
        4.391304
## [4]
        4.391304
## [5]
        4.391304
        4.391304
## [6]
## [7]
        4.391304
## [8]
        4.132992
## [9]
        3.436673
## [10] 3.345756
## [11] 3.345756
## [12] 3.293478
## [13] 3.245747
## [14] 2.702341
## [15] 2.634783
## [16] 2.549790
## [17] 2.542334
## [18] 2.415217
## [19] 2.332880
## [20] 2.311213
## [21] 2.254994
## [22] 2.195652
## [23] 2.139353
## [24] 2.026756
## [25] 1.951691
## [26] 1.951691
## [27] 1.881988
## [28] 1.808184
## [29] 1.796443
## [30] 1.780259
## [31] 1.756522
## [32] 1.729908
## [33] 1.707729
## [34] 1.688963
## [35] 1.672878
## [36] 1.633974
## [37] 1.588344
## [38] 1.568323
## [39] 1.523514
## [40] 1.520067
## [41] 1.516996
## [42] 1.463768
## [43] 1.463768
## [44] 1.437154
## [45] 1.424207
## [46] 1.420716
## [47] 1.414149
## [48] 1.386728
## [49] 1.383562
## [50] 1.360686
## [51] 1.333075
## [52] 1.324362
```

```
[53] 1.317391
   [54] 1.317391
   [55] 1.148495
   [56] 1.113288
##
##
        lhs
                             rhs
                                          support
                                                    confidence lift
##
  [1]
                          => {legs=TRUE} 0.1980198 1.0000000
                                                               1.2948718
        {type=bird}
   [2]
        {feathers=TRUE}
                          => {legs=TRUE} 0.1980198 1.0000000
                                                               1.2948718
##
   [3]
        {airborne=TRUE}
                          => {legs=TRUE} 0.2376238 1.0000000
                                                               1.2948718
##
   [4]
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                               1.2647585
##
   [5]
        {milk=TRUE}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                               1.2001251
   [6]
        {type=mammal}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                               1.2001251
   [7]
##
        {domestic=TRUE}
                          => {legs=TRUE} 0.1188119 0.9230769
                                                               1.1952663
##
   [8]
        {aquatic=FALSE}
                          => {legs=TRUE} 0.5940594 0.9230769
                                                               1.1952663
##
   [9]
        {eggs=FALSE}
                          => {legs=TRUE} 0.3762376 0.9047619
                                                               1.1715507
  [10]
       {toothed=FALSE}
                          => {legs=TRUE} 0.3564356 0.9000000
                                                               1.1653846
        {predator=FALSE}
                         => {legs=TRUE} 0.3861386 0.8666667
                                                               1.122222
       {catsize=TRUE}
                          => {legs=TRUE} 0.3663366 0.8409091
   [12]
                                                               1.0888695
                          => {legs=TRUE} 0.2079208 0.8076923
   [13] {tail=FALSE}
                                                               1.0458580
   [14] {backbone=FALSE} => {legs=TRUE} 0.1386139 0.7777778
                                                               1.0071225
   [15] {tail=TRUE}
                          => {legs=TRUE} 0.5643564 0.7600000
                                                               0.9841026
  [16] {catsize=FALSE}
                          => {legs=TRUE} 0.4059406 0.7192982
                                                               0.9313990
  [17] {airborne=FALSE} => {legs=TRUE} 0.5346535 0.7012987
                                                               0.9080919
  [18] {toothed=TRUE}
                          => {legs=TRUE} 0.4158416 0.6885246
                                                               0.8915511
##
   [19] {eggs=TRUE}
                          => {legs=TRUE} 0.3960396 0.6779661
                                                               0.8778792
   [20] {milk=FALSE}
                          => {legs=TRUE} 0.3960396 0.6666667
                                                               0.8632479
   [21]
       {aquatic=TRUE}
                          => {legs=TRUE} 0.1782178 0.5000000
                                                               0.6474359
##
        lhs
                                       rhs
                                                     support
                                                               confidence
##
   [1]
        {breathes=FALSE,tail=TRUE} =>
                                       {legs=FALSE} 0.1386139 1.0000000
   [2]
##
        {aquatic=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.6153846
##
   [3]
        {hair=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1782178 0.4285714
##
   [4]
        {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
##
   [5]
        {eggs=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1485149 0.3846154
##
   [6]
        {predator=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1386139 0.3333333
##
   [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
   [8]
        {tail=TRUE,catsize=FALSE}
                                    => {legs=FALSE} 0.1188119 0.3243243
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
##
   [9]
   [10] {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
        lift.
   [1]
        4.391304
##
   [2]
##
        2.702341
   [3]
        1.881988
   [4]
##
        1.756522
##
   [5]
        1.688963
##
   [6]
        1.463768
##
   [7]
        1.437154
   [8]
##
        1.424207
##
   [9]
        1.386728
##
   [10] 1.148495
##
       lhs
                                                        support
                                                                  confidence
##
   [1] {toothed=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.4615385
   [2] {airborne=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.4444444
   [3] {feathers=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
## [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
## [5] {backbone=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3000000
```

```
## [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
##
       lift.
  [1] 2.026756
##
  [2] 1.951691
  [3] 1.633974
##
  [4] 1.424207
## [5] 1.317391
## [6] 1.317391
##
        lhs
                                            rhs
                                                          support
                                                                    confidence
##
  [1]
        {airborne=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
        {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
  [3]
##
        {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
##
  [4]
        {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
##
  [5]
        {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
  [6]
                                         => {legs=FALSE} 0.1683168 0.3469388
##
        {airborne=FALSE,predator=TRUE}
##
  [7]
        {airborne=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.2178218 0.3235294
##
  [8]
        {airborne=FALSE, toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
        {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
##
   [10] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
        lift.
##
  [1]
        2.549790
  [2]
        2.415217
##
## [3]
        2.311213
  [4]
##
        2.254994
##
  [5]
        1.951691
  [6]
        1.523514
   [7]
##
        1.420716
##
   [8]
        1.414149
##
  [9]
        1.386728
##
  [10] 1.383562
##
       lhs
                                                       support
                                                                 confidence
##
  [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
  [2] {hair=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1782178 0.7826087
  [3] {milk=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1584158 0.7619048
   [4] {eggs=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.7500000
## [5] {aquatic=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
## [6] {toothed=TRUE,catsize=FALSE}
                                      => {legs=FALSE} 0.1188119 0.4615385
## [7] {predator=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.4054054
  [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
   [9] {airborne=FALSE,toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
##
       lift
## [1] 4.391304
## [2] 3.436673
## [3] 3.345756
## [4] 3.293478
## [5] 3.245747
##
  [6] 2.026756
## [7] 1.780259
## [8] 1.520067
##
  [9] 1.414149
##
       lhs
                                      rhs
                                                    support
                                                              confidence
## [1] {eggs=TRUE,fins=TRUE}
                                   => {legs=FALSE} 0.1287129 1.0000000
## [2] {eggs=TRUE,toothed=TRUE}
                                   => {legs=FALSE} 0.1485149 0.7500000
## [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
```

```
## [4] {feathers=FALSE,eggs=TRUE} => {legs=FALSE} 0.1881188 0.4871795
## [5] {eggs=TRUE,predator=TRUE} => {legs=FALSE} 0.1287129 0.3939394
  [6] {eggs=TRUE,tail=TRUE}
                                   => {legs=FALSE} 0.1485149 0.3846154
  [7] {eggs=TRUE,backbone=TRUE} => {legs=FALSE} 0.1485149 0.3571429
##
   [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
       lift
## [1] 4.391304
## [2] 3.293478
##
  [3] 2.254994
  [4] 2.139353
  [5] 1.729908
  [6] 1.688963
##
   [7] 1.568323
  [8] 1.463768
##
##
       lhs
                                       rhs
                                                    support
                                                               confidence
  [1] {milk=FALSE,fins=TRUE}
                                      {legs=FALSE} 0.1287129 1.0000000
##
  [2] {milk=FALSE,toothed=TRUE}
                                    => {legs=FALSE} 0.1584158 0.7619048
  [3] {milk=FALSE,airborne=FALSE} => {legs=FALSE} 0.1980198 0.5263158
## [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
  [5] {milk=FALSE,predator=TRUE}
                                   => {legs=FALSE} 0.1386139 0.4117647
## [6] {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
## [7] {milk=FALSE,backbone=TRUE} => {legs=FALSE} 0.1584158 0.3809524
  [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
##
       lift.
## [1] 4.391304
## [2] 3.345756
## [3] 2.311213
  [4] 2.195652
## [5] 1.808184
  [6] 1.756522
##
  [7] 1.672878
##
  [8] 1.516996
##
       lhs
                                                      support
                                                                 confidence
##
  [1] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
   [2] {aquatic=TRUE,tail=TRUE}
                                      => {legs=FALSE} 0.1584158 0.6153846
  [3] {feathers=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.6000000
## [4] {airborne=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.5806452
  [5] {hair=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1683168 0.5312500
##
##
       lift
## [1] 3.245747
  [2] 2.702341
  [3] 2.634783
##
  [4] 2.549790
  [5] 2.332880
##
  [1]
       "Número de reglas con consecuente negado"
##
        lhs
                             rhs
                                              support
                                                        confidence lift
        {\tt \{milk=TRUE\}}
## [1]
                         => {venomous=FALSE} 0.4059406 1.0000000
                                                                   1.0860215
##
  [2]
        {type=mammal}
                         => {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
  [3]
        {catsize=TRUE}
                         => {venomous=FALSE} 0.4257426 0.9772727
                                                                    1.0613392
##
  [4]
        {predator=FALSE}
                         => {venomous=FALSE} 0.4257426 0.9555556
                                                                    1.0377539
  [5]
##
        {hair=TRUE}
                         => {venomous=FALSE} 0.4059406 0.9534884
                                                                    1.0355089
## [6]
        {eggs=FALSE}
                         => {venomous=FALSE} 0.3960396 0.9523810
                         => {venomous=FALSE} 0.7821782 0.9518072
## [7]
        {backbone=TRUE}
                                                                   1.0336831
## [8]
        {legs=TRUE}
                         => {venomous=FALSE} 0.7326733 0.9487179 1.0303281
```

```
## [9]
        {tail=TRUE}
                            {venomous=FALSE} 0.7029703 0.9466667
                                                                    1.0281004
                            {venomous=FALSE} 0.1584158 0.9411765
  [10] {fins=TRUE}
                                                                    1.0221379
  [11] {aquatic=FALSE}
                            {venomous=FALSE} 0.6039604 0.9384615
                                                                    1.0191894
  [12] {breathes=TRUE}
                            {venomous=FALSE} 0.7425743 0.9375000
                                                                    1.0181452
  [13] {toothed=TRUE}
                             {venomous=FALSE} 0.5643564 0.9344262
                                                                    1.0148070
##
  [14] {domestic=TRUE}
                            {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
  [15] {type=fish}
                            {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
  [16] {airborne=FALSE} =>
                            {venomous=FALSE} 0.7029703 0.9220779
                                                                    1.0013965
   Γ17]
       {domestic=FALSE}
                            {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
  [18] {feathers=FALSE}
                            {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
  [19] {toothed=FALSE}
                         => {venomous=FALSE} 0.3564356 0.9000000
                                                                    0.9774194
  [20]
       {eggs=TRUE}
                         => {venomous=FALSE} 0.5247525 0.8983051
                                                                    0.9755786
##
  [21]
       {hair=FALSE}
                         => {venomous=FALSE} 0.5148515 0.8965517
                                                                    0.9736745
       {predator=TRUE}
  [22]
                         => {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
## [23] {catsize=FALSE}
                         => {venomous=FALSE} 0.4950495 0.8771930
                                                                    0.9526504
  [24]
        {milk=FALSE}
                         => {venomous=FALSE} 0.5148515 0.8666667
                                                                    0.9412186
##
  [25]
       {breathes=FALSE} => {venomous=FALSE} 0.1782178 0.8571429
                                                                    0.9308756
   [26] {legs=FALSE}
                         => {venomous=FALSE} 0.1881188 0.8260870
                                                                    0.8971482
   [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
   [1] "Número de reglas con consecuente negado"
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
##
   [2] {aquatic=FALSE,legs=TRUE}
                                      => {domestic=TRUE} 0.1188119 0.2000000
   [3] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
   [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
##
   [5] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
##
   [1] 1.612482
##
   [2] 1.553846
   [3] 1.335337
##
   [4] 1.294872
##
   [5] 1.238573
##
        lhs
                                                        confidence lift
                                              support
##
  [1]
                         => {domestic=FALSE} 0.3465347 0.9722222
        {aquatic=TRUE}
                                                                    1.1158460
   [2]
        {predator=TRUE}
                         => {domestic=FALSE} 0.5346535 0.9642857
##
                                                                    1.1067370
   [3]
        {legs=FALSE}
##
                         => {domestic=FALSE} 0.2178218 0.9565217
                                                                    1.0978261
##
  [4]
        {breathes=FALSE}
                         => {domestic=FALSE} 0.1980198 0.9523810
                                                                    1.0930736
##
  [5]
        {backbone=FALSE} =>
                            {domestic=FALSE} 0.1683168 0.9444444
                                                                    1.0839646
   [6]
        {fins=TRUE}
                            {domestic=FALSE} 0.1584158 0.9411765
##
                                                                    1.0802139
##
  [7]
        {hair=FALSE}
                            {domestic=FALSE} 0.5346535 0.9310345
                                                                    1.0685737
  [8]
        {type=fish}
                         => {domestic=FALSE} 0.1188119 0.9230769
                                                                    1.0594406
   [9]
                         => {domestic=FALSE} 0.5445545 0.9166667
##
        {milk=FALSE}
                                                                    1.0520833
##
   Γ10]
       {eggs=TRUE}
                            {domestic=FALSE} 0.5346535 0.9152542
                                                                    1.0504622
                         => {domestic=FALSE} 0.3564356 0.9000000
##
  [11] {toothed=FALSE}
                                                                    1.0329545
  [12] {airborne=FALSE}
                            {domestic=FALSE} 0.6732673 0.8831169
                                                                    1.0135773
## [13]
       {catsize=FALSE}
                            {domestic=FALSE} 0.4950495 0.8771930
                                                                    1.0067783
  [14]
       {feathers=FALSE}
                            {domestic=FALSE} 0.7029703 0.8765432
                                                                    1.0060325
  [15] {catsize=TRUE}
                            {domestic=FALSE} 0.3762376 0.8636364
                                                                    0.9912190
                         => {domestic=FALSE} 0.7029703 0.8554217
  [16] {backbone=TRUE}
                                                                    0.9817908
  [17] {legs=TRUE}
                         => {domestic=FALSE} 0.6534653 0.8461538
                                                                    0.9711538
## [18]
       {airborne=TRUE}
                         => {domestic=FALSE} 0.1980198 0.8333333
                                                                    0.9564394
## [19] {eggs=FALSE}
                         => {domestic=FALSE} 0.3366337 0.8095238
                                                                    0.9291126
                         => {domestic=FALSE} 0.3267327 0.8048780
## [20] {milk=TRUE}
                                                                    0.9237805
## [21] {type=mammal}
                         => {domestic=FALSE} 0.3267327 0.8048780
```

```
##
                                                         support
                                                                   confidence
##
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
   [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
   [3] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
##
   [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift.
  [1] 1.612482
##
  [2] 1.335337
   [3] 1.294872
##
   [4] 1.238573
##
       lhs
                                     rhs
                                                     support
                                                                confidence
   [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
##
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
       lift
##
  [1] 1.553846
   [2] 1.335337
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                            support
##
  [1]
        {catsize=FALSE, type=bird}
                                           {airborne=TRUE} 0.1287129
##
   [2]
        {feathers=TRUE, catsize=FALSE}
                                            {airborne=TRUE} 0.1287129
##
   [3]
        {type=bird}
                                         => {airborne=TRUE} 0.1584158
  [4]
        {feathers=TRUE}
                                         => {airborne=TRUE} 0.1584158
##
  [5]
##
        {toothed=FALSE,backbone=TRUE}
                                         => {airborne=TRUE} 0.1584158
                                            {airborne=TRUE} 0.1485149
##
   [6]
        {predator=FALSE, toothed=FALSE}
##
  [7]
        {toothed=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1584158
  [8]
        {toothed=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
  [9]
                                         => {airborne=TRUE} 0.1683168
##
        {aquatic=FALSE, toothed=FALSE}
  [10] {toothed=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
## [11] {toothed=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [12] {eggs=TRUE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1683168
  [13] {eggs=TRUE,predator=FALSE}
                                         => {airborne=TRUE} 0.1485149
  [14] {milk=FALSE,predator=FALSE}
                                         => {airborne=TRUE} 0.1485149
  [15] {milk=FALSE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1683168
                                         => {airborne=TRUE} 0.2178218
  [16] {eggs=TRUE,breathes=TRUE}
  [17] {milk=FALSE,breathes=TRUE}
                                           {airborne=TRUE} 0.2178218
## [18] {toothed=FALSE, venomous=FALSE}
                                         => {airborne=TRUE} 0.1980198
## [19] {toothed=FALSE}
                                           {airborne=TRUE} 0.2178218
## [20] {eggs=TRUE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [21] {milk=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
  [22] {predator=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.1485149
  [23] {legs=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.2079208
  [24] {breathes=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.2079208
## [25] {hair=FALSE,predator=FALSE}
                                         => {airborne=TRUE} 0.1089109
                                         => {airborne=TRUE} 0.1683168
  [26] {aquatic=FALSE,catsize=FALSE}
## [27] {hair=FALSE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1287129
## [28] {hair=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.1782178
##
  [29]
       {hair=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.1782178
  [30] {eggs=TRUE,fins=FALSE}
                                         => {airborne=TRUE} 0.2178218
  [31] {milk=FALSE,fins=FALSE}
                                         => {airborne=TRUE} 0.2178218
  [32] {fins=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.2079208
                                         => {airborne=TRUE} 0.1683168
## [33] {predator=FALSE,legs=TRUE}
## [34] {hair=FALSE,fins=FALSE}
                                         => {airborne=TRUE} 0.1782178
## [35] {predator=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.1683168
## [36] {predator=FALSE,fins=FALSE}
                                         => {airborne=TRUE} 0.1683168
```

```
## [37] {eggs=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
                                            {airborne=TRUE} 0.1584158
   [38] {eggs=TRUE,tail=TRUE}
  [39] {tail=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
  [40] {milk=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [41] {milk=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [42] {milk=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [43] {predator=FALSE,domestic=FALSE} =>
                                             {airborne=TRUE} 0.1287129
  [44] {hair=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
##
   Γ451
       {eggs=TRUE,backbone=TRUE}
                                             {airborne=TRUE} 0.1584158
   [46] {milk=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [47] {venomous=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
       {eggs=TRUE, venomous=FALSE}
   [48]
                                            {airborne=TRUE} 0.1980198
       {backbone=TRUE, catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
   [49]
       {hair=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1782178
  [51]
       {breathes=TRUE,legs=TRUE}
                                         => {airborne=TRUE} 0.2376238
   [52]
        {aquatic=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1881188
                                            {airborne=TRUE} 0.1782178
   [53]
       {legs=TRUE,tail=TRUE}
   [54] {breathes=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2376238
   [55] {fins=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2376238
   [56] {fins=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1782178
##
   [57]
       {aquatic=FALSE}
                                         => {airborne=TRUE} 0.1881188
                                         => {airborne=TRUE} 0.2178218
##
   [58] {venomous=FALSE}
##
        confidence lift
##
   [1]
        0.9285714
                   3.9077381
   [2]
        0.9285714
                   3.9077381
   [3]
        0.8000000
                   3.3666667
   [4]
        0.8000000
##
                   3.3666667
##
   [5]
        0.7272727
                   3.0606061
   [6]
##
        0.7142857
                   3.0059524
  [7]
        0.6956522
                   2.9275362
##
   [8]
        0.6666667
                   2.8055556
##
   [9]
        0.6296296
                   2.6496914
   [10] 0.6129032
                   2.5793011
  [11] 0.6111111
                   2.5717593
       0.5862069
   Γ12]
                   2.4669540
##
  [13] 0.5769231
                   2.4278846
  [14] 0.5769231
                   2.4278846
  [15] 0.5666667
                   2.3847222
   [16] 0.5641026
                   2.3739316
  [17] 0.5641026
                   2.3739316
  [18] 0.5555556
                   2.3379630
  [19] 0.5500000
                   2.3145833
   [20] 0.5500000
                   2.3145833
  [21] 0.5500000
                   2.3145833
  [22] 0.5172414
                   2.1767241
## [23] 0.5121951
                   2.1554878
   [24] 0.5121951
                   2.1554878
   [25] 0.5000000
                   2.1041667
   [26] 0.5000000
                   2.1041667
   [27]
        0.5000000
                   2.1041667
##
  [28]
       0.5000000
                   2.1041667
## [29] 0.4864865
                   2.0472973
## [30] 0.4782609
                   2.0126812
## [31] 0.4680851
                   1.9698582
```

```
[32] 0.4375000
                    1.8411458
                    1.8344017
   [33] 0.4358974
   [34] 0.4186047
                    1.7616279
   [35] 0.4146341
                    1.7449187
##
   [36] 0.4146341
                    1.7449187
   [37] 0.4130435
                    1.7382246
##
   [38] 0.4102564
                    1.7264957
   [39] 0.4054054
                    1.7060811
   [40] 0.4000000
                    1.6833333
   [41] 0.3958333
                    1.6657986
   [42] 0.3846154
                    1.6185897
   [43]
       0.3823529
                    1.6090686
   [44] 0.3809524
##
                    1.6031746
   [45] 0.3809524
                    1.6031746
   [46] 0.3809524
                    1.6031746
   [47]
        0.3800000
                    1.5991667
   [48] 0.3773585
##
                    1.5880503
   [49] 0.3750000
                    1.5781250
   [50] 0.3461538
                    1.4567308
   [51] 0.3287671
                    1.3835616
##
   [52] 0.3166667
                    1.3326389
   [53]
       0.3157895
                    1.3289474
                    1.3289474
   [54] 0.3157895
##
##
   [55]
       0.3116883
                    1.3116883
##
   [56] 0.3050847
                    1.2838983
   [57]
        0.2923077
                    1.2301282
##
   [58]
        0.2365591
                    0.9955197
##
        lhs
                                                         confidence lift
                             rhs
                                               support
##
   [1]
        {type=fish}
                          => {airborne=FALSE} 0.1287129 1.0000000
                                                                     1.3116883
##
   [2]
        {fins=TRUE}
                          => {airborne=FALSE} 0.1683168 1.0000000
                                                                     1.3116883
##
   [3]
        {breathes=FALSE}
                          =>
                             {airborne=FALSE} 0.2079208 1.0000000
                                                                     1.3116883
##
   [4]
        {legs=FALSE}
                             {airborne=FALSE} 0.2277228 1.0000000
                                                                     1.3116883
##
   [5]
        {toothed=TRUE}
                             {airborne=FALSE} 0.5841584 0.9672131
                                                                     1.2686821
##
   [6]
        {eggs=FALSE}
                          => {airborne=FALSE} 0.3960396 0.9523810
                                                                     1.2492270
   [7]
        {milk=TRUE}
                             {airborne=FALSE} 0.3861386 0.9512195
##
                                                                     1.2477035
##
   [8]
        {type=mammal}
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                     1.2477035
        {catsize=TRUE}
                             {airborne=FALSE} 0.4059406 0.9318182
                                                                     1.2222550
       {predator=TRUE}
                             {airborne=FALSE} 0.4851485 0.8750000
##
   [10]
                                                                     1.1477273
                             {airborne=FALSE} 0.3069307 0.8611111
##
   [11] {aquatic=TRUE}
                                                                     1.1295094
##
   [12] {hair=TRUE}
                             {airborne=FALSE} 0.3663366 0.8604651
                                                                     1.1286620
   [13] {backbone=TRUE}
                             {airborne=FALSE} 0.6435644 0.7831325
                                                                     1.0272258
                             {airborne=FALSE} 0.1980198 0.7692308
   [14] {tail=FALSE}
                                                                     1.0089910
   [15]
       {tail=TRUE}
                             {airborne=FALSE} 0.5643564 0.7600000
                                                                     0.9968831
                          => {airborne=FALSE} 0.4554455 0.7076923
##
   [16] {aquatic=FALSE}
                                                                     0.9282717
                                                                     0.9046126
   [17]
       {hair=FALSE}
                          => {airborne=FALSE} 0.3960396 0.6896552
##
   [18]
       {backbone=FALSE} =>
                             {airborne=FALSE} 0.1188119 0.6666667
                                                                     0.8744589
                                                                     0.8307359
##
   [19]
       {milk=FALSE}
                             {airborne=FALSE} 0.3762376 0.6333333
   [20] {eggs=TRUE}
                          => {airborne=FALSE} 0.3663366 0.6271186
                                                                     0.8225842
   [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.6222222
                                                                     0.8161616
##
   [22] {toothed=FALSE}
                          => {airborne=FALSE} 0.1782178 0.4500000
                                                                     0.5902597
##
                                          rhs
       lhs
                                                           support
                                                                     confidence
##
  [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
   [2] {eggs=TRUE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
## [3] {milk=FALSE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
```

```
## [4] {backbone=TRUE, catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift.
## [1] 3.060606
## [2] 1.603175
## [3] 1.603175
## [4] 1.578125
       lhs
                                    rhs
                                                     support
                                                               confidence
## [1] {toothed=FALSE,tail=TRUE} => {airborne=TRUE} 0.1584158 0.6956522
## [2] {eggs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4102564
## [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4000000
                                 => {airborne=TRUE} 0.1584158 0.3809524
## [5] {hair=FALSE,tail=TRUE}
## [6] {legs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1782178 0.3157895
                                 => {airborne=TRUE} 0.1782178 0.3050847
## [7] {fins=FALSE,tail=TRUE}
##
       lift.
## [1] 2.927536
## [2] 1.726496
## [3] 1.706081
## [4] 1.683333
## [5] 1.603175
## [6] 1.328947
## [7] 1.283898
##
       lhs
                                        rhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
## [2] {eggs=TRUE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5862069
## [3] {milk=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5666667
## [4] {aquatic=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
## [5] {hair=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1287129 0.5000000
## [6] {aquatic=FALSE,legs=TRUE}
                                     => {airborne=TRUE} 0.1881188 0.3166667
##
       lift
## [1] 2.649691
## [2] 2.466954
## [3] 2.384722
## [4] 2.104167
## [5] 2.104167
## [6] 1.332639
##
                                                       support
                                                                 confidence
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
## [2] {hair=FALSE,aquatic=FALSE} => {airborne=TRUE} 0.1287129 0.5000000
## [3] {hair=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.5000000
## [4] {hair=FALSE,breathes=TRUE} => {airborne=TRUE} 0.1782178 0.4864865
## [5] {hair=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.1782178 0.4186047
## [6] {hair=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.3809524
## [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
       lift
## [1] 2.104167
## [2] 2.104167
## [3] 2.104167
## [4] 2.047297
## [5] 1.761628
## [6] 1.603175
## [7] 1.456731
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
```

```
## [2] {milk=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1683168 0.5666667
                                   => {airborne=TRUE} 0.2178218 0.5641026
## [3] {milk=FALSE,breathes=TRUE}
## [4] {milk=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5500000
## [5] {milk=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.2178218 0.4680851
## [6] {milk=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.4000000
## [7] {milk=FALSE,catsize=FALSE}
                                   => {airborne=TRUE} 0.1881188 0.3958333
## [8] {milk=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
## [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
       lift
## [1] 2.427885
## [2] 2.384722
## [3] 2.373932
## [4] 2.314583
## [5] 1.969858
## [6] 1.683333
## [7] 1.665799
## [8] 1.618590
## [9] 1.603175
##
       lhs
                                     rhs
                                                      support
                                                                confidence
## [1] {eggs=TRUE,aquatic=FALSE}
                                  => {airborne=TRUE} 0.1683168 0.5862069
## [2] {eggs=TRUE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
                                  => {airborne=TRUE} 0.2178218 0.5641026
## [3] {eggs=TRUE,breathes=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5500000
## [4] {eggs=TRUE,legs=TRUE}
## [5] {eggs=TRUE,fins=FALSE}
                                  => {airborne=TRUE} 0.2178218 0.4782609
## [6] {eggs=TRUE,catsize=FALSE}
                                  => {airborne=TRUE} 0.1881188 0.4130435
## [7] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
                                  => {airborne=TRUE} 0.1584158 0.3809524
  [8] {eggs=TRUE,backbone=TRUE}
##
   [9] {eggs=TRUE,venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
       lift
## [1] 2.466954
## [2] 2.427885
## [3] 2.373932
## [4] 2.314583
## [5] 2.012681
  [6] 1.738225
## [7] 1.726496
## [8] 1.603175
## [9] 1.588050
##
                                           rhs
                                                           support
## [1] {predator=FALSE,toothed=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [2] {eggs=TRUE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
## [3] {milk=FALSE,predator=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [4] {predator=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1485149
                                       => {airborne=TRUE} 0.1089109
## [5] {hair=FALSE,predator=FALSE}
## [6] {predator=FALSE,legs=TRUE}
                                        => {airborne=TRUE} 0.1683168
## [7] {predator=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.1683168
  [8] {predator=FALSE,fins=FALSE}
                                       => {airborne=TRUE} 0.1683168
  [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
##
       confidence lift
## [1] 0.7142857
                  3.005952
## [2] 0.5769231
                  2.427885
## [3] 0.5769231
                 2.427885
## [4] 0.5172414 2.176724
## [5] 0.5000000 2.104167
```

```
[6] 0.4358974
                  1.834402
   [7] 0.4146341
                  1.744919
  [8] 0.4146341
                  1.744919
##
  [9] 0.3823529
                  1.609069
       lhs
                                                          support
                                                                     confidence
## [1] {toothed=FALSE,backbone=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.7272727
  [2] {predator=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1485149 0.7142857
  [3] {toothed=FALSE,tail=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.6956522
  [4] {toothed=FALSE,breathes=TRUE}
                                          {airborne=TRUE} 0.2178218 0.6666667
   [5] {aquatic=FALSE,toothed=FALSE}
                                         {airborne=TRUE} 0.1683168 0.6296296
  [6] {toothed=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1881188 0.6129032
   [7] {toothed=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6111111
##
   [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
       lift
## [1] 3.060606
   [2] 3.005952
##
##
   [3] 2.927536
   [4] 2.805556
  [5] 2.649691
   [6] 2.579301
##
  [7] 2.571759
  [8] 2.337963
##
   [1] "Número de reglas con consecuente negado"
##
                                                            support
##
  [1]
        {type=bird}
                                         => {feathers=TRUE} 0.1980198
   [2]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [3]
##
        {hair=FALSE,airborne=TRUE}
                                         => {feathers=TRUE} 0.1584158
##
   [4]
        {airborne=TRUE, tail=TRUE}
                                           {feathers=TRUE} 0.1584158
   [5]
##
        {airborne=TRUE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1584158
##
  [6]
                                           {feathers=TRUE} 0.1980198
        {toothed=FALSE,tail=TRUE}
##
  [7]
        {airborne=TRUE, toothed=FALSE}
                                           {feathers=TRUE} 0.1584158
##
   [8]
        {eggs=TRUE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
  [9]
        {milk=FALSE,airborne=TRUE}
                                           {feathers=TRUE} 0.1584158
  [10] {airborne=TRUE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1584158
   [11] {toothed=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
##
  [12] {hair=FALSE,toothed=FALSE}
                                           {feathers=TRUE} 0.1980198
  [13] {toothed=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
  [14] {toothed=FALSE, venomous=FALSE}
  [15] {hair=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
  [16] {hair=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
##
  [17] {hair=FALSE,aquatic=FALSE}
                                           {feathers=TRUE} 0.1386139
                                           {feathers=TRUE} 0.1089109
  [18] {predator=FALSE,toothed=FALSE}
  [19] {aquatic=FALSE,toothed=FALSE}
                                           {feathers=TRUE} 0.1386139
  [20] {eggs=TRUE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [21] {milk=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [22] {eggs=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
  [23] {eggs=TRUE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
  [24] {milk=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1089109
  [25] {hair=FALSE,predator=FALSE}
  [26] {eggs=TRUE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
## [27] {milk=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
## [28] {milk=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
## [29] {eggs=TRUE,aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
## [30] {hair=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
```

```
[31] {eggs=TRUE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [32] {milk=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [33] {milk=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   [34] {hair=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
##
   [35]
       {hair=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [36] {eggs=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
  Г371
       {milk=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [38]
       {eggs=TRUE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [39]
       {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [40] {hair=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [41] {milk=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [42]
       {tail=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
       {eggs=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [43]
       {hair=FALSE,eggs=TRUE}
                                            {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1980198
   [45] {hair=FALSE,milk=FALSE}
   [46]
        {legs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [47]
##
        {backbone=TRUE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [48]
       {hair=FALSE}
                                            {feathers=TRUE} 0.1980198
   [49] {eggs=TRUE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
   [50] {legs=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   [51] {breathes=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
       {fins=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
       {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [53]
                                            {feathers=TRUE} 0.1980198
##
   Γ54]
       {breathes=TRUE,tail=TRUE}
##
   [55]
       {backbone=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [56] {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
   [57] {backbone=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [58] {fins=FALSE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [59] {backbone=TRUE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
   [60] {aquatic=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1386139
   [61]
        {predator=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [62]
        {venomous=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
       {venomous=FALSE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [64]
       {breathes=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
        {backbone=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [65]
   [66]
##
       {venomous=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
       {predator=FALSE, breathes=TRUE}
                                            {feathers=TRUE} 0.1089109
       {predator=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [68]
        {breathes=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [69]
##
       {aquatic=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1386139
   [70]
   [71] {breathes=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [72] {fins=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [73] {venomous=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1683168
##
   [74] {legs=TRUE,domestic=FALSE}
  [75] {predator=FALSE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1089109
        {backbone=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [77]
        {aquatic=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1386139
   [78]
       {aquatic=FALSE}
                                         => {feathers=TRUE} 0.1386139
   [79]
       {venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
   [80]
        {domestic=FALSE}
                                         => {feathers=TRUE} 0.1683168
##
        confidence lift
##
  [1]
        1.0000000 5.0500000
##
  [2]
        0.9090909
                   4.5909091
## [3]
        0.8888889
                  4.4888889
```

```
## [4]
        0.8888889
                   4.4888889
##
   [5]
        0.8888889
                   4.4888889
   [6]
        0.8695652
                   4.3913043
   [7]
        0.7272727
                   3.6727273
##
##
   [8]
        0.7272727
                    3.6727273
##
   [9]
        0.7272727
                    3.6727273
  [10] 0.7272727
                    3.6727273
## [11] 0.6060606
                   3.0606061
##
   [12] 0.5714286
                    2.8857143
   [13] 0.5555556
                   2.8055556
  [14] 0.5555556
                   2.8055556
   [15] 0.5555556
                   2.8055556
                   2.7297297
   [16] 0.5405405
  [17] 0.5384615
                   2.7192308
## [18] 0.5238095
                   2.6452381
   [19] 0.5185185
                    2.6185185
   [20] 0.5128205
##
                   2.5897436
   [21] 0.5128205
                   2.5897436
                   2.5897436
   [22] 0.5128205
   [23] 0.5128205
                   2.5897436
##
  [24] 0.5128205
                   2.5897436
  [25] 0.5000000
                   2.5250000
##
  [26] 0.5000000
                   2.5250000
   [27] 0.5000000
##
                   2.5250000
   [28] 0.5000000
                   2.5250000
   [29] 0.4827586
                   2.4379310
   [30] 0.4761905
##
                   2.4047619
##
   [31] 0.4761905
                   2.4047619
   [32] 0.4761905
                   2.4047619
                   2.3566667
  [33] 0.4666667
##
   [34] 0.4651163
                   2.3488372
##
   [35] 0.4545455
                   2.2954545
   [36] 0.4347826
                   2.1956522
   [37] 0.4255319
                   2.1489362
   [38] 0.4230769
                   2.1365385
  [39] 0.4230769
##
                   2.1365385
  [40] 0.3846154
                   1.9423077
## [41] 0.3846154
                    1.9423077
   [42] 0.3783784
##
                    1.9108108
##
   [43] 0.3773585
                    1.9056604
   [44] 0.3703704
                   1.8703704
   [45] 0.3571429
                   1.8035714
   [46] 0.3508772
                   1.7719298
##
   [47] 0.3500000
                   1.7675000
## [48] 0.3448276
                   1.7413793
   [49] 0.3448276
                   1.7413793
##
   [50] 0.3414634
                    1.7243902
   [51] 0.3414634
                    1.7243902
   [52] 0.3389831
                    1.7118644
   [53] 0.3333333
                    1.6833333
##
   [54] 0.3278689
                   1.6557377
## [55] 0.3125000
                   1.5781250
## [56] 0.3055556
                   1.5430556
## [57] 0.3030303 1.5303030
```

```
[58] 0.2916667
                   1.4729167
   [59] 0.2898551
                   1.4637681
   [60] 0.2857143
                   1.4428571
   [61] 0.2820513
                   1.4243590
##
   [62]
       0.2816901
                   1.4225352
                   1.4140000
##
   [63] 0.2800000
   [64] 0.2739726
                   1.3835616
   [65] 0.2702703
                   1.3648649
   [66] 0.2702703
                   1.3648649
   [67] 0.2682927
                   1.3548780
   [68] 0.2682927
                   1.3548780
   [69] 0.2666667
                   1.3466667
##
   [70] 0.2641509
                   1.3339623
   [71] 0.2631579
                   1.3289474
   [72] 0.2597403
                   1.3116883
   [73] 0.2597403
                   1.3116883
   [74] 0.2575758
                   1.3007576
   [75] 0.2558140
                   1.2918605
   [76] 0.2531646
                   1.2784810
   [77] 0.2295082
                   1.1590164
##
   [78] 0.2153846
                   1.0876923
   [79] 0.2150538
                   1.0860215
   [80] 0.1931818
##
                   0.9755682
##
        lhs
                                               support
                                                         confidence lift
                                                                     1.2469136
##
   [1]
        {type=fish}
                          => {feathers=FALSE} 0.1287129 1.0000000
   [2]
        {fins=TRUE}
                          => {feathers=FALSE} 0.1683168 1.0000000
                                                                     1.2469136
##
   [3]
        {backbone=FALSE} => {feathers=FALSE} 0.1782178 1.0000000
                                                                     1.2469136
##
   [4]
        {breathes=FALSE}
                             {feathers=FALSE} 0.2079208 1.0000000
                                                                     1.2469136
##
   [5]
        {legs=FALSE}
                          => {feathers=FALSE} 0.2277228 1.0000000
                                                                     1.2469136
##
   [6]
        {tail=FALSE}
                          => {feathers=FALSE} 0.2574257 1.0000000
                                                                     1.2469136
##
   [7]
        {eggs=FALSE}
                          => {feathers=FALSE} 0.4158416 1.0000000
                                                                     1.2469136
##
   [8]
        {hair=TRUE}
                          => {feathers=FALSE} 0.4257426 1.0000000
                                                                     1.2469136
##
   [9]
        {airborne=FALSE}
                         => {feathers=FALSE} 0.7227723 0.9480519
                                                                     1.1821388
   [10]
       {catsize=TRUE}
                          => {feathers=FALSE} 0.3762376 0.8636364
                                                                     1.0768799
       {predator=TRUE}
                             {feathers=FALSE} 0.4653465 0.8392857
   [11]
                                                                     1.0465168
##
   [12] {aquatic=TRUE}
                          => {feathers=FALSE} 0.2970297 0.8333333
                                                                     1.0390947
   [13] {aquatic=FALSE}
                          => {feathers=FALSE} 0.5049505 0.7846154
                                                                     0.9783476
   [14] {predator=FALSE} => {feathers=FALSE} 0.3366337 0.7555556
                                                                     0.9421125
       {catsize=FALSE}
                             {feathers=FALSE} 0.4257426 0.7543860
   [15]
                                                                     0.9406541
##
   [16] {breathes=TRUE}
                             {feathers=FALSE} 0.5940594 0.7500000
                                                                     0.9351852
   [17] {legs=TRUE}
                          => {feathers=FALSE} 0.5742574 0.7435897
                                                                     0.9271921
                          => {feathers=FALSE} 0.3960396 0.6666667
   [18] {milk=FALSE}
                                                                     0.8312757
##
   [19] {eggs=TRUE}
                          => {feathers=FALSE} 0.3861386 0.6610169
                                                                     0.8242310
                          => {feathers=FALSE} 0.3762376 0.6551724
##
   [20] {hair=FALSE}
                                                                     0.8169434
##
   [21] {toothed=FALSE}
                          => {feathers=FALSE} 0.1980198 0.5000000
                                                                     0.6234568
##
       lhs
                                          rhs
                                                           support
                                                                      confidence
##
   [1] {hair=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5384615
   [2] {aquatic=FALSE,toothed=FALSE}
                                          {feathers=TRUE} 0.1386139 0.5185185
   [3] {eggs=TRUE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4827586
   [4] {milk=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
##
   [5] {aquatic=FALSE,tail=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2857143
   [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
##
   [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
       lift
```

```
[1] 2.719231
   [2] 2.618519
   [3] 2.437931
   [4] 2.356667
##
##
   [5] 1.442857
##
   [6] 1.333962
##
   [7] 1.159016
##
        lhs
                                             rhs
                                                              support
##
   [1]
        {predator=FALSE, toothed=FALSE}
                                          =>
                                             {feathers=TRUE} 0.1089109
##
   [2]
        {hair=FALSE, predator=FALSE}
                                             {feathers=TRUE} 0.1089109
   [3]
        {eggs=TRUE,predator=FALSE}
                                             {feathers=TRUE} 0.1089109
   [4]
        {milk=FALSE,predator=FALSE}
##
                                             {feathers=TRUE} 0.1089109
##
   [5]
        {predator=FALSE,tail=TRUE}
                                             {feathers=TRUE} 0.1089109
##
   [6]
        {predator=FALSE,backbone=TRUE}
                                             {feathers=TRUE} 0.1089109
   [7]
                                             {feathers=TRUE} 0.1089109
##
        {predator=FALSE,legs=TRUE}
##
   [8]
        {predator=FALSE,breathes=TRUE}
                                          =>
                                             {feathers=TRUE} 0.1089109
##
   [9]
        {predator=FALSE,fins=FALSE}
                                             {feathers=TRUE} 0.1089109
        {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
##
        confidence lift
##
   [1]
        0.5238095
                   2.645238
##
   [2]
        0.5000000
                   2.525000
##
   [3]
        0.4230769
                   2.136538
   [4]
##
        0.4230769
                   2.136538
##
   [5]
        0.3333333
                    1.683333
##
   [6]
        0.3055556
                    1.543056
   [7]
        0.2820513
                    1.424359
   [8]
##
        0.2682927
                    1.354878
##
   [9]
        0.2682927
                    1.354878
##
   [10] 0.2558140
                    1.291860
##
       lhs
                                           rhs
                                                            support
                                                                       confidence
##
   [1] {tail=TRUE,catsize=FALSE}
                                          {feathers=TRUE} 0.1386139 0.3783784
   [2] {backbone=TRUE, catsize=FALSE}
                                           {feathers=TRUE} 0.1386139 0.3500000
   [3] {legs=TRUE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.3414634
   [4] {breathes=TRUE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.3414634
   [5] {fins=FALSE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139 0.2916667
   [6] {venomous=FALSE, catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
##
       lift.
##
  [1] 1.910811
   [2] 1.767500
##
   [3] 1.724390
   [4] 1.724390
   [5] 1.472917
##
##
   [6] 1.414000
##
        lhs
                                            rhs
                                                             support
##
  [1]
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [2]
##
        {hair=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [3]
        {eggs=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [4]
        {milk=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [5]
        {breathes=TRUE,catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
##
   [6]
        {breathes=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [7]
        {backbone=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [8]
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [9]
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
## [10] {breathes=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198
```

```
[11] {breathes=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
        confidence lift
                   3.060606
##
   [1]
        0.6060606
##
   [2]
        0.5405405
                   2.729730
##
   [3]
        0.5128205
                    2.589744
##
   [4]
        0.5128205
                   2.589744
   [5]
        0.3414634
                   1.724390
##
   [6]
        0.3278689
                    1.655738
##
   [7]
        0.2898551
                    1.463768
##
   [8]
        0.2739726
                    1.383562
   [9]
        0.2682927
                    1.354878
##
   [10]
        0.2666667
                    1.346667
##
   [11]
        0.2631579
                    1.328947
##
        lhs
                                                         support
                                                                   confidence
## [1]
        {toothed=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5555556
##
   [2]
        {hair=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5555556
##
   [3]
                                     => {feathers=TRUE} 0.1980198 0.5000000
        {eggs=TRUE,legs=TRUE}
   [4]
        {milk=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5000000
                                     => {feathers=TRUE} 0.1980198 0.3508772
##
   [5]
        {legs=TRUE,tail=TRUE}
##
   [6]
        {legs=TRUE,catsize=FALSE}
                                    => {feathers=TRUE} 0.1386139 0.3414634
##
   [7]
        {backbone=TRUE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.3125000
        {predator=FALSE,legs=TRUE} => {feathers=TRUE} 0.1089109 0.2820513
##
   [8]
   [9]
        {breathes=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2739726
##
##
   [10] {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
   [11] {fins=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.2597403
   [12] {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
##
        lift
##
   [1]
        2.805556
##
   [2]
        2.805556
##
   [3]
        2.525000
##
   [4]
        2.525000
##
   [5]
        1.771930
##
   [6]
        1.724390
   [7]
        1.578125
##
   [8]
##
        1.424359
##
   [9]
        1.383562
   [10] 1.364865
## [11] 1.311688
   [12] 1.300758
##
##
        lhs
                                         rhs
                                                          support
                                                                    confidence
  [1]
        {milk=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.7272727
   [2]
                                     => {feathers=TRUE} 0.1980198 0.5128205
##
        {milk=FALSE, toothed=FALSE}
##
   [3]
        {milk=FALSE, breathes=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
##
   [4]
                                      => {feathers=TRUE} 0.1980198 0.5000000
        {milk=FALSE,tail=TRUE}
##
   [5]
        {milk=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
   [6]
                                         {feathers=TRUE} 0.1980198 0.4761905
##
        {milk=FALSE,backbone=TRUE}
##
   [7]
        {milk=FALSE,aquatic=FALSE}
                                         {feathers=TRUE} 0.1386139 0.4666667
   [8]
        {milk=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4255319
        {milk=FALSE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
   [9]
   [10] {milk=FALSE, venomous=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3846154
                                     => {feathers=TRUE} 0.1980198 0.3571429
   [11] {hair=FALSE,milk=FALSE}
##
   [12] {eggs=TRUE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3448276
##
        lift
## [1]
      3.672727
```

```
[2]
        2.589744
##
   [3]
        2.589744
##
   [4]
        2.525000
   [5]
##
        2.525000
##
   [6]
        2.404762
##
   [7]
        2.356667
   [8]
        2.148936
        2.136538
##
   [9]
##
   [10] 1.942308
##
   [11] 1.803571
   [12] 1.741379
##
        lhs
                                                         support
                                                                   confidence
##
   [1]
                                        {feathers=TRUE} 0.1584158 0.7272727
        {eggs=TRUE,airborne=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5128205
##
   [2]
        {eggs=TRUE,toothed=FALSE}
   [3]
                                       {feathers=TRUE} 0.1980198 0.5128205
##
        {eggs=TRUE,tail=TRUE}
##
   [4]
        {eggs=TRUE,breathes=TRUE}
                                        {feathers=TRUE} 0.1980198 0.5128205
##
   [5]
        {eggs=TRUE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5000000
   [6]
        {eggs=TRUE,aquatic=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.4827586
                                       {feathers=TRUE} 0.1980198 0.4761905
##
   [7]
        {eggs=TRUE,backbone=TRUE}
        {eggs=TRUE,fins=FALSE}
##
   [8]
                                       {feathers=TRUE} 0.1980198 0.4347826
##
   [9]
        {eggs=TRUE,predator=FALSE} =>
                                       {feathers=TRUE} 0.1089109 0.4230769
                                        {feathers=TRUE} 0.1980198 0.3773585
  [10] {eggs=TRUE, venomous=FALSE} =>
                                     => {feathers=TRUE} 0.1980198 0.3703704
   [11] {hair=FALSE,eggs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3448276
##
   [12] {eggs=TRUE,milk=FALSE}
##
        lift
##
   [1]
        3.672727
   [2]
##
        2.589744
##
   [3]
        2.589744
   [4]
##
        2.589744
##
   [5]
        2.525000
##
   [6]
        2.437931
##
   [7]
        2.404762
##
   [8]
        2.195652
##
   [9]
        2.136538
   [10]
       1.905660
##
   [11] 1.870370
##
   [12] 1.741379
##
        lhs
                                         rhs
                                                          support
                                                                    confidence
        {hair=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.8888889
##
   [1]
                                      => {feathers=TRUE} 0.1980198 0.5714286
   [2]
##
        {hair=FALSE,toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5555556
   [3]
        {hair=FALSE,legs=TRUE}
   [4]
        {hair=FALSE,breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5405405
##
##
   [5]
        {hair=FALSE,aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.5384615
##
   [6]
                                     => {feathers=TRUE} 0.1089109 0.5000000
        {hair=FALSE,predator=FALSE}
##
   [7]
        {hair=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
   [8]
                                      => {feathers=TRUE} 0.1980198 0.4651163
##
        {hair=FALSE,fins=FALSE}
##
   [9]
        {hair=FALSE,backbone=TRUE}
                                         {feathers=TRUE} 0.1980198 0.4545455
       {hair=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
                                      => {feathers=TRUE} 0.1980198 0.3703704
       {hair=FALSE,eggs=TRUE}
   [11]
##
   [12]
        {hair=FALSE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3571429
##
        lift
## [1]
        4.488889
## [2]
        2.885714
## [3]
        2.805556
```

```
[4]
        2.729730
   [5]
##
        2.719231
   [6]
        2.525000
   [7]
##
        2.404762
##
   [8]
        2.348837
   [9]
        2.295455
##
   [10] 1.942308
##
   [11] 1.870370
##
   [12] 1.803571
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [2]
##
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [3]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
        {toothed=FALSE, breathes=TRUE}
##
   [4]
                                         => {feathers=TRUE} 0.1980198
   [5]
                                         => {feathers=TRUE} 0.1980198
##
        {hair=FALSE,toothed=FALSE}
##
   [6]
        {toothed=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [7]
        {toothed=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198
        {predator=FALSE, toothed=FALSE} => {feathers=TRUE} 0.1089109
##
   [9]
        {aquatic=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1386139
   [10]
       {eggs=TRUE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
       {milk=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
        confidence lift
##
   [1]
        0.9090909
                   4.590909
##
   [2]
        0.8695652
                    4.391304
##
   [3]
        0.7272727
                    3.672727
   [4]
        0.6060606
                    3.060606
   [5]
##
        0.5714286
                    2.885714
##
   [6]
        0.555556
                    2.805556
##
   [7]
        0.555556
                    2.805556
                    2.645238
##
   [8]
        0.5238095
##
   [9]
        0.5185185
                    2.618519
##
   [10] 0.5128205
                    2.589744
   [11] 0.5128205
                   2.589744
##
       "Número de reglas con consecuente negado"
##
                                                             support
##
        {type=fish}
   [1]
                                             {aquatic=TRUE} 0.1287129
##
   [2]
        {fins=TRUE}
                                             {aquatic=TRUE} 0.1683168
##
   [3]
        {breathes=FALSE,tail=TRUE}
                                             {aquatic=TRUE} 0.1386139
   [4]
        {backbone=TRUE, breathes=FALSE}
##
                                             {aquatic=TRUE} 0.1386139
##
   [5]
        {breathes=FALSE}
                                             {aquatic=TRUE} 0.1980198
   [6]
        {backbone=TRUE,legs=FALSE}
                                             {aquatic=TRUE} 0.1683168
   [7]
        {hair=FALSE,toothed=TRUE}
                                             {aquatic=TRUE} 0.1980198
##
##
   [8]
        {milk=FALSE, toothed=TRUE}
                                             {aquatic=TRUE} 0.1782178
        {eggs=TRUE,toothed=TRUE}
##
   [9]
                                             {aquatic=TRUE} 0.1683168
   [10] {predator=TRUE,legs=FALSE}
                                             {aquatic=TRUE} 0.1386139
        {venomous=FALSE,legs=FALSE}
   [11]
                                             {aquatic=TRUE} 0.1485149
##
   [12]
       {legs=FALSE}
                                             {aquatic=TRUE} 0.1782178
       {eggs=TRUE,predator=TRUE}
                                             {aquatic=TRUE} 0.2277228
   [14] {hair=FALSE,predator=TRUE}
                                             {aquatic=TRUE} 0.2475248
   [15] {hair=FALSE, feathers=FALSE}
                                             {aquatic=TRUE} 0.2574257
       {milk=FALSE,predator=TRUE}
                                             {aquatic=TRUE} 0.2277228
##
   [16]
   [17] {eggs=TRUE,airborne=FALSE}
                                             {aquatic=TRUE} 0.2475248
## [18] {hair=FALSE,airborne=FALSE}
                                          => {aquatic=TRUE} 0.2673267
## [19] {milk=FALSE,airborne=FALSE}
                                             {aquatic=TRUE} 0.2475248
```

```
## [20] {feathers=FALSE,eggs=TRUE}
                                         => {aquatic=TRUE} 0.2376238
  [21] {predator=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1683168
                                            {aquatic=TRUE} 0.2376238
  [22] {feathers=FALSE,milk=FALSE}
  [23] {hair=FALSE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2574257
       {predator=TRUE,toothed=FALSE}
##
   [24]
                                            {aquatic=TRUE} 0.1089109
  [25] {hair=FALSE,domestic=FALSE}
                                            {aquatic=TRUE} 0.3069307
##
  [26] {eggs=TRUE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2376238
  [27]
       {milk=FALSE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2376238
   [28]
       {toothed=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1386139
   [29]
       {eggs=TRUE,tail=TRUE}
                                            {aquatic=TRUE} 0.2079208
   [30] {predator=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
   [31] {eggs=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
   [32] {airborne=FALSE, catsize=FALSE}
                                            {aquatic=TRUE} 0.1881188
       {milk=FALSE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
       {milk=FALSE,tail=TRUE}
  [34]
                                            {aquatic=TRUE} 0.2079208
   [35]
        {backbone=TRUE, catsize=FALSE}
                                            {aquatic=TRUE} 0.1782178
   [36]
       {feathers=FALSE, catsize=FALSE}
                                            {aquatic=TRUE} 0.1881188
       {airborne=FALSE,domestic=FALSE}
                                            {aguatic=TRUE} 0.2970297
   [38] {domestic=FALSE,catsize=FALSE}
                                            {aquatic=TRUE} 0.2178218
       {toothed=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2178218
  [40]
       {feathers=FALSE,domestic=FALSE} =>
                                            {aquatic=TRUE} 0.2871287
       {backbone=TRUE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
       {tail=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1485149
  [42]
   Γ431
       {feathers=FALSE, backbone=TRUE}
                                            {aquatic=TRUE} 0.2376238
   [44] {backbone=TRUE}
                                            {aquatic=TRUE} 0.2970297
   [45] {tail=TRUE}
                                            {aquatic=TRUE} 0.2574257
   [46] {venomous=FALSE}
                                            {aquatic=TRUE} 0.3168317
   [47]
       {toothed=FALSE}
                                         => {aquatic=TRUE} 0.1287129
   [48] {breathes=TRUE}
##
                                         => {aquatic=TRUE} 0.1584158
        confidence lift
##
##
   [1]
        1.0000000
                   2.8055556
##
   [2]
        1.0000000
                   2.8055556
##
   [3]
        1.0000000
                   2.8055556
   [4]
##
                   2.8055556
        1.0000000
   [5]
##
        0.9523810
                   2.6719577
##
   [6]
        0.8947368
                   2.5102339
   [7]
        0.8695652
                   2.4396135
  [8]
                   2.4047619
##
        0.8571429
   [9]
        0.8500000
                   2.3847222
  [10] 0.8235294
                   2.3104575
   [11] 0.7894737
                   2.2149123
   [12] 0.7826087
                   2.1956522
   [13] 0.6969697
                   1.9553872
   [14] 0.6944444
                   1.9483025
  [15] 0.6842105
                   1.9195906
   [16] 0.6764706
                   1.8978758
                   1.8956456
   [17] 0.6756757
   [18] 0.6750000
                   1.8937500
   [19] 0.6578947
                   1.8457602
   [20]
       0.6153846
                   1.7264957
##
  [21] 0.6071429
                   1.7033730
## [22] 0.6000000
                   1.6833333
## [23] 0.5909091
                   1.6578283
## [24] 0.5789474
                   1.6242690
```

```
## [25] 0.5740741
                   1.6105967
   [26] 0.5714286
                   1.6031746
   [27] 0.5714286
                   1.6031746
   [28] 0.5384615
                   1.5106838
   [29] 0.5384615
                   1.5106838
   [30] 0.5370370
                   1.5066872
   [31] 0.5370370
                   1.5066872
   [32] 0.5277778
                   1.4807099
   [33] 0.5272727
                   1.4792929
   [34] 0.5250000
                   1.4729167
   [35] 0.4500000
                   1.2625000
   [36] 0.4418605
                   1.2396641
   [37] 0.4411765
                   1.2377451
   [38] 0.4400000
                   1.2344444
   [39] 0.4230769
                   1.1869658
   [40] 0.4084507
                   1.1459311
   [41] 0.4084507
                   1.1459311
   [42] 0.4054054
                   1.1373874
                   1.0687831
   [43] 0.3809524
   [44] 0.3614458
                   1.0140562
##
  [45] 0.3466667
                   0.9725926
   [46] 0.3440860
                   0.9653524
  [47] 0.3250000
                   0.9118056
##
   [48] 0.2000000
                   0.5611111
##
        lhs
                             rhs
                                              support
                                                        confidence lift
  Г17
        {domestic=TRUE}
                          => {aquatic=FALSE} 0.1188119 0.9230769
                                                                   1.4343195
   [2]
                          => {aquatic=FALSE} 0.3861386 0.9069767
##
        {hair=TRUE}
                                                                    1.4093023
##
   [3]
        {eggs=FALSE}
                          => {aquatic=FALSE} 0.3564356 0.8571429
                                                                    1.3318681
##
   [4]
        {milk=TRUE}
                          => {aquatic=FALSE} 0.3465347 0.8536585
                                                                    1.3264540
##
  [5]
                          => {aquatic=FALSE} 0.3465347 0.8536585
        {type=mammal}
                                                                    1.3264540
##
   [6]
        {predator=FALSE} => {aquatic=FALSE} 0.3762376 0.8444444
                                                                    1.3121368
##
   [7]
        {fins=FALSE}
                          => {aquatic=FALSE} 0.6435644 0.7738095
                                                                    1.2023810
##
   [8]
        {toothed=FALSE}
                          => {aquatic=FALSE} 0.2673267 0.6750000
                                                                    1.0488462
##
   [9]
                          => {aquatic=FALSE} 0.3762376 0.6229508
        {toothed=TRUE}
                                                                   0.9679697
   [10]
       {tail=FALSE}
                          => {aguatic=FALSE} 0.1584158 0.6153846
                                                                    0.9562130
##
   [11] {domestic=FALSE} => {aquatic=FALSE} 0.5247525 0.6022727
                                                                    0.9358392
   [12] {catsize=FALSE}
                          => {aquatic=FALSE} 0.3366337 0.5964912
                                                                    0.9268556
##
                          => {aquatic=FALSE} 0.2871287 0.4915254
   [13] {eggs=TRUE}
                                                                    0.7637549
##
       lhs
                                          rhs
                                                         support
                                                                    confidence
   [1] {predator=TRUE,toothed=FALSE} => {aquatic=TRUE} 0.1089109 0.5789474
##
##
       lift
##
   [1] 1.624269
##
       lhs
                                          rhs
                                                         support
                                                                    confidence
   [1] {hair=FALSE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1980198 0.8695652
   [2] {milk=FALSE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1782178 0.8571429
   [3] {eggs=TRUE, toothed=TRUE}
                                      => {aquatic=TRUE} 0.1683168 0.8500000
   [4] {toothed=TRUE,catsize=FALSE}
                                      => {aquatic=TRUE} 0.1386139 0.5384615
##
   [5] {toothed=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2178218 0.4230769
##
       lift
##
   [1] 2.439614
##
   [2] 2.404762
## [3] 2.384722
## [4] 1.510684
## [5] 1.186966
```

```
##
                                           rhs
                                                          support
                                                                    confidence
## [1] {hair=FALSE,domestic=FALSE}
                                       => {aquatic=TRUE} 0.3069307 0.5740741
## [2] {predator=TRUE,domestic=FALSE}
                                       => {aquatic=TRUE} 0.2871287 0.5370370
## [3] {eggs=TRUE,domestic=FALSE}
                                       => {aquatic=TRUE} 0.2871287 0.5370370
## [4] {milk=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5272727
## [5] {airborne=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2970297 0.4411765
## [6] {domestic=FALSE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.2178218 0.4400000
## [7] {toothed=TRUE,domestic=FALSE}
                                       => {aquatic=TRUE} 0.2178218 0.4230769
## [8] {feathers=FALSE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.4084507
## [9] {backbone=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.4084507
##
       lift
## [1] 1.610597
## [2] 1.506687
## [3] 1.506687
## [4] 1.479293
## [5] 1.237745
## [6] 1.234444
## [7] 1.186966
## [8] 1.145931
## [9] 1.145931
##
       lhs
                                                                   confidence
                                          rhs
                                                         support
## [1] {predator=TRUE,catsize=FALSE}
                                      => {aquatic=TRUE} 0.1683168 0.6071429
                                      => {aquatic=TRUE} 0.1386139 0.5384615
## [2] {toothed=TRUE,catsize=FALSE}
## [3] {airborne=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.5277778
## [4] {backbone=TRUE, catsize=FALSE} => {aquatic=TRUE} 0.1782178 0.4500000
## [5] {feathers=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.1881188 0.4418605
## [6] {domestic=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.2178218 0.4400000
##
  [7] {tail=TRUE,catsize=FALSE}
                                      => {aquatic=TRUE} 0.1485149 0.4054054
##
       lift
## [1] 1.703373
## [2] 1.510684
## [3] 1.480710
## [4] 1.262500
## [5] 1.239664
## [6] 1.234444
##
  [7] 1.137387
##
       lhs
                                                     support
                                                               confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                  => {aquatic=TRUE} 0.1683168 0.8500000
                                  => {aquatic=TRUE} 0.2277228 0.6969697
## [2] {eggs=TRUE,predator=TRUE}
## [3] {eggs=TRUE,airborne=FALSE} => {aquatic=TRUE} 0.2475248 0.6756757
## [4] {feathers=FALSE,eggs=TRUE} => {aquatic=TRUE} 0.2376238 0.6153846
## [5] {eggs=TRUE,backbone=TRUE} => {aquatic=TRUE} 0.2376238 0.5714286
  [6] {eggs=TRUE,tail=TRUE}
                                  => {aquatic=TRUE} 0.2079208 0.5384615
  [7] {eggs=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.5370370
##
##
       lift
## [1] 2.384722
## [2] 1.955387
## [3] 1.895646
## [4] 1.726496
## [5] 1.603175
## [6] 1.510684
## [7] 1.506687
## [1] "Número de reglas con consecuente negado"
##
       lhs
                                                                   confidence
                                         rhs
                                                         support
```

```
## [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
                                      => {domestic=TRUE} 0.1188119 0.2000000
  [2] {aquatic=FALSE,legs=TRUE}
  [3] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
  [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
##
   [5] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
       lift
  [1] 1.612482
## [2] 1.553846
   [3] 1.335337
  [4] 1.294872
   [5] 1.238573
##
        lhs
                            rhs
                                              support
                                                        confidence lift
##
  [1]
                         => {domestic=FALSE} 0.3465347 0.9722222
        {aquatic=TRUE}
                                                                   1.1158460
        {predator=TRUE}
##
  [2]
                         => {domestic=FALSE} 0.5346535 0.9642857
                                                                   1.1067370
  [3]
                         => {domestic=FALSE} 0.2178218 0.9565217
##
        {legs=FALSE}
                                                                   1.0978261
##
  [4]
        {breathes=FALSE} =>
                            {domestic=FALSE} 0.1980198 0.9523810
                                                                   1.0930736
  [5]
##
        {backbone=FALSE} => {domestic=FALSE} 0.1683168 0.9444444
                                                                   1.0839646
  [6]
                         => {domestic=FALSE} 0.1584158 0.9411765
##
        {fins=TRUE}
                                                                   1.0802139
                         => {domestic=FALSE} 0.5346535 0.9310345
##
  [7]
        {hair=FALSE}
                                                                   1.0685737
##
   [8]
        {type=fish}
                         => {domestic=FALSE} 0.1188119 0.9230769
                                                                   1.0594406
##
  [9]
        {milk=FALSE}
                         => {domestic=FALSE} 0.5445545 0.9166667
                                                                   1.0520833
                         => {domestic=FALSE} 0.5346535 0.9152542
  [10] {eggs=TRUE}
                                                                   1.0504622
## [11] {toothed=FALSE}
                         => {domestic=FALSE} 0.3564356 0.9000000
                                                                   1.0329545
                            {domestic=FALSE} 0.6732673 0.8831169
  [12] {airborne=FALSE}
                                                                   1.0135773
## [13] {catsize=FALSE}
                         => {domestic=FALSE} 0.4950495 0.8771930
                                                                   1.0067783
## [14] {feathers=FALSE} => {domestic=FALSE} 0.7029703 0.8765432
                                                                   1.0060325
                         => {domestic=FALSE} 0.3762376 0.8636364
## [15] {catsize=TRUE}
                                                                   0.9912190
## [16] {backbone=TRUE}
                         => {domestic=FALSE} 0.7029703 0.8554217
                                                                   0.9817908
## [17] {legs=TRUE}
                         => {domestic=FALSE} 0.6534653 0.8461538
                                                                   0.9711538
                         => {domestic=FALSE} 0.1980198 0.8333333
## [18] {airborne=TRUE}
                                                                   0.9564394
## [19] {eggs=FALSE}
                         => {domestic=FALSE} 0.3366337 0.8095238
                                                                   0.9291126
##
  [20] {milk=TRUE}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                   0.9237805
##
   [21] {type=mammal}
                         => {domestic=FALSE} 0.3267327 0.8048780
                                                                   0.9237805
##
       lhs
                                         rhs
                                                                    confidence
                                                         support
   [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
   [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
  [3] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
  [4] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
##
       lift
## [1] 1.612482
  [2] 1.335337
  [3] 1.294872
##
##
   [4] 1.238573
##
       lhs
                                     rhs
                                                     support
                                                                confidence
  [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
       lift
##
  [1] 1.553846
  [2] 1.335337
##
   [1] "Número de reglas con consecuente negado"
##
       lhs
                                         rhs
                                                         support
                                                                    confidence
## [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
## [2] {aquatic=FALSE,legs=TRUE}
                                      => {domestic=TRUE} 0.1188119 0.2000000
## [3] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
```

```
## [4] {backbone=TRUE,fins=FALSE}
                                      => {domestic=TRUE} 0.1089109 0.1666667
   [5] {backbone=TRUE,breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
##
       lift
  [1] 1.612482
##
##
   [2] 1.553846
##
  [3] 1.335337
  [4] 1.294872
##
  [5] 1.238573
##
        lhs
                             rhs
                                              support
                                                         confidence lift
##
  [1]
        {aquatic=TRUE}
                          => {domestic=FALSE} 0.3465347 0.9722222
                                                                    1.1158460
  [2]
        {predator=TRUE}
                          => {domestic=FALSE} 0.5346535 0.9642857
                                                                    1.1067370
  [3]
##
        {legs=FALSE}
                          => {domestic=FALSE} 0.2178218 0.9565217
                                                                    1.0978261
##
   [4]
        {breathes=FALSE}
                         => {domestic=FALSE} 0.1980198 0.9523810
                                                                    1.0930736
##
  [5]
        {backbone=FALSE} => {domestic=FALSE} 0.1683168 0.9444444
                                                                    1.0839646
## [6]
                          => {domestic=FALSE} 0.1584158 0.9411765
        {fins=TRUE}
                                                                    1.0802139
##
  [7]
        {hair=FALSE}
                          => {domestic=FALSE} 0.5346535 0.9310345
                                                                    1.0685737
##
  [8]
                          => {domestic=FALSE} 0.1188119 0.9230769
        {type=fish}
                                                                    1.0594406
  [9]
        {milk=FALSE}
                          => {domestic=FALSE} 0.5445545 0.9166667
                                                                    1.0520833
                          => {domestic=FALSE} 0.5346535 0.9152542
  [10] {eggs=TRUE}
                                                                    1.0504622
  [11] {toothed=FALSE}
                          => {domestic=FALSE} 0.3564356 0.9000000
                                                                    1.0329545
## [12] {airborne=FALSE}
                         => {domestic=FALSE} 0.6732673 0.8831169
                                                                    1.0135773
                          => {domestic=FALSE} 0.4950495 0.8771930
## [13] {catsize=FALSE}
                                                                    1.0067783
                         => {domestic=FALSE} 0.7029703 0.8765432
## [14] {feathers=FALSE}
                                                                    1.0060325
                          => {domestic=FALSE} 0.3762376 0.8636364
  [15] {catsize=TRUE}
                                                                    0.9912190
## [16] {backbone=TRUE}
                         => {domestic=FALSE} 0.7029703 0.8554217
                                                                    0.9817908
  [17] {legs=TRUE}
                          => {domestic=FALSE} 0.6534653 0.8461538
                                                                    0.9711538
                         => {domestic=FALSE} 0.1980198 0.8333333
  [18] {airborne=TRUE}
                                                                    0.9564394
##
  [19] {eggs=FALSE}
                          => {domestic=FALSE} 0.3366337 0.8095238
                                                                    0.9291126
##
  [20] {milk=TRUE}
                          => {domestic=FALSE} 0.3267327 0.8048780
                                                                    0.9237805
##
  [21] {type=mammal}
                          => {domestic=FALSE} 0.3267327 0.8048780
                                                                    0.9237805
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
##
  [1] {aquatic=FALSE,backbone=TRUE} => {domestic=TRUE} 0.1089109 0.2075472
   [2] {backbone=TRUE,legs=TRUE}
                                      => {domestic=TRUE} 0.1089109 0.1718750
                                      => {domestic=TRUE} 0.1089109 0.1666667
   [3] {backbone=TRUE,fins=FALSE}
      {backbone=TRUE, breathes=TRUE} => {domestic=TRUE} 0.1089109 0.1594203
##
   Γ41
##
       lift.
##
  [1] 1.612482
  [2] 1.335337
##
   [3] 1.294872
  [4] 1.238573
##
##
       lhs
                                     rhs
                                                     support
                                                                confidence
   [1] {aquatic=FALSE,legs=TRUE} => {domestic=TRUE} 0.1188119 0.200000
   [2] {backbone=TRUE,legs=TRUE} => {domestic=TRUE} 0.1089109 0.171875
##
##
       lift
## [1] 1.553846
   [2] 1.335337
##
  [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                         support
                                                                   confidence
##
  [1]
        {type=fish}
                                            {fins=TRUE} 0.1287129 1.0000000
##
  [2]
        {toothed=TRUE, breathes=FALSE}
                                            {fins=TRUE} 0.1287129 0.9285714
##
  [3]
        {breathes=FALSE, tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.9285714
## [4]
        {backbone=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
## [5]
        {aquatic=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8888889
## [6]
        {toothed=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
```

```
[7]
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
##
  [8]
                                         => {fins=TRUE} 0.1485149 0.8333333
        {legs=FALSE,tail=TRUE}
        {breathes=FALSE,legs=FALSE}
                                           {fins=TRUE} 0.1287129 0.8125000
  [9]
  [10] {venomous=FALSE,legs=FALSE}
                                           {fins=TRUE} 0.1485149 0.7894737
##
  [11] {aquatic=TRUE, toothed=TRUE}
                                           {fins=TRUE} 0.1683168 0.7391304
  [12] {predator=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1188119 0.7058824
## [13] {breathes=FALSE, venomous=FALSE}
                                        => {fins=TRUE} 0.1188119 0.6666667
## [14] {hair=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1485149 0.6521739
  [15] {aquatic=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.6500000
   [16] {eggs=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6500000
  [17] {breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6190476
                                           {fins=TRUE} 0.1287129 0.6190476
  [18] {milk=FALSE,toothed=TRUE}
  [19] {aquatic=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.6153846
## [20] {feathers=FALSE,aquatic=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
## [21] {aquatic=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
        {airborne=FALSE, aquatic=TRUE}
                                           {fins=TRUE} 0.1683168 0.5483871
                                         => {fins=TRUE} 0.1584158 0.5000000
  [23]
       {aquatic=TRUE, venomous=FALSE}
  [24] {hair=FALSE, feathers=FALSE}
                                        => {fins=TRUE} 0.1485149 0.3947368
                                         => {fins=TRUE} 0.1485149 0.3750000
  [25] {hair=FALSE,airborne=FALSE}
  [26] {hair=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1485149 0.3571429
## [27] {predator=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [28] {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
                                           {fins=TRUE} 0.1287129 0.3421053
## [29] {milk=FALSE,airborne=FALSE}
  [30] {hair=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1485149 0.3409091
  [31] {eggs=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.3333333
  [32] {feathers=FALSE,eggs=TRUE}
                                           {fins=TRUE} 0.1287129 0.3333333
   [33] {milk=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.3250000
  [34] {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
  [35] {eggs=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
  [36] {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
   [37]
        {toothed=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.3076923
  [38]
       {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
  [39] {hair=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1089109 0.3055556
                                         => {fins=TRUE} 0.1584158 0.2909091
  [40] {feathers=FALSE,tail=TRUE}
   [41] {airborne=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1683168 0.2881356
## [42] {predator=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1188119 0.2857143
## [43] {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [44] {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
                                           {fins=TRUE} 0.1287129 0.2765957
## [45] {feathers=FALSE,predator=TRUE}
  [46] {predator=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
  [47] {feathers=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2698413
  [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
## [49] {airborne=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2653061
  [50] {airborne=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2615385
## [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
                                         => {fins=TRUE} 0.1485149 0.2586207
## [52]
       {hair=FALSE}
  [53]
       {predator=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1188119 0.2400000
       {airborne=FALSE,domestic=FALSE}
                                           {fins=TRUE} 0.1584158 0.2352941
  [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
                                         => {fins=TRUE} 0.1485149 0.2307692
##
  [57] {tail=TRUE,domestic=FALSE}
## [58] {eggs=TRUE, venomous=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2264151
## [59] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
## [60] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
```

```
## [61] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [62] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
  [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
## [64] {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
   [65] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
   [66] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
##
        lift
## [1]
        5.941176
## [2]
        5.516807
## [3]
        5.516807
## [4]
        5.516807
  [5]
        5.281046
##
##
   [6]
        5.003096
## [7]
        5.003096
## [8]
        4.950980
## [9]
        4.827206
## [10] 4.690402
## [11] 4.391304
## [12] 4.193772
## [13] 3.960784
## [14] 3.874680
## [15] 3.861765
## [16] 3.861765
## [17] 3.677871
## [18] 3.677871
## [19] 3.656109
## [20] 3.366667
## [21] 3.366667
## [22] 3.258065
## [23] 2.970588
## [24] 2.345201
## [25] 2.227941
## [26] 2.121849
## [27] 2.087440
## [28] 2.087440
## [29] 2.032508
## [30] 2.025401
## [31] 1.980392
## [32] 1.980392
## [33] 1.930882
## [34] 1.930882
## [35] 1.838936
## [36] 1.838936
## [37] 1.828054
## [38] 1.828054
## [39] 1.815359
## [40] 1.728342
## [41] 1.711864
## [42] 1.697479
## [43] 1.667699
## [44] 1.667699
## [45] 1.643304
## [46] 1.643304
## [47] 1.603175
```

```
## [48] 1.599548
   [49] 1.576230
   [50] 1.553846
   [51] 1.540305
##
   [52] 1.536511
##
   [53] 1.425882
   [54] 1.397924
   [55] 1.383562
##
   [56] 1.371041
   [57] 1.371041
   [58] 1.345172
   [59] 1.338857
##
   [60] 1.338857
   [61] 1.338857
   [62] 1.320261
   [63] 1.302176
##
   [64] 1.296257
   [65] 1.284579
##
   [66] 1.100218
##
        lhs
                             rhs
                                          support
                                                     confidence lift
##
   [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000
                                                               1.2023810
   [2]
                          => {fins=FALSE} 0.1980198 1.0000000
        {type=bird}
   [3]
                          => {fins=FALSE} 0.1980198 1.0000000
##
        {feathers=TRUE}
                                                                1.2023810
   [4]
##
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
                                                                 1.2023810
##
   [5]
        {toothed=FALSE}
                          => {fins=FALSE} 0.3960396 1.0000000
                                                                 1.2023810
   [6]
        {legs=TRUE}
                          => {fins=FALSE} 0.7623762 0.9871795
                                                                1.1869658
   [7]
                          => {fins=FALSE} 0.4059406 0.9534884
##
        {hair=TRUE}
                                                                 1.1464563
##
   [8]
        {breathes=TRUE}
                          => {fins=FALSE} 0.7524752 0.9500000
                                                                 1.1422619
##
   [9]
        {domestic=TRUE}
                          => {fins=FALSE} 0.1188119 0.9230769
                                                                 1.1098901
       {predator=FALSE}
                         => {fins=FALSE} 0.4059406 0.9111111
   [10]
                                                                 1.0955026
   [11]
        {eggs=FALSE}
                          => {fins=FALSE} 0.3762376 0.9047619
                                                                 1.0878685
##
   [12]
       {milk=TRUE}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                 1.0850755
   [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                 1.0850755
   [14] {catsize=FALSE}
                          => {fins=FALSE} 0.4752475 0.8421053
                                                                 1.0125313
                         => {fins=FALSE} 0.7623762 0.8279570
   Γ15]
       {venomous=FALSE}
                                                                 0.9955197
   [16] {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                0.9837662
   [17] {domestic=FALSE}
                         => {fins=FALSE} 0.7128713 0.8181818
                                                                 0.9837662
                          => {fins=FALSE} 0.6534653 0.7951807
  [18] {backbone=TRUE}
                                                                 0.9561102
       {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
   [19]
                                                                 0.9500294
                          => {fins=FALSE} 0.5841584 0.7866667
##
  [20] {tail=TRUE}
                                                                 0.9458730
   [21] {eggs=TRUE}
                          => {fins=FALSE} 0.4554455 0.7796610
                                                                0.9374496
   [22] {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                0.9369202
   [23] {predator=TRUE}
                          => {fins=FALSE} 0.4257426 0.7678571
                                                                0.9232568
##
                          => {fins=FALSE} 0.4257426 0.7413793
   [24] {hair=FALSE}
                                                                0.8914204
   [25] {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115
                                                                0.8672912
   [26] {aquatic=TRUE}
                          => {fins=FALSE} 0.1881188 0.5277778
##
                                                                0.6345899
##
        lhs
                                             rhs
                                                                    confidence
                                                         support
##
   [1]
        {venomous=FALSE,legs=FALSE}
                                          => {fins=TRUE} 0.1485149 0.7894737
   [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
##
   [3]
        {aquatic=TRUE, venomous=FALSE}
                                          => {fins=TRUE} 0.1584158 0.5000000
##
   [4]
        {toothed=TRUE, venomous=FALSE}
                                          => {fins=TRUE} 0.1584158 0.2807018
##
   [5]
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
##
  [6]
        {predator=TRUE, venomous=FALSE}
                                          => {fins=TRUE} 0.1188119 0.2400000
## [7]
        {milk=FALSE, venomous=FALSE}
                                          => {fins=TRUE} 0.1188119 0.2307692
```

```
{eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [9]
  [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
  [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift.
## [1]
        4.690402
## [2]
        3.960784
## [3]
        2.970588
##
  [4]
        1.667699
##
  [5]
        1.599548
  [6]
        1.425882
  [7]
##
        1.371041
##
  [8]
        1.345172
## [9]
        1.338857
## [10] 1.302176
## [11] 1.100218
##
       lhs
                                           rhs
                                                       support
                                                                  confidence
## [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
## [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
## [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
## [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
                                        => {fins=TRUE} 0.1584158 0.2253521
## [6] {backbone=TRUE,domestic=FALSE}
## [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
  [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
  [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
       lift
## [1] 1.828054
## [2] 1.540305
## [3] 1.397924
## [4] 1.371041
## [5] 1.338857
## [6] 1.338857
## [7] 1.320261
   [8] 1.296257
  [9] 1.100218
##
##
                                           rhs
                                                       support
                                                                  confidence
## [1]
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
  [2]
## [3]
                                        => {fins=TRUE} 0.1683168 0.5666667
        {aquatic=TRUE,backbone=TRUE}
  [4]
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
  [5]
        {eggs=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
##
##
   [6]
        {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
##
  [7]
        {predator=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
## [8]
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
## [9]
## [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
  [11] {backbone=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
        lift
## [1]
        5.516807
  [2]
##
        5.003096
## [3]
        3.366667
## [4]
        2.025401
## [5]
        1.838936
```

```
[6]
        1.838936
##
   [7]
        1.643304
   [8]
        1.603175
   [9]
##
        1.553846
##
   [10]
        1.338857
##
   [11] 1.284579
##
        lhs
                                             rhs
                                                                    confidence
                                                          support
        {feathers=FALSE,aquatic=TRUE}
## [1]
                                          => {fins=TRUE} 0.1683168 0.5666667
##
   [2]
        {hair=FALSE, feathers=FALSE}
                                          => {fins=TRUE} 0.1485149 0.3947368
##
   [3]
        {feathers=FALSE,eggs=TRUE}
                                          => {fins=TRUE} 0.1287129 0.3333333
   [4]
        {feathers=FALSE,milk=FALSE}
                                          => {fins=TRUE} 0.1287129 0.3250000
   [5]
        {feathers=FALSE,tail=TRUE}
                                            {fins=TRUE} 0.1584158 0.2909091
##
##
   [6]
        {feathers=FALSE, predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
##
   [7]
   [8]
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
##
##
   [9]
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
##
        lift
  [1]
        3.366667
##
##
   [2]
        2.345201
##
   [3]
        1.980392
   [4]
        1.930882
##
   [5]
##
        1.728342
   [6]
##
        1.643304
##
   [7]
        1.603175
   [8]
        1.383562
   [9]
##
        1.338857
##
   [10]
        1.302176
##
        lhs
                                        rhs
                                                    support
                                                               confidence
##
  [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
##
   [2]
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.8333333
##
   [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
##
   [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
   [5]
##
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
##
   [6]
        {milk=FALSE,tail=TRUE}
                                     => {fins=TRUE} 0.1287129 0.3250000
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
##
   [7]
   [8]
        {feathers=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
  [9]
        {predator=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1188119 0.2857143
##
   [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
   [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
   [12] {backbone=TRUE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
        lift
##
  [1]
        5.516807
##
   [2]
        4.950980
   [3]
##
        3.656109
  [4]
        2.121849
##
##
   [5]
        1.980392
##
   [6]
        1.930882
##
   [7]
        1.828054
##
   [8]
        1.728342
   [9]
##
        1.697479
## [10] 1.667699
## [11] 1.371041
## [12] 1.284579
```

```
##
                                      rhs
                                                  support
                                                            confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {fins=TRUE} 0.1287129 0.6500000
  [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
## [3] {eggs=TRUE,tail=TRUE}
                                  => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
## [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
## [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
## [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
       lift
## [1] 3.861765
## [2] 2.087440
## [3] 1.980392
## [4] 1.980392
## [5] 1.838936
## [6] 1.345172
## [7] 1.320261
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
## [1]
        {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
## [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
## [5]
        {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
                                         => {fins=TRUE} 0.1584158 0.2807018
## [6]
        {airborne=FALSE,tail=TRUE}
## [7]
       {airborne=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2653061
## [8]
       {airborne=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2615385
       {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
   [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
##
        lift
## [1]
       3.258065
## [2]
        2.227941
##
  [3]
       2.087440
## [4]
        2.032508
  [5]
##
        1.711864
   [6]
##
        1.667699
##
  [7]
        1.576230
## [8]
        1.553846
## [9]
        1.397924
## [10] 1.383562
## [11] 1.338857
##
       lhs
                                          rhs
                                                      support
                                                                confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
## [2] {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
## [3] {hair=FALSE,predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
## [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
  [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
  [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
## [4] 1.697479
```

```
## [5] 1.643304
   [6] 1.643304
  [7] 1.576230
##
  [8] 1.425882
       lhs
                                       rhs
                                                   support
                                                              confidence
## [1] {hair=FALSE,toothed=TRUE}
                                    => {fins=TRUE} 0.1485149 0.6521739
## [2] {hair=FALSE, feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
## [4] {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
  [5] {hair=FALSE,backbone=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3409091
  [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
   [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
   [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
       lift
## [1] 3.874680
##
   [2] 2.345201
##
  [3] 2.227941
  [4] 2.121849
  [5] 2.025401
   [6] 1.815359
##
  [7] 1.599548
  [8] 1.540305
##
##
        lhs
                                          rhs
                                                       support
                                                                 confidence
## [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
  [2]
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
  [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
   [4]
##
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
##
   [5]
        {eggs=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
  [6]
##
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
  [7]
        {predator=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
##
  [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
##
  [9]
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
   [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
   [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
        lift
##
## [1]
        5.516807
##
  [2]
        5.003096
  [3]
        4.391304
##
   [4]
        3.874680
##
##
  [5]
        3.861765
  [6]
        3.677871
   [7]
##
        2.087440
##
   [8]
        1.828054
##
   [9]
        1.828054
## [10] 1.711864
## [11] 1.667699
##
       lhs
                                                     support
                                                                confidence
                                         rhs
##
  [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
  [2] {aquatic=TRUE,toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
   [3] {aquatic=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
  [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
## [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
## [6] {aquatic=TRUE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
## [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
```

```
[8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift.
  [1] 5.281046
##
   [2] 4.391304
   [3] 3.861765
   [4] 3.656109
##
   [5] 3.366667
##
   [6] 3.366667
##
   [7] 3.258065
   [8] 2.970588
       "Número de reglas con consecuente negado"
##
                                                        support
                                                                   confidence
##
   [1]
                                            {hair=TRUE} 0.1881188 1.0000000
        {milk=TRUE, predator=FALSE}
##
   [2]
        {milk=TRUE, aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 1.0000000
  [3]
                                         => {hair=TRUE} 0.3762376 1.0000000
##
        {milk=TRUE,legs=TRUE}
##
   [4]
        {milk=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.3663366 1.0000000
##
   [5]
        {predator=FALSE, type=mammal}
                                            {hair=TRUE} 0.1881188 1.0000000
   [6]
        {aquatic=FALSE, type=mammal}
                                            {hair=TRUE} 0.3465347 1.0000000
##
   [7]
        {legs=TRUE, type=mammal}
                                            {hair=TRUE} 0.3762376 1.0000000
##
   [8]
        {fins=FALSE, type=mammal}
                                            {hair=TRUE} 0.3663366 1.0000000
##
  [9]
        {eggs=FALSE,predator=FALSE}
                                            {hair=TRUE} 0.1881188 1.0000000
                                            {hair=TRUE} 0.3663366 0.9736842
  [10] {eggs=FALSE,legs=TRUE}
  [11] {eggs=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3465347 0.9722222
##
  [12] {milk=TRUE}
                                            {hair=TRUE} 0.3861386 0.9512195
##
  [13] {type=mammal}
                                            {hair=TRUE} 0.3861386 0.9512195
  [14] {eggs=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.9500000
   [15] {eggs=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3564356 0.9473684
  [16] {eggs=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.9268293
  [17] {aquatic=FALSE,toothed=TRUE}
                                           {hair=TRUE} 0.3465347 0.9210526
                                           {hair=TRUE} 0.3762376 0.9047619
## [18] {eggs=FALSE}
  [19]
       {toothed=TRUE,legs=TRUE}
                                           {hair=TRUE} 0.3663366 0.8809524
  [20]
       {aquatic=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2574257 0.8387097
  [21] {toothed=TRUE,catsize=TRUE}
                                           {hair=TRUE} 0.2871287 0.8285714
  [22] {toothed=TRUE,fins=FALSE}
                                           {hair=TRUE} 0.3564356 0.8181818
       {toothed=TRUE, breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.8085106
  [24] {predator=FALSE,toothed=TRUE}
                                           {hair=TRUE} 0.1881188 0.7916667
  [25] {feathers=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2970297 0.7894737
  [26] {legs=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2871287 0.7837838
  [27] {fins=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2772277 0.7777778
  [28] {breathes=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2970297 0.7692308
  [29] {feathers=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3861386 0.7647059
  [30] {predator=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.1188119 0.7500000
  [31] {feathers=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.7241379
  [32] {airborne=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3267327 0.7173913
  [33] {feathers=FALSE,breathes=TRUE}
                                           {hair=TRUE} 0.4257426 0.7166667
  [34] {feathers=FALSE,predator=FALSE}
                                        =>
                                            {hair=TRUE} 0.2277228 0.6764706
  [35] {toothed=TRUE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.6666667
  [36] {airborne=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.3564356 0.6666667
  [37] {airborne=FALSE,breathes=TRUE}
                                         => {hair=TRUE} 0.3663366 0.6607143
   [38] {aquatic=FALSE,backbone=TRUE}
                                           {hair=TRUE} 0.3465347 0.6603774
  [39]
       {aquatic=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.3861386 0.6500000
## [40] {feathers=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.4059406 0.6406250
## [41] {toothed=TRUE}
                                         => {hair=TRUE} 0.3762376 0.6229508
## [42] {feathers=FALSE,backbone=TRUE}
                                         => {hair=TRUE} 0.3861386 0.6190476
```

```
## [43] {aquatic=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.2970297 0.6122449
  [44] {aquatic=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.6093750
  [45] {airborne=FALSE,predator=FALSE} =>
                                            {hair=TRUE} 0.1683168 0.6071429
                                            {hair=TRUE} 0.3663366 0.6065574
  [46] {aquatic=FALSE, venomous=FALSE}
  [47] {feathers=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.6000000
  [48] {backbone=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3762376 0.5937500
##
  [49] {predator=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.2277228 0.5897436
  [50] {airborne=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3465347 0.5833333
   [51] {legs=TRUE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.5789474
   [52] {breathes=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.5753425
   [53] {airborne=FALSE,backbone=TRUE}
                                           {hair=TRUE} 0.3663366 0.5692308
   [54] {backbone=TRUE, breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.5652174
   [55]
       {feathers=FALSE, venomous=FALSE} =>
                                            {hair=TRUE} 0.4059406 0.5616438
       {predator=FALSE,breathes=TRUE}
                                           {hair=TRUE} 0.2277228 0.5609756
                                           {hair=TRUE} 0.2277228 0.5609756
  [57]
       {predator=FALSE,fins=FALSE}
        {backbone=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.3663366 0.5606061
   [59]
       {breathes=TRUE, venomous=FALSE}
                                         => {hair=TRUE} 0.4059406 0.5466667
   [60] {airborne=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.3069307 0.5438596
   [61] {fins=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.3168317 0.5423729
   [62] {breathes=TRUE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.5409836
##
  [63]
       {venomous=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3960396 0.5405405
  [64] {breathes=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.4059406 0.5394737
   [65] {predator=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.1881188 0.5277778
##
   [66]
       {airborne=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3663366 0.5211268
   [67]
       {predator=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.1683168 0.5151515
   [68] {predator=FALSE}
                                           {hair=TRUE} 0.2277228 0.5111111
   [69] {venomous=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.3861386 0.5064935
   [70] {backbone=TRUE, venomous=FALSE}
                                         => {hair=TRUE} 0.3861386 0.4936709
  [71] {backbone=TRUE}
                                         => {hair=TRUE} 0.3861386 0.4698795
  [72] {venomous=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.3267327 0.4647887
                                         => {hair=TRUE} 0.3366337 0.3863636
##
   [73] {domestic=FALSE}
##
        lift
##
  [1]
        2.3488372
   [2]
##
        2.3488372
   [3]
##
        2.3488372
   [4]
##
        2.3488372
   [5]
        2.3488372
  [6]
        2.3488372
##
   [7]
##
        2.3488372
##
  [8]
       2.3488372
  [9]
        2.3488372
   [10] 2.2870257
##
   [11] 2.2835917
##
  [12] 2.2342598
## [13] 2.2342598
## [14] 2.2313953
  [15] 2.2252142
  [16] 2.1769711
  [17] 2.1634027
  [18] 2.1251384
## [19] 2.0692137
## [20] 1.9699925
## [21] 1.9461794
## [22] 1.9217759
```

```
## [23] 1.8990599
## [24] 1.8594961
## [25] 1.8543452
## [26] 1.8409805
## [27] 1.8268734
## [28] 1.8067979
## [29] 1.7961696
## [30] 1.7616279
## [31] 1.7008821
## [32] 1.6850354
## [33] 1.6833333
## [34] 1.5889193
## [35] 1.5658915
## [36] 1.5658915
## [37] 1.5519103
## [38] 1.5511189
## [39] 1.5267442
## [40] 1.5047238
## [41] 1.4632101
## [42] 1.4540421
## [43] 1.4380636
## [44] 1.4313227
## [45] 1.4260797
## [46] 1.4247045
## [47] 1.4093023
## [48] 1.3946221
## [49] 1.3852117
## [50] 1.3701550
## [51] 1.3598531
## [52] 1.3513858
## [53] 1.3370304
## [54] 1.3276036
## [55] 1.3192099
## [56] 1.3176404
## [57] 1.3176404
## [58] 1.3167724
## [59] 1.2840310
## [60] 1.2774378
## [61] 1.2739456
## [62] 1.2706824
## [63] 1.2696417
## [64] 1.2671359
## [65] 1.2396641
  [66] 1.2240419
## [67] 1.2100070
## [68] 1.2005168
## [69] 1.1896708
## [70] 1.1595525
## [71] 1.1036705
## [72] 1.0917131
##
  [73] 0.9075053
##
        lhs
                                          support
                                                     confidence lift
## [1]
        {type=fish}
                         => {hair=FALSE} 0.1287129 1.0000000 1.7413793
        {breathes=FALSE} => {hair=FALSE} 0.2079208 1.0000000 1.7413793
## [2]
```

```
[3]
        {legs=FALSE}
                          => {hair=FALSE} 0.2178218 0.9565217
                                                                1.6656672
##
   [4]
                          => {hair=FALSE} 0.3168317 0.8888889
        {aquatic=TRUE}
                                                                1.5478927
##
  [5]
        {toothed=FALSE}
                         => {hair=FALSE} 0.3465347 0.8750000
                                                                1.5237069
  [6]
        {backbone=FALSE} => {hair=FALSE} 0.1386139 0.7777778
##
                                                                1.3544061
##
   [7]
        {catsize=FALSE}
                         => {hair=FALSE} 0.4356436 0.7719298
                                                                1.3442226
   [8]
                         => {hair=FALSE} 0.1782178 0.7500000
##
        {airborne=TRUE}
                                                                1.3060345
  [9]
        {predator=TRUE}
                          => {hair=FALSE} 0.3564356 0.6428571
                                                                1.1194581
##
  [10] {tail=FALSE}
                          => {hair=FALSE} 0.1584158 0.6153846
                                                                1.0716180
  [11] {backbone=TRUE}
                         => {hair=FALSE} 0.4356436 0.5301205
                                                                0.9231408
   [12] {breathes=TRUE}
                         => {hair=FALSE} 0.3663366 0.4625000
                                                                0.8053879
  [13] {legs=TRUE}
                          => {hair=FALSE} 0.3564356 0.4615385
                                                                0.8037135
                         => {hair=FALSE} 0.2574257 0.4000000
##
   [14] {aquatic=FALSE}
                                                                0.6965517
       lhs
##
                                                                 confidence
                                          rhs
                                                       support
##
  [1] {aquatic=FALSE,backbone=TRUE} => {hair=TRUE} 0.3465347 0.6603774
  [2] {feathers=FALSE,backbone=TRUE} => {hair=TRUE} 0.3861386 0.6190476
   [3] {backbone=TRUE,legs=TRUE}
                                       => {hair=TRUE} 0.3762376 0.5937500
  [4] {airborne=FALSE,backbone=TRUE} => {hair=TRUE} 0.3663366 0.5692308
  [5] {backbone=TRUE,breathes=TRUE} => {hair=TRUE} 0.3861386 0.5652174
  [6] {backbone=TRUE,fins=FALSE}
                                       => {hair=TRUE} 0.3663366 0.5606061
   [7] {predator=FALSE,backbone=TRUE} => {hair=TRUE} 0.1881188 0.5277778
   [8] {backbone=TRUE,venomous=FALSE} => {hair=TRUE} 0.3861386 0.4936709
##
##
       lift.
## [1] 1.551119
   [2] 1.454042
##
##
  [3] 1.394622
  [4] 1.337030
   [5] 1.327604
##
##
   [6] 1.316772
##
  [7] 1.239664
##
  [8] 1.159553
##
        lhs
                                                        support
                                                                  confidence
##
  [1]
        {eggs=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3762376 0.9268293
##
   [2]
        {toothed=TRUE,breathes=TRUE}
                                        => {hair=TRUE} 0.3762376 0.8085106
  [3]
                                        => {hair=TRUE} 0.2970297 0.7692308
##
        {breathes=TRUE,catsize=TRUE}
   [4]
        {feathers=FALSE,breathes=TRUE} => {hair=TRUE} 0.4257426 0.7166667
##
   [5]
##
        {airborne=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3663366 0.6607143
   [6]
        {aquatic=FALSE, breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6093750
  [7]
        {breathes=TRUE,legs=TRUE}
                                        => {hair=TRUE} 0.4158416 0.5753425
##
  [8]
        {backbone=TRUE,breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.5652174
##
        {predator=FALSE,breathes=TRUE} => {hair=TRUE} 0.2277228 0.5609756
##
  [9]
  [10] {breathes=TRUE, venomous=FALSE} => {hair=TRUE} 0.4059406 0.5466667
   [11] {breathes=TRUE,tail=TRUE}
                                        => {hair=TRUE} 0.3267327 0.5409836
##
   Γ12]
       {breathes=TRUE,fins=FALSE}
                                        => {hair=TRUE} 0.4059406 0.5394737
##
        lift
## [1]
        2.176971
  [2]
##
        1.899060
##
   [3]
        1.806798
##
  [4]
        1.683333
##
   [5]
        1.551910
##
   [6]
        1.431323
   [7]
##
        1.351386
## [8]
        1.327604
## [9]
        1.317640
## [10] 1.284031
```

```
## [11] 1.270682
   [12] 1.267136
##
##
        lhs
                                                    support
                                                               confidence
##
  [1]
                                       {hair=TRUE} 0.3762376 1.0000000
        {milk=TRUE,legs=TRUE}
##
   [2]
        {legs=TRUE, type=mammal}
                                     => {hair=TRUE} 0.3762376 1.0000000
   [3]
        {eggs=FALSE,legs=TRUE}
##
                                     => {hair=TRUE} 0.3663366 0.9736842
   [4]
        {toothed=TRUE,legs=TRUE}
##
                                       {hair=TRUE} 0.3663366 0.8809524
##
   [5]
        {legs=TRUE,catsize=TRUE}
                                     =>
                                       {hair=TRUE} 0.2871287 0.7837838
##
   [6]
        {feathers=FALSE,legs=TRUE} =>
                                        {hair=TRUE} 0.4158416 0.7241379
   [7]
##
        {airborne=FALSE,legs=TRUE} => {hair=TRUE} 0.3564356 0.6666667
   [8]
        {aquatic=FALSE,legs=TRUE}
                                    => {hair=TRUE} 0.3861386 0.6500000
   [9]
##
        {backbone=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.3762376 0.5937500
##
   [10] {predator=FALSE,legs=TRUE} => {hair=TRUE} 0.2277228 0.5897436
   [11] {legs=TRUE,tail=TRUE}
                                    => {hair=TRUE} 0.3267327 0.5789474
   [12] {breathes=TRUE,legs=TRUE} => {hair=TRUE} 0.4158416 0.5753425
   [13] {venomous=FALSE,legs=TRUE} => {hair=TRUE} 0.3960396 0.5405405
##
        lift
##
   [1]
        2.348837
   [2]
        2.348837
##
##
   [3]
        2.287026
##
   [4]
        2.069214
   [5]
##
        1.840981
   [6]
##
        1.700882
   [7]
##
        1.565891
   [8]
##
        1.526744
   [9]
        1.394622
   [10]
##
       1.385212
##
   [11] 1.359853
##
   [12] 1.351386
##
   [13] 1.269642
##
        lhs
                                                        support
                                                                   confidence
##
   [1]
        {milk=TRUE,aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 1.0000000
##
   [2]
        {aquatic=FALSE, type=mammal}
                                         => {hair=TRUE} 0.3465347 1.0000000
   [3]
##
        {eggs=FALSE,aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 0.9722222
   [4]
        {aquatic=FALSE,toothed=TRUE}
                                            {hair=TRUE} 0.3465347 0.9210526
##
   [5]
                                         => {hair=TRUE} 0.2574257 0.8387097
##
        {aquatic=FALSE, catsize=TRUE}
##
   [6]
        {feathers=FALSE,aquatic=FALSE} => {hair=TRUE} 0.3861386 0.7647059
   [7]
        {airborne=FALSE,aquatic=FALSE} => {hair=TRUE} 0.3267327 0.7173913
##
   [8]
        {aquatic=FALSE,backbone=TRUE}
                                         => {hair=TRUE} 0.3465347 0.6603774
##
        {aquatic=FALSE,legs=TRUE}
                                         => {hair=TRUE} 0.3861386 0.6500000
##
   [9]
   [10] {aquatic=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.2970297 0.6122449
   [11] {aquatic=FALSE,breathes=TRUE} => {hair=TRUE} 0.3861386 0.6093750
##
       {aquatic=FALSE, venomous=FALSE} => {hair=TRUE} 0.3663366 0.6065574
##
        lift
  [1]
##
        2.348837
   [2]
        2.348837
##
##
   [3]
        2.283592
##
   [4]
        2.163403
##
   [5]
        1.969992
##
   [6]
        1.796170
   [7]
##
        1.685035
##
  [8]
        1.551119
## [9]
        1.526744
## [10] 1.438064
```

```
[11] 1.431323
   [12] 1.424705
   [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                              support
##
   [1]
        {type=fish}
                                            {breathes=FALSE} 0.1287129
   [2]
##
                                            {breathes=FALSE} 0.1287129
        {eggs=TRUE,fins=TRUE}
##
   [3]
        {milk=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
##
   [4]
        {hair=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
##
   [5]
        {aquatic=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
##
   [6]
        {milk=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
   [7]
        {eggs=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
   [8]
##
        {legs=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
##
   [9]
        {hair=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
                                            {breathes=FALSE} 0.1188119
   [10] {predator=TRUE,legs=FALSE}
       {milk=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
  [11]
   [12] {feathers=FALSE, aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [13] {milk=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
   [14] {aquatic=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
                                            {breathes=FALSE} 0.1287129
   [15] {eggs=TRUE,toothed=TRUE}
   [16] {airborne=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
##
  [17] {eggs=TRUE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1881188
  [18] {hair=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [19] {aquatic=TRUE, toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
   [20] {hair=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
  [21] {hair=FALSE, feathers=FALSE}
                                            {breathes=FALSE} 0.2079208
   [22] {milk=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
   [23] {eggs=TRUE,airborne=FALSE}
                                            {breathes=FALSE} 0.1980198
   [24] {hair=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
  [25] {feathers=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
  [26] {feathers=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
        {milk=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
##
   [28]
       {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
   [29] {hair=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [30] {airborne=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [31] {predator=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
##
   [32] {hair=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
   [33] {feathers=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
  [34] {hair=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
        {hair=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
   [35]
##
   [36]
       {hair=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [37]
       {milk=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
       {feathers=FALSE, predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [38]
   [39]
       {eggs=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1881188
  [40] {airborne=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
  [41] {domestic=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
        {airborne=FALSE,domestic=FALSE}
  [42]
                                         =>
                                            {breathes=FALSE} 0.1980198
   [43]
       {feathers=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
   [44] {feathers=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
   [45] {toothed=TRUE,domestic=FALSE}
                                         => {breathes=FALSE} 0.1287129
##
   [46] {tail=TRUE}
                                         => {breathes=FALSE} 0.1386139
##
        confidence lift
## [1]
        1.0000000 4.8095238
##
  [2]
        1.0000000 4.8095238
## [3]
        1.0000000 4.8095238
```

```
[4]
        0.8666667
                    4.1682540
##
   [5]
        0.8333333
                    4.0079365
##
   [6]
        0.8000000
                    3.8476190
   [7]
##
        0.7894737
                    3.7969925
##
   [8]
        0.7500000
                    3.6071429
##
   [9]
        0.7272727
                    3.4978355
   [10] 0.7058824
                    3.3949580
   [11] 0.6666667
                    3.2063492
##
   [12] 0.6666667
                    3.2063492
   [13] 0.6666667
                    3.2063492
   [14] 0.6521739
                    3.1366460
   [15] 0.6500000
                    3.1261905
##
   [16] 0.6451613
                    3.1029186
   [17] 0.6333333
                    3.0460317
   [18] 0.6250000
                    3.0059524
   [19] 0.6086957
                    2.9275362
##
   [20] 0.6086957
                    2.9275362
   [21] 0.5526316
                    2.6578947
   [22] 0.5526316
                    2.6578947
   [23] 0.5405405
                    2.5997426
##
   [24] 0.5250000
                    2.5250000
   [25] 0.5250000
                    2.5250000
                    2.4664225
##
   [26] 0.5128205
##
   [27] 0.5000000
                    2.4047619
   [28] 0.4848485
                    2.3318903
   [29] 0.4722222
                    2.2711640
   [30] 0.444444
##
                    2.1375661
##
   [31] 0.4285714
                    2.0612245
   [32] 0.3750000
##
                    1.8035714
   [33] 0.3720930
                    1.7895903
##
   [34] 0.3703704
                    1.7813051
##
   [35] 0.3703704
                    1.7813051
   [36] 0.3636364
                    1.7489177
##
   [37]
        0.3636364
                    1.7489177
   [38]
        0.3617021
                    1.7396150
##
   [39] 0.3518519
                    1.6922399
   [40] 0.3469388
                    1.6686103
   [41] 0.3000000
##
                    1.4428571
   [42] 0.2941176
##
                    1.4145658
##
   [43] 0.2876712
                    1.3835616
   [44] 0.2816901
                    1.3547954
   [45] 0.2500000
##
                    1.2023810
##
   Γ461
        0.1866667
                    0.8977778
##
        lhs
                                               support
                                                          confidence lift
##
  [1]
        {type=bird}
                          => {breathes=TRUE} 0.1980198 1.0000000
                                                                     1.2625000
   [2]
                              {breathes=TRUE} 0.1980198 1.0000000
##
        {feathers=TRUE}
                                                                     1.2625000
##
   [3]
        {airborne=TRUE}
                              {breathes=TRUE} 0.2376238 1.0000000
                                                                     1.2625000
   [4]
##
        {milk=TRUE}
                              {breathes=TRUE} 0.4059406 1.0000000
                                                                     1.2625000
##
   [5]
        {type=mammal}
                              {breathes=TRUE} 0.4059406 1.0000000
                                                                     1.2625000
##
   [6]
        {hair=TRUE}
                              {breathes=TRUE} 0.4257426 1.0000000
                                                                     1.2625000
   [7]
##
        {aquatic=FALSE}
                              {breathes=TRUE} 0.6336634 0.9846154
                          =>
                                                                     1.2430769
##
   [8]
        {eggs=FALSE}
                              {breathes=TRUE} 0.4059406 0.9761905
                                                                     1.2324405
##
   [9]
        {legs=TRUE}
                          => {breathes=TRUE} 0.7227723 0.9358974
                                                                     1.1815705
## [10] {domestic=TRUE}
                          => {breathes=TRUE} 0.1188119 0.9230769
```

```
## [11] {predator=FALSE} => {breathes=TRUE} 0.4059406 0.9111111
                                                                  1.1502778
                         => {breathes=TRUE} 0.3861386 0.8863636
  [12] {catsize=TRUE}
                                                                  1.1190341
  [13] {toothed=FALSE}
                         => {breathes=TRUE} 0.3267327 0.8250000
                                                                  1.0415625
                         => {breathes=TRUE} 0.6039604 0.8133333
  [14] {tail=TRUE}
                                                                  1.0268333
  [15] {domestic=FALSE}
                         => {breathes=TRUE} 0.6732673 0.7727273
                                                                  0.9755682
  [16] {tail=FALSE}
                         => {breathes=TRUE} 0.1881188 0.7307692
                                                                  0.9225962
  [17] {airborne=FALSE} => {breathes=TRUE} 0.5544554 0.7272727
                                                                  0.9181818
## [18] {catsize=FALSE}
                         => {breathes=TRUE} 0.4059406 0.7192982
                                                                  0.9081140
##
  [19] {predator=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6964286
                                                                  0.8792411
   [20] {eggs=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6610169
                                                                  0.8345339
  [21] {milk=FALSE}
                         => {breathes=TRUE} 0.3861386 0.6500000
                                                                  0.8206250
   [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
##
                                                                  0.7715278
##
       lhs
                                           rhs
                                                            support
##
  [1] {hair=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
  [2] {milk=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
   [3] {eggs=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1881188
   [4] {domestic=FALSE, catsize=FALSE}
                                        => {breathes=FALSE} 0.1485149
  [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [7] {toothed=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1287129
##
       confidence lift
  [1] 0.3703704 1.781305
##
  [2] 0.3636364
                  1.748918
   [3] 0.3518519
                  1.692240
  [4] 0.3000000
                  1.442857
  [5] 0.2941176
                  1.414566
   [6] 0.2816901
                  1.354795
##
   [7] 0.2500000
                  1.202381
##
       lhs
                                           rhs
                                                            support
  [1] {airborne=FALSE,aquatic=TRUE}
                                        => {breathes=FALSE} 0.1980198
   [2] {milk=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
   [3] {eggs=TRUE,airborne=FALSE}
                                        => {breathes=FALSE} 0.1980198
  [4] {hair=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
  [5] {airborne=FALSE, catsize=FALSE}
                                       => {breathes=FALSE} 0.1584158
   [6] {airborne=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
##
   [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
##
       confidence lift
  [1] 0.6451613
                  3.102919
   [2] 0.5526316
                  2.657895
  [3] 0.5405405
                  2.599743
  [4] 0.5250000
                  2.525000
   [5] 0.444444
                  2.137566
   [6] 0.3469388
                  1.668610
## [7] 0.2941176
                  1.414566
## [8] 0.2876712
                  1.383562
##
       lhs
                                                           support
##
  [1] {legs=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [2] {aquatic=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1485149
   [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
   [4] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [5] {feathers=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
## [6] {hair=FALSE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1584158
## [7] {domestic=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1485149
```

```
confidence lift
##
  [1] 0.7500000 3.607143
##
   [2] 0.6521739
                  3.136646
   [3] 0.444444
                  2.137566
   [4] 0.4285714
                  2.061224
   [5] 0.3720930
##
                  1.789590
   [6] 0.3636364
                  1.748918
##
  [7] 0.3000000
                  1.442857
##
       lhs
                                          rhs
                                                           support
##
  [1] {predator=TRUE,legs=FALSE}
                                       => {breathes=FALSE} 0.1188119
   [2] {milk=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
   [3] {eggs=TRUE,predator=TRUE}
                                       => {breathes=FALSE} 0.1584158
   [4] {hair=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
##
   [5] {predator=TRUE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1188119
  [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
##
       confidence lift
  [1] 0.7058824
                  3.394958
##
   [2] 0.5000000
##
                  2.404762
   [3] 0.4848485
                  2.331890
##
   [4] 0.4722222
                  2.271164
  [5] 0.4285714
                  2.061224
   [6] 0.3617021
##
                  1.739615
##
   [7] 0.3469388
                  1.668610
##
       lhs
                                      rhs
                                                       support
                                                                  confidence
  [1] {eggs=TRUE,fins=TRUE}
                                   => {breathes=FALSE} 0.1287129 1.0000000
   [2] {eggs=TRUE,legs=FALSE}
                                   => {breathes=FALSE} 0.1485149 0.7894737
   [3] {eggs=TRUE,toothed=TRUE}
                                      {breathes=FALSE} 0.1287129 0.6500000
  [4] {eggs=TRUE,aquatic=TRUE}
                                   => {breathes=FALSE} 0.1881188 0.6333333
  [5] {eggs=TRUE,airborne=FALSE} =>
                                      {breathes=FALSE} 0.1980198 0.5405405
   [6] {feathers=FALSE,eggs=TRUE} =>
                                      {breathes=FALSE} 0.1980198 0.5128205
   [7] {eggs=TRUE,predator=TRUE}
                                   => {breathes=FALSE} 0.1584158 0.4848485
   [8] {hair=FALSE,eggs=TRUE}
                                   => {breathes=FALSE} 0.1980198 0.3703704
##
   [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
       lift
## [1] 4.809524
  [2] 3.796992
  [3] 3.126190
##
   [4] 3.046032
##
  [5] 2.599743
  [6] 2.466422
   [7] 2.331890
##
##
   [8] 1.781305
##
   [9] 1.692240
##
       lhs
                                                        support
                                                                   confidence
  [1] {milk=FALSE,fins=TRUE}
                                      {breathes=FALSE} 0.1287129 1.0000000
##
##
   [2] {milk=FALSE,legs=FALSE}
                                      {breathes=FALSE} 0.1584158 0.8000000
   [3] {milk=FALSE,aquatic=TRUE}
                                    => {breathes=FALSE} 0.1980198 0.6666667
   [4] {milk=FALSE, toothed=TRUE}
                                      {breathes=FALSE} 0.1386139 0.6666667
   [5] {milk=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208 0.5526316
   [6] {feathers=FALSE,milk=FALSE} => {breathes=FALSE} 0.2079208 0.5250000
  [7] {milk=FALSE,predator=TRUE}
                                    => {breathes=FALSE} 0.1683168 0.5000000
## [8] {hair=FALSE,milk=FALSE}
                                    => {breathes=FALSE} 0.2079208 0.3750000
## [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
```

```
lift
##
##
  [1] 4.809524
   [2] 3.847619
   [3] 3.206349
##
##
   [4] 3.206349
##
   [5] 2.657895
   [6] 2.525000
##
   [7] 2.404762
##
   [8] 1.803571
   [9] 1.748918
       "Número de reglas con consecuente negado"
##
                                                        support
                                                                   confidence
##
   [1]
        {type=fish}
                                            {tail=TRUE} 0.1287129 1.0000000
##
   [2]
        {type=bird}
                                            {tail=TRUE} 0.1980198 1.0000000
   [3]
##
        {feathers=TRUE}
                                           {tail=TRUE} 0.1980198 1.0000000
##
   [4]
        {backbone=TRUE, breathes=FALSE}
                                            {tail=TRUE} 0.1386139 1.0000000
   [5]
##
                                            {tail=TRUE} 0.1782178 1.0000000
        {airborne=TRUE, backbone=TRUE}
   [6]
        {toothed=FALSE,backbone=TRUE}
                                            {tail=TRUE} 0.2178218 1.0000000
##
   [7]
        {backbone=TRUE,legs=FALSE}
                                            {tail=TRUE} 0.1782178 0.9473684
##
   [8]
        {fins=TRUE}
                                            {tail=TRUE} 0.1584158 0.9411765
##
   [9]
        {predator=FALSE, catsize=TRUE}
                                            {tail=TRUE} 0.1485149 0.9375000
  [10] {hair=FALSE,backbone=TRUE}
                                            {tail=TRUE} 0.4059406 0.9318182
  [11] {hair=FALSE,catsize=TRUE}
                                            {tail=TRUE} 0.1287129 0.9285714
##
   [12] {eggs=TRUE,backbone=TRUE}
                                            {tail=TRUE} 0.3861386 0.9285714
   [13] {milk=FALSE,backbone=TRUE}
                                            {tail=TRUE} 0.3861386 0.9285714
  [14] {eggs=TRUE,catsize=TRUE}
                                            {tail=TRUE} 0.1188119 0.9230769
                                            {tail=TRUE} 0.1089109 0.9166667
   [15] {milk=FALSE,catsize=TRUE}
   [16] {predator=FALSE,backbone=TRUE}
                                            {tail=TRUE} 0.3267327 0.9166667
   [17] {aquatic=FALSE,backbone=TRUE}
                                           {tail=TRUE} 0.4752475 0.9056604
  [18] {backbone=TRUE,domestic=FALSE}
                                           {tail=TRUE} 0.6336634 0.9014085
   [19]
       {backbone=TRUE,catsize=FALSE}
                                            {tail=TRUE} 0.3564356 0.9000000
   [20]
       {eggs=FALSE,domestic=FALSE}
                                           {tail=TRUE} 0.2970297 0.8823529
   [21] {milk=TRUE,domestic=FALSE}
                                            {tail=TRUE} 0.2871287 0.8787879
   [22] {domestic=FALSE,type=mammal}
                                            {tail=TRUE} 0.2871287 0.8787879
   [23] {predator=FALSE,toothed=TRUE}
                                            {tail=TRUE} 0.2079208 0.8750000
##
  [24] {hair=FALSE,toothed=TRUE}
                                            {tail=TRUE} 0.1980198 0.8695652
  [25] {domestic=FALSE,catsize=TRUE}
                                            {tail=TRUE} 0.3267327 0.8684211
  [26] {aquatic=FALSE, toothed=TRUE}
                                            {tail=TRUE} 0.3267327 0.8684211
   [27] {toothed=TRUE,domestic=FALSE}
                                            {tail=TRUE} 0.4455446 0.8653846
  [28] {catsize=TRUE}
                                            {tail=TRUE} 0.3762376 0.8636364
   [29] {toothed=TRUE, venomous=FALSE}
                                            {tail=TRUE} 0.4851485 0.8596491
                                            {tail=TRUE} 0.3564356 0.8571429
   [30] {eggs=FALSE}
   [31] {milk=FALSE,toothed=TRUE}
                                            {tail=TRUE} 0.1782178 0.8571429
##
  [32] {milk=TRUE}
                                            {tail=TRUE} 0.3465347 0.8536585
  [33] {type=mammal}
                                            {tail=TRUE} 0.3465347 0.8536585
   [34] {predator=TRUE, breathes=TRUE}
                                            {tail=TRUE} 0.3168317 0.8205128
   [35]
       {airborne=TRUE, venomous=FALSE}
                                            {tail=TRUE} 0.1782178 0.8181818
   [36] {aquatic=FALSE,predator=TRUE}
                                            {tail=TRUE} 0.2178218 0.8148148
   [37] {hair=TRUE,predator=TRUE}
                                            {tail=TRUE} 0.1584158 0.8000000
   [38] {hair=TRUE,domestic=FALSE}
                                            {tail=TRUE} 0.2673267 0.7941176
   [39]
##
       {venomous=FALSE,legs=FALSE}
                                            {tail=TRUE} 0.1485149 0.7894737
  [40] {breathes=TRUE, venomous=FALSE}
                                           {tail=TRUE} 0.5841584 0.7866667
## [41] {legs=FALSE}
                                           {tail=TRUE} 0.1782178 0.7826087
## [42] {airborne=FALSE,aquatic=FALSE}
                                         =>
                                           {tail=TRUE} 0.3564356 0.7826087
```

```
## [43] {airborne=FALSE,breathes=TRUE} => {tail=TRUE} 0.4257426 0.7678571
                                         => {tail=TRUE} 0.3267327 0.7674419
## [44] {hair=TRUE}
## [45] {breathes=TRUE,domestic=FALSE}
                                         => {tail=TRUE} 0.5148515 0.7647059
## [46] {aquatic=FALSE,domestic=FALSE}
                                         => {tail=TRUE} 0.3960396 0.7547170
## [47] {aquatic=FALSE}
                                         => {tail=TRUE} 0.4851485 0.7538462
                                         => {tail=TRUE} 0.1782178 0.7500000
## [48] {airborne=TRUE}
                                         => {tail=TRUE} 0.4158416 0.7500000
## [49] {predator=TRUE}
## [50] {airborne=FALSE,predator=FALSE} => {tail=TRUE} 0.2079208 0.7500000
  [51] {domestic=FALSE}
                                         => {tail=TRUE} 0.6435644 0.7386364
  [52] {predator=FALSE}
                                         => {tail=TRUE} 0.3267327 0.7333333
## [53] {hair=FALSE}
                                         => {tail=TRUE} 0.4158416 0.7241379
## [54] {feathers=FALSE}
                                         => {tail=TRUE} 0.5445545 0.6790123
## [55] {eggs=TRUE}
                                         => {tail=TRUE} 0.3861386 0.6610169
  [56] {catsize=FALSE}
                                         => {tail=TRUE} 0.3663366 0.6491228
   [57] {toothed=FALSE}
                                         => {tail=TRUE} 0.2277228 0.5750000
##
##
        lift
## [1]
        1.3466667
  [2]
        1.3466667
  [3]
##
        1.3466667
##
   [4]
        1.3466667
##
  [5]
        1.3466667
  [6]
        1.3466667
  [7]
##
        1.2757895
  [8]
##
        1.2674510
## [9]
        1.2625000
## [10] 1.2548485
## [11] 1.2504762
## [12] 1.2504762
## [13] 1.2504762
## [14] 1.2430769
## [15] 1.2344444
## [16] 1.2344444
## [17] 1.2196226
## [18] 1.2138967
## [19] 1.2120000
## [20] 1.1882353
## [21] 1.1834343
## [22] 1.1834343
## [23] 1.1783333
## [24] 1.1710145
## [25] 1.1694737
## [26] 1.1694737
## [27] 1.1653846
## [28] 1.1630303
## [29] 1.1576608
## [30] 1.1542857
## [31] 1.1542857
## [32] 1.1495935
## [33] 1.1495935
## [34] 1.1049573
## [35] 1.1018182
## [36] 1.0972840
## [37] 1.0773333
## [38] 1.0694118
```

```
## [39] 1.0631579
  [40] 1.0593778
  [41] 1.0539130
## [42] 1.0539130
  [43] 1.0340476
## [44] 1.0334884
  [45] 1.0298039
## [46] 1.0163522
##
  [47] 1.0151795
## [48] 1.0100000
## [49] 1.0100000
## [50] 1.0100000
## [51] 0.9946970
## [52] 0.9875556
## [53] 0.9751724
  [54] 0.9144033
  [55] 0.8901695
  [56] 0.8741520
##
   [57] 0.7743333
##
       lhs
                           rhs
                                         support
                                                   confidence lift
## [1] {backbone=FALSE} => {tail=FALSE} 0.1683168 0.9444444 3.6688034
                        => {tail=FALSE} 0.2475248 0.2976190
  [2] {fins=FALSE}
  [3] {domestic=FALSE} => {tail=FALSE} 0.2277228 0.2613636
                                                             1.0152972
   [4] {predator=TRUE} => {tail=FALSE} 0.1386139 0.2500000 0.9711538
  [5] {venomous=FALSE} => {tail=FALSE} 0.2178218 0.2365591 0.9189413
##
                                          rhs
                                                      support
                                                                confidence
##
  [1] {backbone=TRUE,domestic=FALSE} => {tail=TRUE} 0.6336634 0.9014085
  [2] {eggs=FALSE,domestic=FALSE}
                                      => {tail=TRUE} 0.2970297 0.8823529
  [3] {milk=TRUE,domestic=FALSE}
                                      => {tail=TRUE} 0.2871287 0.8787879
## [4] {domestic=FALSE, type=mammal}
                                      => {tail=TRUE} 0.2871287 0.8787879
## [5] {domestic=FALSE,catsize=TRUE}
                                      => {tail=TRUE} 0.3267327 0.8684211
  [6] {toothed=TRUE,domestic=FALSE}
                                      => {tail=TRUE} 0.4455446 0.8653846
  [7] {hair=TRUE,domestic=FALSE}
                                      => {tail=TRUE} 0.2673267 0.7941176
  [8] {breathes=TRUE,domestic=FALSE} => {tail=TRUE} 0.5148515 0.7647059
   [9] {aquatic=FALSE,domestic=FALSE} => {tail=TRUE} 0.3960396 0.7547170
##
##
       lift
## [1] 1.213897
## [2] 1.188235
  [3] 1.183434
## [4] 1.183434
  [5] 1.169474
  [6] 1.165385
  [7] 1.069412
##
  [8] 1.029804
##
  [9] 1.016352
##
       lhs
                                         rhs
                                                     support
                                                               confidence
## [1] {predator=TRUE,breathes=TRUE} => {tail=TRUE} 0.3168317 0.8205128
   [2] {aquatic=FALSE,predator=TRUE} => {tail=TRUE} 0.2178218 0.8148148
##
   [3] {hair=TRUE,predator=TRUE}
                                     => {tail=TRUE} 0.1584158 0.8000000
##
       lift
## [1] 1.104957
## [2] 1.097284
## [3] 1.077333
##
       lhs
                                                      support
                                                                confidence
                                          rhs
```

```
## [1] {toothed=TRUE, venomous=FALSE} => {tail=TRUE} 0.4851485 0.8596491
  [2] {airborne=TRUE, venomous=FALSE} => {tail=TRUE} 0.1782178 0.8181818
   [3] {venomous=FALSE,legs=FALSE}
                                       => {tail=TRUE} 0.1485149 0.7894737
   [4] {breathes=TRUE, venomous=FALSE} => {tail=TRUE} 0.5841584 0.7866667
       lift.
##
  [1] 1.157661
  [2] 1.101818
  [3] 1.063158
   [4] 1.059378
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                             support
##
   [1]
        {type=fish}
                                            {breathes=FALSE} 0.1287129
##
   [2]
                                            {breathes=FALSE} 0.1287129
        {eggs=TRUE,fins=TRUE}
##
   [3]
        {milk=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
##
  Γ41
        {hair=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
##
   [5]
        {aquatic=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
   [6]
##
        {milk=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
##
   [7]
        {eggs=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
   [8]
                                            {breathes=FALSE} 0.1188119
##
        {legs=FALSE,catsize=FALSE}
##
   [9]
        {hair=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
##
  [10] {predator=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1188119
  [11] {milk=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
                                            {breathes=FALSE} 0.1980198
  [12] {feathers=FALSE, aquatic=TRUE}
  [13] {milk=FALSE,toothed=TRUE}
##
                                            {breathes=FALSE} 0.1386139
  [14] {aquatic=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
  [15] {eggs=TRUE,toothed=TRUE}
                                            {breathes=FALSE} 0.1287129
                                            {breathes=FALSE} 0.1980198
  [16] {airborne=FALSE,aquatic=TRUE}
  [17] {eggs=TRUE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1881188
  [18] {hair=FALSE,aquatic=TRUE}
                                           {breathes=FALSE} 0.1980198
  [19] {aquatic=TRUE, toothed=TRUE}
                                           {breathes=FALSE} 0.1386139
  [20] {hair=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
   [21] {hair=FALSE, feathers=FALSE}
                                            {breathes=FALSE} 0.2079208
  [22] {milk=FALSE,airborne=FALSE}
                                           {breathes=FALSE} 0.2079208
  [23] {eggs=TRUE,airborne=FALSE}
                                           {breathes=FALSE} 0.1980198
   [24] {hair=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
  [25] {feathers=FALSE,milk=FALSE}
##
                                            {breathes=FALSE} 0.2079208
  [26] {feathers=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
  [27] {milk=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
  [28] {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
##
  [29] {hair=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
  [30] {airborne=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [31] {predator=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
   [32] {hair=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
  [33] {feathers=FALSE, catsize=FALSE}
                                           {breathes=FALSE} 0.1584158
  [34] {hair=FALSE,eggs=TRUE}
                                           {breathes=FALSE} 0.1980198
                                            {breathes=FALSE} 0.1980198
  [35] {hair=FALSE,domestic=FALSE}
   [36]
       {hair=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
  [37] {milk=FALSE,domestic=FALSE}
                                           {breathes=FALSE} 0.1980198
  [38] {feathers=FALSE,predator=TRUE}
                                         => {breathes=FALSE} 0.1683168
   [39] {eggs=TRUE,domestic=FALSE}
                                         => {breathes=FALSE} 0.1881188
##
  [40] {airborne=FALSE,predator=TRUE}
                                         => {breathes=FALSE} 0.1683168
## [41] {domestic=FALSE,catsize=FALSE}
                                         => {breathes=FALSE} 0.1485149
## [42] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
## [43] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
```

```
## [44] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
  [45] {toothed=TRUE,domestic=FALSE}
                                         => {breathes=FALSE} 0.1287129
   [46] {tail=TRUE}
                                         => {breathes=FALSE} 0.1386139
##
        confidence lift
##
   [1]
        1.0000000 4.8095238
   [2]
                   4.8095238
##
        1.0000000
   [3]
        1.0000000
                   4.8095238
## [4]
        0.8666667
                   4.1682540
##
   [5]
        0.8333333
                   4.0079365
##
   [6]
        0.8000000
                   3.8476190
   [7]
        0.7894737
                   3.7969925
##
   [8]
        0.7500000
                   3.6071429
##
   [9]
        0.7272727
                   3.4978355
   [10] 0.7058824
                   3.3949580
## [11] 0.6666667
                   3.2063492
   [12] 0.6666667
                   3.2063492
  [13] 0.6666667
                   3.2063492
   [14] 0.6521739
                   3.1366460
  [15] 0.6500000
                   3.1261905
  [16] 0.6451613
                   3.1029186
## [17] 0.6333333
                   3.0460317
## [18] 0.6250000
                   3.0059524
## [19] 0.6086957
                   2.9275362
  [20] 0.6086957
                   2.9275362
## [21] 0.5526316
                   2.6578947
  [22] 0.5526316
                   2.6578947
  [23] 0.5405405
                   2.5997426
## [24] 0.5250000
                   2.5250000
## [25] 0.5250000
                   2.5250000
## [26] 0.5128205
                   2.4664225
   [27] 0.5000000
                   2.4047619
##
   [28] 0.4848485
                   2.3318903
   [29] 0.4722222
                   2.2711640
  [30] 0.444444
                   2.1375661
   [31] 0.4285714
                   2.0612245
##
  [32] 0.3750000
                   1.8035714
  [33] 0.3720930
                   1.7895903
  [34] 0.3703704
                   1.7813051
   [35] 0.3703704
                   1.7813051
##
   [36] 0.3636364
                   1.7489177
   [37] 0.3636364
                   1.7489177
   [38] 0.3617021
                   1.7396150
   [39] 0.3518519
                   1.6922399
## [40] 0.3469388
                   1.6686103
## [41] 0.3000000
                   1.4428571
## [42] 0.2941176
                   1.4145658
## [43] 0.2876712
                   1.3835616
  [44] 0.2816901
                   1.3547954
   [45] 0.2500000
                   1.2023810
##
   [46] 0.1866667
                   0.8977778
##
        lhs
                                              support
                                                        confidence lift
## [1]
        {type=bird}
                          => {breathes=TRUE} 0.1980198 1.0000000 1.2625000
## [2]
        {feathers=TRUE} => {breathes=TRUE} 0.1980198 1.0000000 1.2625000
        {airborne=TRUE} => {breathes=TRUE} 0.2376238 1.0000000 1.2625000
## [3]
```

```
[4]
        {milk=TRUE}
                         => {breathes=TRUE} 0.4059406 1.0000000
                                                                  1.2625000
##
                         => {breathes=TRUE} 0.4059406 1.0000000
  [5]
        {type=mammal}
                                                                  1.2625000
                         => {breathes=TRUE} 0.4257426 1.0000000
  [6]
        {hair=TRUE}
                                                                  1.2625000
  [7]
                         => {breathes=TRUE} 0.6336634 0.9846154
##
        {aquatic=FALSE}
                                                                  1.2430769
##
   [8]
        {eggs=FALSE}
                         => {breathes=TRUE} 0.4059406 0.9761905
                                                                   1.2324405
##
  [9]
        {legs=TRUE}
                         => {breathes=TRUE} 0.7227723 0.9358974
                                                                  1.1815705
  [10] {domestic=TRUE}
                         => {breathes=TRUE} 0.1188119 0.9230769
                                                                  1.1653846
## [11] {predator=FALSE} => {breathes=TRUE} 0.4059406 0.9111111
                                                                   1.1502778
  [12] {catsize=TRUE}
                         => {breathes=TRUE} 0.3861386 0.8863636
                                                                   1.1190341
  [13] {toothed=FALSE}
                         => {breathes=TRUE} 0.3267327 0.8250000
                                                                   1.0415625
## [14] {tail=TRUE}
                         => {breathes=TRUE} 0.6039604 0.8133333
                                                                  1.0268333
                         => {breathes=TRUE} 0.6732673 0.7727273
## [15] {domestic=FALSE}
                                                                  0.9755682
  [16] {tail=FALSE}
                         => {breathes=TRUE} 0.1881188 0.7307692
                                                                  0.9225962
## [17] {airborne=FALSE} => {breathes=TRUE} 0.5544554 0.7272727
                                                                  0.9181818
                         => {breathes=TRUE} 0.4059406 0.7192982
## [18] {catsize=FALSE}
                                                                  0.9081140
  [19] {predator=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6964286
                                                                   0.8792411
  [20] {eggs=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6610169
                                                                  0.8345339
                         => {breathes=TRUE} 0.3861386 0.6500000
  [21] {milk=FALSE}
                                                                  0.8206250
   [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
##
                                                                  0.7715278
##
                                           rhs
                                                            support
##
  [1] {hair=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
  [2] {milk=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
  [3] {eggs=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1881188
  [4] {domestic=FALSE, catsize=FALSE}
                                        => {breathes=FALSE} 0.1485149
  [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [7] {toothed=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1287129
##
##
       confidence lift
## [1] 0.3703704 1.781305
## [2] 0.3636364
                  1.748918
## [3] 0.3518519
                  1.692240
##
  [4] 0.3000000
                  1.442857
  [5] 0.2941176
                  1.414566
  [6] 0.2816901
                  1.354795
      0.2500000
                  1.202381
##
   [7]
##
       lhs
                                           rhs
                                                            support
## [1] {airborne=FALSE,aquatic=TRUE}
                                        => {breathes=FALSE} 0.1980198
  [2] {milk=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
  [3] {eggs=TRUE,airborne=FALSE}
                                        => {breathes=FALSE} 0.1980198
  [4] {hair=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
  [5] {airborne=FALSE, catsize=FALSE}
                                        => {breathes=FALSE} 0.1584158
   [6] {airborne=FALSE,predator=TRUE}
                                        => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
##
   [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
##
       confidence lift
## [1] 0.6451613
                  3.102919
##
   [2] 0.5526316
                  2.657895
  [3] 0.5405405
                  2.599743
  [4] 0.5250000
                  2.525000
   [5] 0.444444
                  2.137566
   [6] 0.3469388
                  1.668610
## [7] 0.2941176
                  1.414566
## [8] 0.2876712 1.383562
##
       lhs
                                                           support
                                          rhs
```

```
## [1] {legs=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
                                      => {breathes=FALSE} 0.1485149
## [2] {aquatic=TRUE,catsize=FALSE}
## [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
## [4] {predator=TRUE,catsize=FALSE} => {breathes=FALSE} 0.1188119
## [5] {feathers=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
## [6] {hair=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1584158
  [7] {domestic=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1485149
##
       confidence lift
## [1] 0.7500000
                  3.607143
  [2] 0.6521739
                  3.136646
## [3] 0.444444
                  2.137566
## [4] 0.4285714
                  2.061224
## [5] 0.3720930
                  1.789590
## [6] 0.3636364
                  1.748918
## [7] 0.3000000 1.442857
##
       lhs
                                         rhs
                                                           support
## [1] {predator=TRUE,legs=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [2] {milk=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
  [3] {eggs=TRUE,predator=TRUE}
                                      => {breathes=FALSE} 0.1584158
## [4] {hair=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
## [5] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
## [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
  [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
       confidence lift
## [1] 0.7058824 3.394958
## [2] 0.5000000 2.404762
## [3] 0.4848485
                  2.331890
## [4] 0.472222
                  2.271164
## [5] 0.4285714
                  2.061224
## [6] 0.3617021
                  1.739615
## [7] 0.3469388 1.668610
##
       lhs
                                     rhs
                                                                 confidence
                                                       support
## [1] {eggs=TRUE,fins=TRUE}
                                  => {breathes=FALSE} 0.1287129 1.0000000
                                  => {breathes=FALSE} 0.1485149 0.7894737
  [2] {eggs=TRUE,legs=FALSE}
  [3] {eggs=TRUE,toothed=TRUE}
                                  => {breathes=FALSE} 0.1287129 0.6500000
## [4] {eggs=TRUE,aquatic=TRUE}
                                  => {breathes=FALSE} 0.1881188 0.6333333
## [5] {eggs=TRUE,airborne=FALSE} => {breathes=FALSE} 0.1980198 0.5405405
## [6] {feathers=FALSE,eggs=TRUE} => {breathes=FALSE} 0.1980198 0.5128205
## [7] {eggs=TRUE,predator=TRUE}
                                  => {breathes=FALSE} 0.1584158 0.4848485
  [8] {hair=FALSE,eggs=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.3703704
  [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
       lift
## [1] 4.809524
## [2] 3.796992
## [3] 3.126190
## [4] 3.046032
## [5] 2.599743
## [6] 2.466422
## [7] 2.331890
## [8] 1.781305
##
  [9] 1.692240
##
       lhs
                                                        support
## [1] {milk=FALSE,fins=TRUE}
                                   => {breathes=FALSE} 0.1287129 1.0000000
## [2] {milk=FALSE,legs=FALSE}
                                   => {breathes=FALSE} 0.1584158 0.8000000
```

```
## [3] {milk=FALSE,aquatic=TRUE}
                                   => {breathes=FALSE} 0.1980198 0.6666667
                                   => {breathes=FALSE} 0.1386139 0.6666667
  [4] {milk=FALSE,toothed=TRUE}
  [5] {milk=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208 0.5526316
  [6] {feathers=FALSE,milk=FALSE} => {breathes=FALSE} 0.2079208 0.5250000
   [7] {milk=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168 0.5000000
   [8] {hair=FALSE,milk=FALSE}
                                   => {breathes=FALSE} 0.2079208 0.3750000
   [9] {milk=FALSE.domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
       lift
## [1] 4.809524
##
   [2] 3.847619
  [3] 3.206349
  [4] 3.206349
##
   [5] 2.657895
  [6] 2.525000
  [7] 2.404762
   [8] 1.803571
##
   [9] 1.748918
   [1] "Número de reglas con consecuente negado"
##
                                           rhs
                                                         support
                                                                   confidence
##
   [1]
        {backbone=FALSE, venomous=FALSE} =>
                                           {tail=FALSE} 0.1386139 1.0000000
##
  [2]
        {backbone=FALSE}
                                         => {tail=FALSE} 0.1683168 0.9444444
  [3]
        {feathers=FALSE, toothed=FALSE}
                                           {tail=FALSE} 0.1683168 0.8500000
  [4]
##
        {airborne=FALSE, toothed=FALSE}
                                           {tail=FALSE} 0.1089109 0.6111111
##
  [5]
        {feathers=FALSE,eggs=TRUE}
                                           {tail=FALSE} 0.1980198 0.5128205
##
  [6]
        {feathers=FALSE,milk=FALSE}
                                           {tail=FALSE} 0.1980198 0.5000000
  [7]
        {feathers=FALSE, catsize=FALSE}
                                           {tail=FALSE} 0.1980198 0.4651163
  [8]
        {eggs=TRUE,fins=FALSE}
##
                                           {tail=FALSE} 0.1980198 0.4347826
   [9]
        {milk=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.1980198 0.4255319
## [10] {hair=FALSE,feathers=FALSE}
                                        => {tail=FALSE} 0.1584158 0.4210526
## [11] {fins=FALSE,catsize=FALSE}
                                        => {tail=FALSE} 0.1980198 0.4166667
  [12] {eggs=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
  [13] {milk=FALSE,legs=TRUE}
                                        => {tail=FALSE} 0.1584158 0.4000000
  [14] {feathers=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.3906250
                                         => {tail=FALSE} 0.1584158 0.3902439
## [15] {legs=TRUE,catsize=FALSE}
   [16] {airborne=FALSE, catsize=FALSE}
                                           {tail=FALSE} 0.1386139 0.3888889
                                         => {tail=FALSE} 0.1089109 0.3793103
  [17] {eggs=TRUE,aquatic=FALSE}
  [18] {eggs=TRUE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3783784
## [19] {hair=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3720930
## [20] {milk=FALSE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3684211
  [21] {milk=FALSE,aquatic=FALSE}
                                           {tail=FALSE} 0.1089109 0.3666667
  [22] {feathers=FALSE,legs=TRUE}
                                           {tail=FALSE} 0.2079208 0.3620690
  [23] {domestic=FALSE,catsize=FALSE}
                                           {tail=FALSE} 0.1782178 0.3600000
## [24] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
  [25] {aquatic=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1188119 0.3529412
## [26] {hair=FALSE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3500000
## [27] {hair=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1188119 0.3333333
## [28] {feathers=FALSE,domestic=FALSE} =>
                                           {tail=FALSE} 0.2277228 0.3239437
## [29] {airborne=FALSE,fins=FALSE}
                                        => {tail=FALSE} 0.1881188 0.3166667
## [30] {fins=FALSE,domestic=FALSE}
                                         => {tail=FALSE} 0.2178218 0.3055556
  [31] {predator=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1287129 0.3023256
## [32] {fins=FALSE}
                                        => {tail=FALSE} 0.2475248 0.2976190
## [33] {predator=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1089109 0.2820513
## [34] {airborne=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1485149 0.2777778
## [35] {legs=TRUE,domestic=FALSE}
                                           {tail=FALSE} 0.1782178 0.2727273
```

```
## [36] {domestic=FALSE}
                                         => {tail=FALSE} 0.2277228 0.2613636
                                         => {tail=FALSE} 0.1386139 0.2500000
   [37] {predator=TRUE}
   [38] {venomous=FALSE}
                                         => {tail=FALSE} 0.2178218 0.2365591
##
        lift
##
   [1]
        3.8846154
   [2]
        3.6688034
##
   [3]
        3.3019231
## [4]
        2.3739316
##
   [5]
        1.9921105
   [6]
##
        1.9423077
   [7]
        1.8067979
   [8]
##
        1.6889632
##
   [9]
        1.6530278
  [10] 1.6356275
## [11] 1.6185897
   [12] 1.5538462
   [13] 1.5538462
   [14] 1.5174279
  [15] 1.5159475
## [16] 1.5106838
## [17] 1.4734748
## [18] 1.4698545
## [19] 1.4454383
## [20] 1.4311741
## [21] 1.4243590
## [22] 1.4064987
## [23] 1.3984615
## [24] 1.3710407
## [25] 1.3710407
## [26] 1.3596154
## [27] 1.2948718
   [28] 1.2583965
   [29] 1.2301282
  [30] 1.1869658
   [31] 1.1744186
   [32] 1.1561355
##
  [33] 1.0956607
## [34] 1.0790598
   [35] 1.0594406
   [36] 1.0152972
   [37] 0.9711538
   [38] 0.9189413
##
##
        lhs
                             rhs
                                          support
                                                    confidence lift
##
   [1]
        {type=fish}
                          => {tail=TRUE} 0.1287129 1.0000000 1.3466667
  [2]
                          => {tail=TRUE} 0.1980198 1.0000000
        {type=bird}
                                                               1.3466667
## [3]
        {feathers=TRUE}
                         => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
   [4]
                                                               1.2674510
##
        {fins=TRUE}
                          => {tail=TRUE} 0.1584158 0.9411765
   [5]
##
        {catsize=TRUE}
                          => {tail=TRUE} 0.3762376 0.8636364
                                                               1.1630303
                                                               1.1542857
   [6]
        {eggs=FALSE}
                          => {tail=TRUE} 0.3564356 0.8571429
##
   [7]
        {milk=TRUE}
                          => {tail=TRUE} 0.3465347 0.8536585
                                                               1.1495935
                          => {tail=TRUE} 0.3465347 0.8536585
##
   [8]
        {type=mammal}
                                                               1.1495935
## [9]
        {legs=FALSE}
                          => {tail=TRUE} 0.1782178 0.7826087
                                                               1.0539130
## [10] {hair=TRUE}
                          => {tail=TRUE} 0.3267327 0.7674419
                                                               1.0334884
## [11] {aquatic=FALSE}
                         => {tail=TRUE} 0.4851485 0.7538462 1.0151795
```

```
## [12] {airborne=TRUE} => {tail=TRUE} 0.1782178 0.7500000 1.0100000
## [13] {predator=TRUE} => {tail=TRUE} 0.4158416 0.7500000
                                                             1.0100000
## [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
## [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                                                             0.9875556
## [16] {hair=FALSE}
                         => {tail=TRUE} 0.4158416 0.7241379
                                                             0.9751724
## [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123 0.9144033
                         => {tail=TRUE} 0.3861386 0.6610169
## [18] {eggs=TRUE}
## [19] {catsize=FALSE} => {tail=TRUE} 0.3663366 0.6491228 0.8741520
## [20] {toothed=FALSE} => {tail=TRUE} 0.2277228 0.5750000 0.7743333
##
       lhs
                                        rhs
                                                     support
                                                                confidence
## [1] {eggs=TRUE,aquatic=FALSE}
                                     => {tail=FALSE} 0.1089109 0.3793103
  [2] {milk=FALSE,aquatic=FALSE}
                                     => {tail=FALSE} 0.1089109 0.3666667
  [3] {aquatic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.473475
## [2] 1.424359
## [3] 1.371041
##
       lhs
                                     rhs
                                                  support
                                                             confidence
## [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
  [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
##
       lift
## [1] 1.174419
## [2] 1.095661
                                          rhs
                                                        support
                                                                  confidence
## [1] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
## [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
## [3] {fins=FALSE,domestic=FALSE}
                                       => {tail=FALSE} 0.2178218 0.3055556
                                       => {tail=FALSE} 0.1782178 0.2727273
##
  [4] {legs=TRUE,domestic=FALSE}
##
       lift
## [1] 1.398462
## [2] 1.258397
## [3] 1.186966
## [4] 1.059441
##
       lhs
                                          rhs
                                                        support
                                                                  confidence
   [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
##
       lift
## [1] 1.371041
##
       lhs
                                      rhs
                                                   support
                                                              confidence
## [1] {hair=FALSE,feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
## [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
## [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
## [4] {hair=FALSE,legs=TRUE}
                                   => {tail=FALSE} 0.1188119 0.3333333
##
       lift
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
##
       lhs
                                          rhs
                                                        support
                                                                  confidence
                                       => {tail=FALSE} 0.1683168 0.8500000
## [1] {feathers=FALSE,toothed=FALSE}
## [2] {feathers=FALSE,eggs=TRUE}
                                       => {tail=FALSE} 0.1980198 0.5128205
                                       => {tail=FALSE} 0.1980198 0.5000000
## [3] {feathers=FALSE,milk=FALSE}
## [4] {feathers=FALSE, catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4651163
## [5] {hair=FALSE,feathers=FALSE}
                                       => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                       => {tail=FALSE} 0.2475248 0.3906250
```

```
## [7] {feathers=FALSE,legs=TRUE}
                                     => {tail=FALSE} 0.2079208 0.3620690
  [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
  [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
##
       lift
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
## [7] 1.406499
## [8] 1.371041
##
  [9] 1.258397
##
       lhs
                                                   support
                                                             confidence
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
## [2] {eggs=TRUE,fins=FALSE}
                                  => {tail=FALSE} 0.1980198 0.4347826
  [3] {eggs=TRUE,legs=TRUE}
                                  => {tail=FALSE} 0.1584158 0.4000000
  [4] {eggs=TRUE,aquatic=FALSE} => {tail=FALSE} 0.1089109 0.3793103
##
  [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
       lift.
## [1] 1.992110
## [2] 1.688963
## [3] 1.553846
## [4] 1.473475
## [5] 1.469854
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
## [2] {fins=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4166667
## [3] {legs=TRUE,catsize=FALSE}
                                      => {tail=FALSE} 0.1584158 0.3902439
## [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
## [5] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
##
   [6] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.806798
## [2] 1.618590
## [3] 1.515947
## [4] 1.510684
## [5] 1.398462
## [6] 1.371041
##
                                                                 confidence
                                          rhs
                                                       support
  [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
  [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
##
       lift
## [1] 3.301923
## [2] 2.373932
## [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
## [1]
        {toothed=FALSE,tail=FALSE}
                                         => {backbone=FALSE} 0.1683168
## [2]
        {feathers=FALSE, toothed=FALSE}
                                        => {backbone=FALSE} 0.1782178
## [3]
        {eggs=TRUE,tail=FALSE}
                                         => {backbone=FALSE} 0.1683168
## [4]
        {milk=FALSE,tail=FALSE}
                                         => {backbone=FALSE} 0.1683168
## [5]
        {hair=FALSE,tail=FALSE}
                                         => {backbone=FALSE} 0.1287129
## [6]
        {tail=FALSE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1584158
## [7]
       {tail=FALSE,domestic=FALSE}
                                         => {backbone=FALSE} 0.1584158
```

```
{aquatic=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1089109
                                            {backbone=FALSE} 0.1683168
   [9]
        {fins=FALSE,tail=FALSE}
  [10] {airborne=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1188119
  [11] {toothed=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
   [12] {toothed=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
##
  [13] {milk=FALSE,toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
  [14] {toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
  [15] {feathers=FALSE,milk=FALSE}
                                            {backbone=FALSE} 0.1782178
   [16] {feathers=FALSE,eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
   [17] {milk=FALSE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
  [18] {feathers=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
       {milk=FALSE,fins=FALSE}
   [19]
                                            {backbone=FALSE} 0.1782178
   [20]
       {eggs=TRUE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1089109
                                            {backbone=FALSE} 0.1683168
       {eggs=TRUE,fins=FALSE}
  [22] {hair=FALSE,feathers=FALSE}
                                            {backbone=FALSE} 0.1386139
   [23]
        {milk=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
   [24]
        {fins=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
       {aquatic=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1188119
                                            {backbone=FALSE} 0.1386139
   [26] {milk=FALSE,legs=TRUE}
   [27]
       {eggs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
##
  [28]
       {hair=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1386139
  [29] {eggs=TRUE,legs=TRUE}
                                            {backbone=FALSE} 0.1287129
       {domestic=FALSE,catsize=FALSE}
  [30]
                                            {backbone=FALSE} 0.1584158
       {legs=TRUE,catsize=FALSE}
   [31]
                                            {backbone=FALSE} 0.1287129
   [32] {milk=FALSE,airborne=FALSE}
                                            {backbone=FALSE} 0.1188119
   [33] {milk=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
   [34] {airborne=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1089109
   [35]
       {eggs=TRUE,airborne=FALSE}
                                            {backbone=FALSE} 0.1089109
       {eggs=TRUE,domestic=FALSE}
   [36]
                                            {backbone=FALSE} 0.1584158
   [37]
       {eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
##
   [38]
        {feathers=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
   [39]
        {hair=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1386139
       {feathers=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
   [41] {feathers=FALSE,domestic=FALSE} =>
                                            {backbone=FALSE} 0.1683168
   [42]
        {fins=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
   [43] {feathers=FALSE, aquatic=FALSE}
##
                                            {backbone=FALSE} 0.1188119
   [44] {aquatic=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1089109
   [45] {legs=TRUE,domestic=FALSE}
                                            {backbone=FALSE} 0.1287129
##
   [46] {aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
##
##
        confidence lift
  [1]
        1.0000000
                   5.611111
   [2]
        0.9000000
                   5.050000
##
##
   [3]
        0.8500000
                   4.769444
##
   [4]
        0.8500000
                   4.769444
##
  [5]
        0.8125000
                   4.559028
   [6]
##
        0.8000000
                   4.488889
##
   [7]
        0.6956522
                   3.903382
##
   [8]
        0.6875000
                   3.857639
   [9]
        0.6800000
                   3.815556
   [10]
        0.6666667
                   3.740741
##
  [11]
        0.5483871
                   3.077061
## [12] 0.4722222
                   2.649691
## [13] 0.4615385
                   2.589744
## [14] 0.4500000
                   2.525000
```

```
## [15] 0.4500000
                   2.525000
   [16] 0.4358974
                   2.445869
   [17] 0.4000000
                    2.244444
   [18] 0.3953488
                    2.218346
   [19] 0.3829787
                    2.148936
##
   [20] 0.3793103
                    2.128352
   [21] 0.3695652
                    2.073671
   [22] 0.3684211
                    2.067251
   [23] 0.3541667
                    1.987269
   [24] 0.3541667
                    1.987269
   [25] 0.3529412
                    1.980392
   [26] 0.3500000
                    1.963889
##
   [27] 0.3478261
                    1.951691
   [28] 0.3255814
                    1.826873
   [29] 0.3250000
                    1.823611
   [30] 0.3200000
                    1.795556
##
   [31] 0.3170732
                    1.779133
   [32] 0.3157895
                    1.771930
                    1.734343
   [33] 0.3090909
   [34] 0.3055556
                    1.714506
##
   [35] 0.2972973
                    1.668168
   [36] 0.2962963
                    1.662551
                   1.616761
   [37] 0.2881356
##
##
   [38] 0.2812500
                    1.578125
   [39] 0.2592593
                    1.454733
   [40] 0.2413793
                    1.354406
   [41] 0.2394366
                    1.343505
##
   [42] 0.2361111
                    1.324846
   [43] 0.2352941
                    1.320261
   [44] 0.2075472
                    1.164570
##
   [45] 0.1969697
                    1.105219
##
   [46] 0.1846154
                   1.035897
##
        lhs
                                                         confidence lift
                                              support
##
   [1]
                             {backbone=TRUE} 0.1287129 1.0000000
                                                                    1.2168675
        {type=fish}
##
   [2]
        {fins=TRUE}
                             {backbone=TRUE} 0.1683168 1.0000000
                                                                    1.2168675
##
   [3]
        {type=bird}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                    1.2168675
##
   [4]
        {feathers=TRUE}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                    1.2168675
   [5]
        {milk=TRUE}
                             {backbone=TRUE} 0.4059406 1.0000000
##
                                                                    1.2168675
   [6]
                             {backbone=TRUE} 0.4059406 1.0000000
##
        {type=mammal}
                                                                    1.2168675
##
   [7]
        {toothed=TRUE}
                             {backbone=TRUE} 0.6039604 1.0000000
                                                                    1.2168675
   [8]
        {tail=TRUE}
                             {backbone=TRUE} 0.7326733 0.9866667
                                                                    1.2006426
   [9]
                             {backbone=TRUE} 0.4257426 0.9772727
##
        {catsize=TRUE}
                                                                    1.1892114
   Γ10]
       {domestic=TRUE}
                             {backbone=TRUE} 0.1188119 0.9230769
                                                                    1.1232623
##
       {breathes=TRUE}
                             {backbone=TRUE} 0.6831683 0.8625000
   [11]
                                                                    1.0495482
   [12] {legs=FALSE}
                             {backbone=TRUE} 0.1881188 0.8260870
                                                                    1.0052383
                             {backbone=TRUE} 0.6336634 0.8205128
   [13]
       {legs=TRUE}
                                                                    0.9984554
##
   [14]
       {aquatic=FALSE}
                             {backbone=TRUE} 0.5247525 0.8153846
                                                                    0.9922150
   [15] {predator=FALSE}
                             {backbone=TRUE} 0.3564356 0.8000000
                                                                    0.9734940
   [16] {feathers=FALSE} =>
                             {backbone=TRUE} 0.6237624 0.7777778
                                                                    0.9464525
   [17]
       {airborne=TRUE}
                             {backbone=TRUE} 0.1782178 0.7500000
                                                                    0.9126506
                             {backbone=TRUE} 0.4158416 0.7118644
##
        {eggs=TRUE}
                          =>
   [18]
                                                                    0.8662446
   Г197
       {catsize=FALSE}
                          => {backbone=TRUE} 0.3960396 0.7017544
                                                                    0.8539421
## [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                    0.8112450
## [21] {toothed=FALSE} => {backbone=TRUE} 0.2178218 0.5500000
```

```
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
##
  [1] {milk=FALSE,legs=TRUE}
                                  => {backbone=FALSE} 0.1386139 0.3500000
                                  => {backbone=FALSE} 0.1287129 0.3250000
  [2] {eggs=TRUE,legs=TRUE}
  [3] {legs=TRUE,catsize=FALSE}
                                  => {backbone=FALSE} 0.1287129 0.3170732
   [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
       lift
## [1] 1.963889
##
   [2] 1.823611
  [3] 1.779133
  [4] 1.354406
##
  [5] 1.105219
##
       lhs
                                          rhs
                                                           support
  [1] {aquatic=FALSE,tail=FALSE}
##
                                      => {backbone=FALSE} 0.1089109
  [2] {milk=FALSE,aquatic=FALSE}
                                      => {backbone=FALSE} 0.1188119
  [3] {eggs=TRUE,aquatic=FALSE}
                                       => {backbone=FALSE} 0.1089109
  [4] {aquatic=FALSE, catsize=FALSE}
                                      => {backbone=FALSE} 0.1188119
  [5] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
   [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
##
##
       confidence lift
##
  [1] 0.6875000 3.857639
  [2] 0.4000000 2.244444
## [3] 0.3793103
                  2.128352
   [4] 0.3529412
                  1.980392
  [5] 0.2352941
                  1.320261
   [6] 0.2075472 1.164570
##
       lhs
                                           rhs
                                                            support
##
  [1] {feathers=FALSE,toothed=FALSE}
                                          {backbone=FALSE} 0.1782178
  [2] {feathers=FALSE,milk=FALSE}
                                       => {backbone=FALSE} 0.1782178
  [3] {feathers=FALSE,eggs=TRUE}
                                       => {backbone=FALSE} 0.1683168
## [4] {feathers=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
  [5] {hair=FALSE, feathers=FALSE}
                                       => {backbone=FALSE} 0.1386139
  [6] {feathers=FALSE,fins=FALSE}
                                       => {backbone=FALSE} 0.1782178
  [7] {feathers=FALSE,legs=TRUE}
                                       => {backbone=FALSE} 0.1386139
   [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
   [9] {feathers=FALSE,aquatic=FALSE}
                                       => {backbone=FALSE} 0.1188119
##
##
       confidence lift
## [1] 0.9000000 5.050000
   [2] 0.4500000
                  2.525000
                  2.445869
  [3] 0.4358974
  [4] 0.3953488
                  2.218346
  [5] 0.3684211
                  2.067251
   [6] 0.2812500
                  1.578125
  [7] 0.2413793
                  1.354406
## [8] 0.2394366
                  1.343505
## [9] 0.2352941
                  1.320261
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
##
  [1] {eggs=TRUE,tail=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.8500000
  [2] {feathers=FALSE,eggs=TRUE} => {backbone=FALSE} 0.1683168 0.4358974
  [3] {eggs=TRUE,aquatic=FALSE}
                                  => {backbone=FALSE} 0.1089109 0.3793103
##
  [4] {eggs=TRUE,fins=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.3695652
## [5] {eggs=TRUE,catsize=FALSE}
                                  => {backbone=FALSE} 0.1584158 0.3478261
## [6] {eggs=TRUE,legs=TRUE}
                                  => {backbone=FALSE} 0.1287129 0.3250000
## [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
```

```
[8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
       lift.
##
   [1] 4.769444
   [2] 2.445869
   [3] 2.128352
   [4] 2.073671
##
   [5] 1.951691
##
   [6] 1.823611
   [7] 1.668168
##
   [8] 1.662551
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {tail=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
##
   [2]
        {toothed=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
                                            {backbone=FALSE} 0.1683168
##
   [3]
        {feathers=FALSE,catsize=FALSE} =>
  [4]
        {milk=FALSE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1683168
##
##
   [5]
        {fins=FALSE,catsize=FALSE}
                                           {backbone=FALSE} 0.1683168
##
   [6]
        {aquatic=FALSE, catsize=FALSE}
                                           {backbone=FALSE} 0.1188119
   [7]
        {eggs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
##
   [8]
        {domestic=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1584158
##
   [9]
        {legs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1287129
##
   Γ107
       {airborne=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1089109
##
        confidence lift
        0.8000000 4.488889
##
   [1]
##
   [2]
        0.5483871
                   3.077061
##
   [3]
        0.3953488
                   2.218346
   [4]
        0.3541667
                   1.987269
   [5]
##
        0.3541667
                    1.987269
##
   [6]
        0.3529412
                   1.980392
##
   [7]
        0.3478261
                   1.951691
##
   [8]
        0.3200000
                   1.795556
##
   [9]
        0.3170732
                    1.779133
##
   [10] 0.3055556
                   1.714506
##
       lhs
                                                            support
  [1] {toothed=FALSE,tail=FALSE}
##
                                       => {backbone=FALSE} 0.1683168
   [2] {feathers=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1782178
   [3] {airborne=FALSE, toothed=FALSE} => {backbone=FALSE} 0.1188119
   [4] {toothed=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
   [5] {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
   [6] {milk=FALSE,toothed=FALSE}
                                        => {backbone=FALSE} 0.1782178
##
##
       confidence lift
  [1] 1.0000000 5.611111
   [2] 0.9000000
                  5.050000
   [3] 0.6666667
                  3.740741
##
  [4] 0.5483871
                  3.077061
   [5] 0.4722222
                  2.649691
                  2.589744
   [6]
       0.4615385
##
   [1]
       "Número de reglas con consecuente negado"
##
                                             rhs
                                                              support
  [1]
##
        {breathes=TRUE,domestic=TRUE}
                                            {aquatic=FALSE} 0.1188119
##
   [2]
        {fins=FALSE,domestic=TRUE}
                                            {aquatic=FALSE} 0.1188119
   [3]
##
        {backbone=FALSE,breathes=TRUE}
                                         => {aquatic=FALSE} 0.1089109
## [4]
        {milk=TRUE,predator=FALSE}
                                         => {aquatic=FALSE} 0.1881188
  [5]
        {predator=FALSE, type=mammal}
                                         => {aquatic=FALSE} 0.1881188
##
## [6]
        {eggs=FALSE,predator=FALSE}
                                            {aquatic=FALSE} 0.1881188
```

```
[7]
        {hair=TRUE, predator=FALSE}
                                         => {aguatic=FALSE} 0.2277228
##
  [8]
        {hair=TRUE,catsize=FALSE}
                                            {aquatic=FALSE} 0.1287129
                                            {aquatic=FALSE} 0.3861386
  [9]
        {hair=TRUE,fins=FALSE}
  [10] {eggs=FALSE,legs=TRUE}
                                            {aquatic=FALSE} 0.3564356
  [11] {eggs=FALSE,fins=FALSE}
##
                                            {aquatic=FALSE} 0.3564356
  [12] {milk=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.3465347
##
  [13] {fins=FALSE,type=mammal}
                                           {aquatic=FALSE} 0.3465347
                                            {aquatic=FALSE} 0.1485149
  [14] {predator=FALSE,catsize=TRUE}
   [15] {predator=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.3762376
   [16] {predator=FALSE,fins=FALSE}
                                            {aquatic=FALSE} 0.3762376
  [17] {domestic=TRUE}
                                           {aquatic=FALSE} 0.1188119
  [18] {predator=FALSE,legs=TRUE}
                                           {aquatic=FALSE} 0.3564356
                                           {aquatic=FALSE} 0.3861386
       {hair=TRUE}
  [19]
  [20] {eggs=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.3564356
## [21] {toothed=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.3762376
        {fins=FALSE,catsize=TRUE}
                                            {aquatic=FALSE} 0.3069307
  [23]
                                            {aquatic=FALSE} 0.3564356
       {eggs=FALSE}
       {toothed=TRUE,legs=TRUE}
                                            {aquatic=FALSE} 0.3564356
   [24]
  [25] {milk=TRUE}
                                           {aquatic=FALSE} 0.3465347
   [26] {type=mammal}
                                            {aquatic=FALSE} 0.3465347
##
  [27] {feathers=FALSE,predator=FALSE}
                                            {aquatic=FALSE} 0.2871287
  [28] {predator=FALSE}
                                            {aquatic=FALSE} 0.3762376
  [29] {breathes=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.6336634
  [30] {legs=TRUE,catsize=TRUE}
##
                                            {aquatic=FALSE} 0.3069307
  [31] {feathers=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.4950495
  [32] {fins=FALSE,tail=TRUE}
                                           {aquatic=FALSE} 0.4851485
  [33] {legs=TRUE,tail=TRUE}
                                           {aquatic=FALSE} 0.4653465
  [34] {breathes=TRUE,legs=TRUE}
                                           {aquatic=FALSE} 0.5940594
  [35] {breathes=TRUE,catsize=FALSE}
                                           {aquatic=FALSE} 0.3267327
                                            {aquatic=FALSE} 0.4455446
## [36] {airborne=FALSE,breathes=TRUE}
  [37]
        {backbone=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.5247525
  [38]
       {feathers=FALSE,fins=FALSE}
                                            {aquatic=FALSE} 0.5049505
   [39] {feathers=FALSE,legs=TRUE}
                                           {aquatic=FALSE} 0.4554455
  [40] {venomous=FALSE,fins=FALSE}
                                           {aquatic=FALSE} 0.6039604
       {fins=FALSE,legs=TRUE}
                                            {aquatic=FALSE} 0.5940594
   [41]
##
  [42] {fins=FALSE}
                                           {aquatic=FALSE} 0.6435644
  [43] {toothed=FALSE,tail=TRUE}
                                           {aquatic=FALSE} 0.1584158
  [44] {toothed=FALSE,backbone=TRUE}
                                            {aquatic=FALSE} 0.1485149
                                            {aquatic=FALSE} 0.2673267
       {toothed=FALSE}
  [45]
  [46] {toothed=TRUE}
                                            {aquatic=FALSE} 0.3762376
  [47] {tail=FALSE}
                                           {aquatic=FALSE} 0.1584158
   [48] {domestic=FALSE}
                                           {aquatic=FALSE} 0.5247525
##
   [49]
       {catsize=FALSE}
                                         => {aquatic=FALSE} 0.3366337
##
                                         => {aquatic=FALSE} 0.2871287
   [50]
       {eggs=TRUE}
##
        confidence lift
  [1]
##
        1.0000000
                   1.5538462
##
   [2]
        1.0000000
                   1.5538462
##
   [3]
        1.0000000
                   1.5538462
##
   [4]
        1.0000000
                   1.5538462
##
   [5]
        1.0000000
                   1.5538462
##
   [6]
                   1.5538462
        1.0000000
##
  [7]
        1.0000000
                   1.5538462
##
  [8]
        1.0000000
                   1.5538462
## [9]
        0.9512195
                  1.4780488
```

```
## [10] 0.9473684
                   1.4720648
  [11] 0.9473684
                   1.4720648
  [12] 0.9459459
                   1.4698545
  [13] 0.9459459
                   1.4698545
  [14] 0.9375000
                   1.4567308
                   1.4401501
  [15] 0.9268293
  [16] 0.9268293
                   1.4401501
  [17] 0.9230769
                   1.4343195
   [18] 0.9230769
                   1.4343195
  [19] 0.9069767
                   1.4093023
  [20] 0.8780488
                   1.3643527
  [21] 0.8636364
                   1.3419580
  [22] 0.8611111
                   1.3380342
  [23] 0.8571429
                   1.3318681
  [24] 0.8571429
                   1.3318681
  [25] 0.8536585
                   1.3264540
   [26] 0.8536585
                   1.3264540
   [27] 0.8529412
                   1.3253394
  [28] 0.8444444
                   1.3121368
   [29] 0.8421053
                   1.3085020
  [30] 0.8378378
                   1.3018711
  [31] 0.8333333
                   1.2948718
  [32] 0.8305085
                   1.2904824
   [33] 0.8245614
                   1.2812416
  [34] 0.8219178
                   1.2771338
  [35] 0.8048780
                   1.2506567
  [36] 0.8035714
                   1.2486264
   [37] 0.8030303
                   1.2477855
  [38] 0.7968750
                   1.2382212
  [39] 0.7931034
                   1.2323607
   [40] 0.7922078
                   1.2309690
   [41] 0.7792208
                   1.2107892
  [42] 0.7738095
                   1.2023810
  [43] 0.6956522
                   1.0809365
   [44] 0.6818182
                   1.0594406
  [45] 0.6750000
                   1.0488462
  [46] 0.6229508
                   0.9679697
  [47] 0.6153846
                   0.9562130
   [48] 0.6022727
                   0.9358392
  [49] 0.5964912
                   0.9268556
   [50] 0.4915254
                   0.7637549
##
       lhs
                                           support
                                                      confidence lift
                                                                 2.8055556
##
  [1] {type=fish}
                         => {aquatic=TRUE} 0.1287129 1.0000000
   [2] {fins=TRUE}
                         => {aquatic=TRUE} 0.1683168 1.0000000
                                                                 2.8055556
  [3] {breathes=FALSE} => {aquatic=TRUE} 0.1980198 0.9523810
                                                                 2.6719577
   [4] {legs=FALSE}
                         => {aquatic=TRUE} 0.1782178 0.7826087
                                                                 2.1956522
  [5] {backbone=TRUE}
                        => {aquatic=TRUE} 0.2970297 0.3614458
                                                                 1.0140562
   [6] {tail=TRUE}
                         => {aquatic=TRUE} 0.2574257 0.3466667
                                                                 0.9725926
   [7] {venomous=FALSE} => {aquatic=TRUE} 0.3168317 0.3440860
                                                                 0.9653524
       {toothed=FALSE}
                        => {aquatic=TRUE} 0.1287129 0.3250000
                                                                 0.9118056
##
                        => {aquatic=TRUE} 0.1584158 0.2000000
   [9]
       {breathes=TRUE}
                                                                 0.5611111
##
                                                          support
## [1] {backbone=TRUE,fins=FALSE}
                                      => {aquatic=FALSE} 0.5247525 0.8030303
## [2] {toothed=FALSE,backbone=TRUE} => {aquatic=FALSE} 0.1485149 0.6818182
```

```
##
       lift
##
  [1] 1.247786
   [2] 1.059441
##
       lhs
                                     rhs
                                                     support
                                                                confidence
##
  [1] {fins=FALSE,tail=TRUE}
                                  => {aquatic=FALSE} 0.4851485 0.8305085
                                  => {aquatic=FALSE} 0.4653465 0.8245614
   [2] {legs=TRUE,tail=TRUE}
   [3] {toothed=FALSE,tail=TRUE} => {aquatic=FALSE} 0.1584158 0.6956522
##
       lift
##
  [1] 1.290482
##
   [2] 1.281242
   [3] 1.080936
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
##
   [1] {venomous=FALSE,fins=FALSE} => {aquatic=FALSE} 0.6039604 0.7922078
##
       lift
##
  [1] 1.230969
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
   [1] {toothed=FALSE,tail=TRUE}
                                      => {aquatic=FALSE} 0.1584158 0.6956522
##
   [2] {toothed=FALSE,backbone=TRUE} => {aquatic=FALSE} 0.1485149 0.6818182
##
       lift
##
  [1] 1.080936
##
   [2] 1.059441
##
                                          rhs
                                                           support
                                                                     confidence
  [1] {breathes=TRUE,domestic=TRUE}
                                      => {aquatic=FALSE} 0.1188119 1.0000000
##
  [2] {backbone=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.1089109 1.0000000
  [3] {predator=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.3762376 0.9268293
  [4] {eggs=FALSE,breathes=TRUE}
                                       => {aquatic=FALSE} 0.3564356 0.8780488
  [5] {breathes=TRUE,fins=FALSE}
                                       => {aquatic=FALSE} 0.6336634 0.8421053
## [6] {feathers=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.4950495 0.8333333
## [7] {breathes=TRUE,legs=TRUE}
                                       => {aquatic=FALSE} 0.5940594 0.8219178
## [8] {breathes=TRUE,catsize=FALSE} => {aquatic=FALSE} 0.3267327 0.8048780
## [9] {airborne=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.4455446 0.8035714
##
       lift
## [1] 1.553846
## [2] 1.553846
   [3] 1.440150
## [4] 1.364353
## [5] 1.308502
## [6] 1.294872
  [7] 1.277134
## [8] 1.250657
  [9] 1.248626
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                                              support
## [1]
                                         => {breathes=FALSE} 0.1287129
        {type=fish}
## [2]
        {eggs=TRUE,fins=TRUE}
                                         => {breathes=FALSE} 0.1287129
## [3]
        {milk=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
##
  [4]
        {hair=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
##
  [5]
        {aquatic=TRUE,legs=FALSE}
                                           {breathes=FALSE} 0.1485149
  [6]
        {milk=FALSE,legs=FALSE}
                                           {breathes=FALSE} 0.1584158
   [7]
        {eggs=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
##
  [8]
        {legs=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
        {hair=FALSE,legs=FALSE}
                                           {breathes=FALSE} 0.1584158
## [10] {predator=TRUE,legs=FALSE}
                                         => {breathes=FALSE} 0.1188119
## [11] {milk=FALSE,aquatic=TRUE}
                                           {breathes=FALSE} 0.1980198
```

```
## [12] {feathers=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
                                            {breathes=FALSE} 0.1386139
  [13] {milk=FALSE,toothed=TRUE}
  [14] {aquatic=TRUE, catsize=FALSE}
                                             {breathes=FALSE} 0.1485149
  [15] {eggs=TRUE,toothed=TRUE}
                                             {breathes=FALSE} 0.1287129
##
   [16] {airborne=FALSE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1980198
   [17] {eggs=TRUE,aquatic=TRUE}
                                             {breathes=FALSE} 0.1881188
##
       {hair=FALSE,aquatic=TRUE}
  Г187
                                             {breathes=FALSE} 0.1980198
   [19] {aquatic=TRUE, toothed=TRUE}
                                             {breathes=FALSE} 0.1386139
   [20]
       {hair=FALSE,toothed=TRUE}
                                             {breathes=FALSE} 0.1386139
   [21] {hair=FALSE, feathers=FALSE}
                                            {breathes=FALSE} 0.2079208
   [22] {milk=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
   [23]
       {eggs=TRUE,airborne=FALSE}
                                            {breathes=FALSE} 0.1980198
   [24]
       {hair=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
                                            {breathes=FALSE} 0.2079208
       {feathers=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.1980198
  [26] {feathers=FALSE,eggs=TRUE}
   [27]
        {milk=FALSE, predator=TRUE}
                                             {breathes=FALSE} 0.1683168
   [28]
        {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
##
       {hair=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [29]
                                            {breathes=FALSE} 0.1584158
   [30] {airborne=FALSE, catsize=FALSE}
   [31] {predator=TRUE, catsize=FALSE}
                                             {breathes=FALSE} 0.1188119
##
   [32] {hair=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
       {feathers=FALSE, catsize=FALSE}
                                             {breathes=FALSE} 0.1584158
       {hair=FALSE,eggs=TRUE}
                                             {breathes=FALSE} 0.1980198
##
   [34]
##
   [35]
        {hair=FALSE,domestic=FALSE}
                                             {breathes=FALSE} 0.1980198
##
   [36]
       {hair=FALSE,catsize=FALSE}
                                             {breathes=FALSE} 0.1584158
   [37]
       {milk=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
       {feathers=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
##
   [38]
##
   [39]
       {eggs=TRUE,domestic=FALSE}
                                             {breathes=FALSE} 0.1881188
       {airborne=FALSE, predator=TRUE}
                                            {breathes=FALSE} 0.1683168
  [41] {domestic=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
   [42]
        {airborne=FALSE,domestic=FALSE}
                                         =>
                                             {breathes=FALSE} 0.1980198
##
   [43]
        {feathers=FALSE,airborne=FALSE}
                                         =>
                                             {breathes=FALSE} 0.2079208
       {feathers=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
##
   [45] {toothed=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1287129
   [46]
        {tail=TRUE}
                                            {breathes=FALSE} 0.1386139
##
##
        confidence lift
##
   [1]
        1.0000000
                   4.8095238
##
   [2]
                   4.8095238
        1.0000000
   [3]
##
        1.0000000
                   4.8095238
   [4]
##
        0.8666667
                   4.1682540
   [5]
        0.8333333
                   4.0079365
   [6]
##
        0.8000000
                   3.8476190
##
   [7]
        0.7894737
                   3.7969925
   [8]
##
        0.7500000
                   3.6071429
   [9]
        0.7272727
                   3.4978355
   [10] 0.7058824
                   3.3949580
##
   [11] 0.6666667
                   3.2063492
   [12] 0.6666667
                   3.2063492
   [13] 0.6666667
                   3.2063492
   [14]
        0.6521739
                   3.1366460
##
  [15] 0.6500000
                   3.1261905
## [16] 0.6451613
                   3.1029186
## [17] 0.6333333
                   3.0460317
## [18] 0.6250000
                   3.0059524
```

```
## [19] 0.6086957
                    2.9275362
   [20] 0.6086957
                    2.9275362
   [21] 0.5526316
                    2.6578947
   [22] 0.5526316
                    2.6578947
   [23] 0.5405405
                    2.5997426
##
   [24] 0.5250000
                   2.5250000
   [25] 0.5250000
                    2.5250000
   [26] 0.5128205
                    2.4664225
   [27] 0.5000000
                    2.4047619
   [28] 0.4848485
                    2.3318903
   [29] 0.4722222
                    2.2711640
   [30] 0.444444
                    2.1375661
                    2.0612245
   [31] 0.4285714
   [32] 0.3750000
                    1.8035714
   [33] 0.3720930
                    1.7895903
   [34]
        0.3703704
                    1.7813051
   [35] 0.3703704
                    1.7813051
   [36] 0.3636364
                    1.7489177
                    1.7489177
   [37] 0.3636364
   [38] 0.3617021
                    1.7396150
##
   [39] 0.3518519
                    1.6922399
   [40] 0.3469388
                    1.6686103
   [41] 0.3000000
                    1.4428571
##
   [42] 0.2941176
                    1.4145658
   [43] 0.2876712
                    1.3835616
   [44] 0.2816901
                    1.3547954
   [45] 0.2500000
##
                    1.2023810
##
   [46]
        0.1866667
                    0.8977778
##
        lhs
                                              support
                                                        confidence lift
##
   [1]
                             {breathes=TRUE} 0.1980198 1.0000000
        {type=bird}
                                                                    1.2625000
##
   [2]
        {feathers=TRUE}
                             {breathes=TRUE} 0.1980198 1.0000000
                                                                    1.2625000
##
   [3]
        {airborne=TRUE}
                             {breathes=TRUE} 0.2376238 1.0000000
                                                                    1.2625000
                          =>
##
   [4]
        {milk=TRUE}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                    1.2625000
   [5]
                             {breathes=TRUE} 0.4059406 1.0000000
##
        {type=mammal}
                                                                    1.2625000
   [6]
        {hair=TRUE}
                             {breathes=TRUE} 0.4257426 1.0000000
##
                                                                    1.2625000
##
   [7]
        {aquatic=FALSE}
                             {breathes=TRUE} 0.6336634 0.9846154
                                                                    1.2430769
   [8]
        {eggs=FALSE}
                             {breathes=TRUE} 0.4059406 0.9761905
                                                                    1.2324405
   [9]
        {legs=TRUE}
                             {breathes=TRUE} 0.7227723 0.9358974
##
                                                                    1.1815705
                             {breathes=TRUE} 0.1188119 0.9230769
   [10] {domestic=TRUE}
                                                                    1.1653846
   [11] {predator=FALSE}
                             {breathes=TRUE} 0.4059406 0.9111111
                                                                    1.1502778
   [12] {catsize=TRUE}
                             {breathes=TRUE} 0.3861386 0.8863636
                                                                    1.1190341
                             {breathes=TRUE} 0.3267327 0.8250000
   [13] {toothed=FALSE}
                                                                    1.0415625
   Γ14٦
       {tail=TRUE}
                             {breathes=TRUE} 0.6039604 0.8133333
                                                                    1.0268333
                             {breathes=TRUE} 0.6732673 0.7727273
   Γ15]
       {domestic=FALSE}
                                                                    0.9755682
   [16] {tail=FALSE}
                             {breathes=TRUE} 0.1881188 0.7307692
                                                                    0.9225962
                             {breathes=TRUE} 0.5544554 0.7272727
   [17]
        {airborne=FALSE}
                         =>
                                                                    0.9181818
   [18]
       {catsize=FALSE}
                             {breathes=TRUE} 0.4059406 0.7192982
                                                                    0.9081140
   [19] {predator=TRUE}
                             {breathes=TRUE} 0.3861386 0.6964286
                                                                    0.8792411
   [20] {eggs=TRUE}
                          => {breathes=TRUE} 0.3861386 0.6610169
                                                                    0.8345339
   [21] {milk=FALSE}
                          => {breathes=TRUE} 0.3861386 0.6500000
                                                                    0.8206250
##
   [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
                                                                    0.7715278
##
##
  [1] {hair=FALSE,domestic=FALSE}
                                         => {breathes=FALSE} 0.1980198
## [2] {milk=FALSE,domestic=FALSE}
                                         => {breathes=FALSE} 0.1980198
```

```
## [3] {eggs=TRUE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1881188
  [4] {domestic=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1485149
  [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [7] {toothed=TRUE,domestic=FALSE}
                                       => {breathes=FALSE} 0.1287129
##
       confidence lift
  [1] 0.3703704 1.781305
  [2] 0.3636364
                  1.748918
   [3] 0.3518519
                  1.692240
  [4] 0.3000000
                  1.442857
  [5] 0.2941176
                  1.414566
   [6] 0.2816901
                  1.354795
##
   [7] 0.2500000
                  1.202381
##
       lhs
                                           rhs
                                                            support
## [1] {airborne=FALSE,aquatic=TRUE}
                                        => {breathes=FALSE} 0.1980198
   [2] {milk=FALSE,airborne=FALSE}
                                       => {breathes=FALSE} 0.2079208
  [3] {eggs=TRUE,airborne=FALSE}
                                       => {breathes=FALSE} 0.1980198
  [4] {hair=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
  [5] {airborne=FALSE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1584158
   [6] {airborne=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
  [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
##
       confidence lift
  [1] 0.6451613 3.102919
  [2] 0.5526316 2.657895
  [3] 0.5405405
                  2.599743
  [4] 0.5250000
                  2.525000
  [5] 0.444444
                  2.137566
  [6] 0.3469388
                  1.668610
  [7] 0.2941176
                  1.414566
##
  [8] 0.2876712 1.383562
##
       lhs
                                         rhs
                                                           support
  [1] {legs=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [2] {aquatic=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1485149
   [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
  [4] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [5] {feathers=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
  [6] {hair=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1584158
   [7] {domestic=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1485149
##
##
       confidence lift
  [1] 0.7500000 3.607143
  [2] 0.6521739
                  3.136646
   [3] 0.444444
                  2.137566
  [4] 0.4285714
                  2.061224
  [5] 0.3720930
                  1.789590
  [6] 0.3636364
                  1.748918
##
   [7] 0.3000000
                  1.442857
##
       lhs
                                         rhs
                                                           support
  [1] {predator=TRUE,legs=FALSE}
                                      => {breathes=FALSE} 0.1188119
   [2] {milk=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
##
  [3] {eggs=TRUE,predator=TRUE}
                                      => {breathes=FALSE} 0.1584158
## [4] {hair=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
## [5] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
## [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
```

```
## [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
##
       confidence lift
##
  [1] 0.7058824 3.394958
  [2] 0.5000000
                  2.404762
  [3] 0.4848485
                  2.331890
  [4] 0.4722222
                  2.271164
  [5] 0.4285714
                  2.061224
## [6] 0.3617021
                  1.739615
##
  [7] 0.3469388
                 1.668610
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
  [1] {eggs=TRUE,fins=TRUE}
                                  => {breathes=FALSE} 0.1287129 1.0000000
##
  [2] {eggs=TRUE,legs=FALSE}
                                  => {breathes=FALSE} 0.1485149 0.7894737
  [3] {eggs=TRUE,toothed=TRUE}
                                  => {breathes=FALSE} 0.1287129 0.6500000
                                  => {breathes=FALSE} 0.1881188 0.6333333
  [4] {eggs=TRUE,aquatic=TRUE}
## [5] {eggs=TRUE,airborne=FALSE} => {breathes=FALSE} 0.1980198 0.5405405
  [6] {feathers=FALSE,eggs=TRUE} => {breathes=FALSE} 0.1980198 0.5128205
                                  => {breathes=FALSE} 0.1584158 0.4848485
  [7] {eggs=TRUE,predator=TRUE}
  [8] {hair=FALSE,eggs=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.3703704
   [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
##
       lift.
## [1] 4.809524
## [2] 3.796992
## [3] 3.126190
## [4] 3.046032
## [5] 2.599743
## [6] 2.466422
## [7] 2.331890
  [8] 1.781305
  [9] 1.692240
##
##
       lhs
                                       rhs
                                                        support
                                                                  confidence
## [1] {milk=FALSE,fins=TRUE}
                                   => {breathes=FALSE} 0.1287129 1.0000000
  [2] {milk=FALSE,legs=FALSE}
                                   => {breathes=FALSE} 0.1584158 0.8000000
  [3] {milk=FALSE,aquatic=TRUE}
                                   => {breathes=FALSE} 0.1980198 0.6666667
                                   => {breathes=FALSE} 0.1386139 0.6666667
## [4] {milk=FALSE,toothed=TRUE}
## [5] {milk=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208 0.5526316
## [6] {feathers=FALSE,milk=FALSE} => {breathes=FALSE} 0.2079208 0.5250000
  [7] {milk=FALSE,predator=TRUE}
                                   => {breathes=FALSE} 0.1683168 0.5000000
## [8] {hair=FALSE,milk=FALSE}
                                   => {breathes=FALSE} 0.2079208 0.3750000
  [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
##
       lift.
## [1] 4.809524
## [2] 3.847619
## [3] 3.206349
## [4] 3.206349
## [5] 2.657895
## [6] 2.525000
## [7] 2.404762
## [8] 1.803571
  [9] 1.748918
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
        lhs
                                                         support
                                                                   confidence
## [1]
        {type=fish}
                                         => {legs=FALSE} 0.1287129 1.0000000
## [2]
        {hair=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1485149 1.0000000
## [3]
       {eggs=TRUE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
```

```
[4]
        {milk=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
##
   [5]
        {toothed=TRUE, breathes=FALSE}
                                           {legs=FALSE} 0.1386139 1.0000000
##
   [6]
        {breathes=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1386139 1.0000000
   [7]
        {backbone=TRUE, breathes=FALSE}
##
                                           {legs=FALSE} 0.1386139 1.0000000
##
   [8]
        {fins=TRUE}
                                           {legs=FALSE} 0.1584158 0.9411765
##
   [9]
                                           {legs=FALSE} 0.1782178 0.7826087
        {hair=FALSE,toothed=TRUE}
  Γ107
       {breathes=FALSE}
                                           {legs=FALSE} 0.1584158 0.7619048
  [11]
       {milk=FALSE, toothed=TRUE}
                                           {legs=FALSE} 0.1584158 0.7619048
   [12] {eggs=TRUE,toothed=TRUE}
                                           {legs=FALSE} 0.1485149 0.7500000
##
   [13] {aquatic=TRUE, toothed=TRUE}
                                           {legs=FALSE} 0.1683168 0.7391304
  [14] {aquatic=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.6153846
   [15] {feathers=FALSE, aquatic=TRUE}
                                           {legs=FALSE} 0.1782178 0.6000000
                                         => {legs=FALSE} 0.1782178 0.5806452
   [16] {airborne=FALSE,aquatic=TRUE}
       {hair=FALSE,feathers=FALSE}
                                           {legs=FALSE} 0.2178218 0.5789474
                                           {legs=FALSE} 0.2178218 0.5500000
  [18] {hair=FALSE,airborne=FALSE}
       {hair=FALSE,aquatic=TRUE}
                                           {legs=FALSE} 0.1683168 0.5312500
   Γ197
   [20]
       {milk=FALSE,airborne=FALSE}
                                           {legs=FALSE} 0.1980198 0.5263158
   [21] {eggs=TRUE,airborne=FALSE}
                                           {legs=FALSE} 0.1881188 0.5135135
   [22] {feathers=FALSE,milk=FALSE}
                                           {legs=FALSE} 0.1980198 0.5000000
   [23] {feathers=FALSE,eggs=TRUE}
                                           {legs=FALSE} 0.1881188 0.4871795
##
  [24] {toothed=TRUE,catsize=FALSE}
                                           {legs=FALSE} 0.1188119 0.4615385
  [25] {hair=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1584158 0.4444444
  [26] {airborne=FALSE,catsize=FALSE}
                                           {legs=FALSE} 0.1584158 0.4444444
##
  [27] {hair=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1782178 0.4285714
  [28] {milk=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1386139 0.4117647
  [29] {hair=FALSE,backbone=TRUE}
                                           {legs=FALSE} 0.1782178 0.4090909
   [30] {predator=TRUE, toothed=TRUE}
                                           {legs=FALSE} 0.1485149 0.4054054
##
   [31] {milk=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1584158 0.4000000
       {eggs=TRUE,predator=TRUE}
                                           {legs=FALSE} 0.1287129 0.3939394
       {hair=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.2079208 0.3888889
  [33]
   [34]
       {eggs=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1485149 0.3846154
##
   [35]
       {milk=FALSE,backbone=TRUE}
                                           {legs=FALSE} 0.1584158 0.3809524
       {feathers=FALSE, catsize=FALSE}
                                           {legs=FALSE} 0.1584158 0.3720930
       {feathers=FALSE, predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3617021
   [37]
       {eggs=TRUE,backbone=TRUE}
   [38]
                                           {legs=FALSE} 0.1485149 0.3571429
##
   [39]
       {airborne=FALSE, predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3469388
  [40] {toothed=TRUE,domestic=FALSE}
                                           {legs=FALSE} 0.1782178 0.3461538
  [41] {milk=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.1881188 0.3454545
  [42] {predator=TRUE,tail=TRUE}
##
                                           {legs=FALSE} 0.1386139 0.3333333
  [43] {eggs=TRUE,domestic=FALSE}
                                           {legs=FALSE} 0.1782178 0.3333333
##
  [44] {feathers=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1782178 0.3272727
   [45] {tail=TRUE,catsize=FALSE}
                                           {legs=FALSE} 0.1188119 0.3243243
   [46] {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
  [47] {airborne=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
## [48] {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
  [49]
       {feathers=FALSE,airborne=FALSE} =>
                                           {legs=FALSE} 0.2277228 0.3150685
##
   [50]
       {feathers=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.2178218 0.3098592
   [51] {predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3035714
   [52] {feathers=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3015873
       {backbone=TRUE, catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
##
       {domestic=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1485149 0.3000000
   ſ541
   [55] {tail=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1683168 0.2615385
   [56] {backbone=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.2535211
##
##
        lift
```

- ## [1] 4.391304
- ## [2] 4.391304
- ## [3] 4.391304
- ## [4] 4.391304
- ## [5] 4.391304
- ## [6] 4.391304
- ## [7] 4.391304
- ## [8] 4.132992
- ## [9] 3.436673
- ... [4] 0.1200.0
- ## [10] 3.345756
- ## [11] 3.345756
- ## [12] 3.293478
- ## [13] 3.245747
- ## [14] 2.702341
- ## [15] 2.634783
- ## [16] 2.549790
- ## [17] 2.542334
- ## [18] 2.415217
- ## [19] 2.332880
- ## [20] 2.311213
- ## [21] 2.254994
- ## [22] 2.195652
- ## [23] 2.139353
- ## [24] 2.026756
- ## [25] 1.951691
- ## [26] 1.951691
- ## [27] 1.881988
- ## [28] 1.808184
- ## [29] 1.796443
- ## [30] 1.780259
- ## [31] 1.756522
- ## [32] 1.729908
- ## [33] 1.707729
- ## [34] 1.688963
- ## [35] 1.672878
- ## [36] 1.633974
- ## [37] 1.588344
- ## [38] 1.568323
- ## [39] 1.523514
- ## [40] 1.520067
- ## [41] 1.516996
- ## [42] 1.463768
- ## [43] 1.463768
- ## [44] 1.437154
- ## [45] 1.424207
- ## [46] 1.420716
- ## [47] 1.414149
- ## [48] 1.386728
- ## [49] 1.383562
- ## [50] 1.360686
- ## [51] 1.333075
- ## [52] 1.324362 ## [53] 1.317391
- ## [54] 1.317391

```
[55] 1.148495
##
   [56] 1.113288
##
        lhs
                                         support
                                                    confidence lift
  [1]
                          => {legs=TRUE} 0.1980198 1.0000000
                                                               1.2948718
##
        {type=bird}
##
   [2]
        {feathers=TRUE}
                          => {legs=TRUE} 0.1980198 1.0000000
                                                               1.2948718
##
   [3]
                          => {legs=TRUE} 0.2376238 1.0000000
                                                               1.2948718
        {airborne=TRUE}
##
  [4]
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                               1.2647585
                          => {legs=TRUE} 0.3762376 0.9268293
##
  [5]
        {milk=TRUE}
                                                               1.2001251
##
   [6]
        {type=mammal}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                               1.2001251
##
   [7]
        {domestic=TRUE}
                          => {legs=TRUE} 0.1188119 0.9230769
                                                               1.1952663
  [8]
        {aquatic=FALSE}
                          => {legs=TRUE} 0.5940594 0.9230769
                                                               1.1952663
##
   [9]
        {eggs=FALSE}
                          => {legs=TRUE} 0.3762376 0.9047619
                                                               1.1715507
##
  [10]
       {toothed=FALSE}
                          => {legs=TRUE} 0.3564356 0.9000000
                                                               1.1653846
                         => {legs=TRUE} 0.3861386 0.8666667
       {predator=FALSE}
                                                               1.1222222
  [12] {catsize=TRUE}
                          => {legs=TRUE} 0.3663366 0.8409091
                                                               1.0888695
   [13]
        {tail=FALSE}
                          => {legs=TRUE} 0.2079208 0.8076923
                                                               1.0458580
       {backbone=FALSE} => {legs=TRUE} 0.1386139 0.7777778
  [14]
                                                               1.0071225
                          => {legs=TRUE} 0.5643564 0.7600000
  [15] {tail=TRUE}
                                                               0.9841026
  [16] {catsize=FALSE}
                          => {legs=TRUE} 0.4059406 0.7192982
                                                               0.9313990
   [17] {airborne=FALSE} => {legs=TRUE} 0.5346535 0.7012987
                                                               0.9080919
##
  [18] {toothed=TRUE}
                          => {legs=TRUE} 0.4158416 0.6885246
                                                               0.8915511
  [19] {eggs=TRUE}
                          => {legs=TRUE} 0.3960396 0.6779661
                                                               0.8778792
  [20] {milk=FALSE}
                          => {legs=TRUE} 0.3960396 0.6666667
                                                               0.8632479
##
   [21] {aquatic=TRUE}
                          => {legs=TRUE} 0.1782178 0.5000000
                                                               0.6474359
##
        lhs
                                       rhs
                                                     support
                                                               confidence
  [1]
        {breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
   [2]
        {aquatic=TRUE, tail=TRUE}
##
                                    => {legs=FALSE} 0.1584158 0.6153846
##
   [3]
        {hair=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1782178 0.4285714
##
   [4]
                                    => {legs=FALSE} 0.1584158 0.4000000
        {milk=FALSE,tail=TRUE}
##
  [5]
        {eggs=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1485149 0.3846154
##
   [6]
        {predator=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1386139 0.3333333
##
   [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
##
   [8]
        {tail=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3243243
##
   [9]
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
   [10]
        {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
##
        lift
##
  [1]
        4.391304
##
  [2]
        2.702341
   [3]
##
        1.881988
   [4]
##
        1.756522
   [5]
        1.688963
   [6]
##
        1.463768
##
   [7]
        1.437154
##
   [8]
        1.424207
##
  [9]
        1.386728
  [10] 1.148495
##
##
       lhs
                                          rhs
                                                        support
                                                                  confidence
##
  [1] {toothed=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.4615385
   [2] {airborne=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.4444444
   [3] {feathers=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
   [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
  [5] {backbone=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3000000
  [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
##
       lift
```

```
## [1] 2.026756
  [2] 1.951691
  [3] 1.633974
  [4] 1.424207
##
##
   [5]
      1.317391
##
   [6] 1.317391
##
        lhs
                                                                    confidence
                                            rhs
                                                          support
## [1]
        {airborne=FALSE, aquatic=TRUE}
                                            {legs=FALSE} 0.1782178 0.5806452
##
   [2]
        {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
##
   [3]
        {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
  [4]
        {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
##
   [5]
        {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
                                         => {legs=FALSE} 0.1683168 0.3469388
##
   [6]
        {airborne=FALSE, predator=TRUE}
##
  [7]
        {airborne=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.2178218 0.3235294
  [8]
                                         => {legs=FALSE} 0.1881188 0.3220339
##
        {airborne=FALSE,toothed=TRUE}
##
   [9]
        {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
##
   [10] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
        lift
        2.549790
##
  [1]
##
   [2]
        2.415217
##
   [3]
        2.311213
  [4]
##
        2.254994
  [5]
##
        1.951691
##
   [6]
        1.523514
##
  [7]
        1.420716
  [8]
        1.414149
   [9]
##
        1.386728
##
   [10] 1.383562
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
  [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
##
   [2] {hair=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1782178 0.7826087
##
   [3] {milk=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1584158 0.7619048
  [4] {eggs=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.7500000
  [5] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
   [6] {toothed=TRUE,catsize=FALSE}
                                      => {legs=FALSE} 0.1188119 0.4615385
   [7] {predator=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.4054054
  [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
  [9] {airborne=FALSE,toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
##
       lift
  [1] 4.391304
##
  [2] 3.436673
  [3] 3.345756
##
   [4] 3.293478
##
  [5] 3.245747
  [6] 2.026756
  [7] 1.780259
##
##
  [8] 1.520067
##
  [9] 1.414149
##
       lhs
                                      rhs
                                                    support
                                                              confidence
##
   [1] {eggs=TRUE,fins=TRUE}
                                   => {legs=FALSE} 0.1287129 1.0000000
##
   [2] {eggs=TRUE,toothed=TRUE}
                                   => {legs=FALSE} 0.1485149 0.7500000
  [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
## [4] {feathers=FALSE,eggs=TRUE} => {legs=FALSE} 0.1881188 0.4871795
## [5] {eggs=TRUE,predator=TRUE} => {legs=FALSE} 0.1287129 0.3939394
```

```
## [6] {eggs=TRUE,tail=TRUE}
                                  => {legs=FALSE} 0.1485149 0.3846154
  [7] {eggs=TRUE,backbone=TRUE} => {legs=FALSE} 0.1485149 0.3571429
   [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
       lift.
##
  [1] 4.391304
  [2] 3.293478
##
  [3] 2.254994
  [4] 2.139353
##
  [5] 1.729908
  [6] 1.688963
  [7] 1.568323
##
  [8] 1.463768
##
                                                               confidence
       lhs
                                       rhs
                                                    support
## [1] {milk=FALSE,fins=TRUE}
                                      {legs=FALSE} 0.1287129 1.0000000
## [2] {milk=FALSE,toothed=TRUE}
                                    => {legs=FALSE} 0.1584158 0.7619048
  [3] {milk=FALSE,airborne=FALSE} => {legs=FALSE} 0.1980198 0.5263158
  [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
  [5] {milk=FALSE,predator=TRUE}
                                   => {legs=FALSE} 0.1386139 0.4117647
  [6] {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
  [7] {milk=FALSE,backbone=TRUE}
                                   => {legs=FALSE} 0.1584158 0.3809524
##
   [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
       lift.
## [1] 4.391304
##
  [2] 3.345756
## [3] 2.311213
  [4] 2.195652
  [5] 1.808184
   [6] 1.756522
## [7] 1.672878
## [8] 1.516996
##
       lhs
                                                      support
                                                                 confidence
##
  [1] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
  [2] {aquatic=TRUE,tail=TRUE}
                                      => {legs=FALSE} 0.1584158 0.6153846
  [3] {feathers=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.6000000
   [4] {airborne=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.5806452
##
   [5] {hair=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1683168 0.5312500
##
       lift
## [1] 3.245747
  [2] 2.702341
  [3] 2.634783
##
  [4] 2.549790
   [5] 2.332880
       "Número de reglas con consecuente negado"
##
   Г17
##
        lhs
                                            rhs
                                                         support
                                                                    confidence
## [1]
        {type=fish}
                                         => {hair=FALSE} 0.1287129 1.0000000
  [2]
##
        {breathes=FALSE}
                                         => {hair=FALSE} 0.2079208 1.0000000
##
  [3]
        {eggs=TRUE,fins=TRUE}
                                           {hair=FALSE} 0.1287129 1.0000000
##
  [4]
        {milk=FALSE,fins=TRUE}
                                           {hair=FALSE} 0.1287129 1.0000000
##
  [5]
        {airborne=FALSE,backbone=FALSE} => {hair=FALSE} 0.1188119 1.0000000
##
   [6]
        {legs=FALSE,catsize=FALSE}
                                           {hair=FALSE} 0.1584158 1.0000000
##
   [7]
        {eggs=TRUE,legs=FALSE}
                                           {hair=FALSE} 0.1881188 1.0000000
## [8]
        {milk=FALSE,legs=FALSE}
                                         => {hair=FALSE} 0.1980198 1.0000000
                                         => {hair=FALSE} 0.2277228 1.0000000
        {aquatic=TRUE,catsize=FALSE}
## [9]
## [10] {milk=FALSE,aquatic=TRUE}
                                         => {hair=FALSE} 0.2970297 1.0000000
```

```
## [11] {milk=FALSE,catsize=TRUE}
                                         => {hair=FALSE} 0.1188119 1.0000000
                                           {hair=FALSE} 0.3366337 1.0000000
  [12] {milk=FALSE,predator=TRUE}
  [13] {eggs=TRUE,toothed=TRUE}
                                            {hair=FALSE} 0.1980198 1.0000000
  [14] {milk=FALSE,toothed=TRUE}
                                            {hair=FALSE} 0.2079208 1.0000000
  [15] {milk=FALSE,tail=TRUE}
                                            {hair=FALSE} 0.3960396 1.0000000
                                            {hair=FALSE} 0.3762376 1.0000000
  [16] {milk=FALSE,airborne=FALSE}
  [17] {milk=FALSE,backbone=TRUE}
                                            {hair=FALSE} 0.4158416 1.0000000
## [18] {eggs=TRUE,backbone=TRUE}
                                            {hair=FALSE} 0.4059406 0.9761905
##
  [19] {eggs=TRUE,tail=TRUE}
                                            {hair=FALSE} 0.3762376 0.9743590
  [20] {eggs=TRUE,airborne=FALSE}
                                            {hair=FALSE} 0.3564356 0.9729730
  [21] {eggs=TRUE,predator=TRUE}
                                           {hair=FALSE} 0.3168317 0.9696970
  [22] {eggs=TRUE,aquatic=TRUE}
                                           {hair=FALSE} 0.2871287 0.9666667
  [23] {milk=FALSE, venomous=FALSE}
                                            {hair=FALSE} 0.4950495 0.9615385
## [24] {legs=FALSE}
                                           {hair=FALSE} 0.2178218 0.9565217
                                         => {hair=FALSE} 0.2178218 0.9565217
## [25] {toothed=FALSE,tail=TRUE}
  [26] {toothed=FALSE,backbone=TRUE}
                                            {hair=FALSE} 0.2079208 0.9545455
  [27] {predator=TRUE, toothed=FALSE}
                                           {hair=FALSE} 0.1782178 0.9473684
  [28] {milk=FALSE,domestic=FALSE}
                                           {hair=FALSE} 0.5148515 0.9454545
  [29] {airborne=FALSE,toothed=FALSE}
                                           {hair=FALSE} 0.1683168 0.9444444
  [30] {predator=TRUE, catsize=FALSE}
                                            {hair=FALSE} 0.2574257 0.9285714
##
  [31] {eggs=TRUE,domestic=FALSE}
                                            {hair=FALSE} 0.4950495 0.9259259
  [32] {aquatic=TRUE, toothed=FALSE}
                                            {hair=FALSE} 0.1188119 0.9230769
                                            {hair=FALSE} 0.1188119 0.9230769
  [33] {eggs=TRUE,catsize=TRUE}
  [34] {aquatic=TRUE,fins=FALSE}
##
                                            {hair=FALSE} 0.1683168 0.8947368
  [35] {aquatic=TRUE}
                                           {hair=FALSE} 0.3168317 0.8888889
  [36] {airborne=TRUE,backbone=TRUE}
                                           {hair=FALSE} 0.1584158 0.8888889
   [37] {toothed=FALSE,domestic=FALSE}
                                           {hair=FALSE} 0.3168317 0.8888889
  [38] {toothed=FALSE}
                                            {hair=FALSE} 0.3465347 0.8750000
  [39] {backbone=FALSE, venomous=FALSE}
                                           {hair=FALSE} 0.1188119 0.8571429
  [40] {airborne=FALSE, catsize=FALSE}
                                            {hair=FALSE} 0.2871287 0.8055556
  [41]
       {domestic=FALSE, catsize=FALSE}
                                            {hair=FALSE} 0.3960396 0.8000000
  [42]
       {tail=TRUE,catsize=FALSE}
                                           {hair=FALSE} 0.2871287 0.7837838
  [43]
       {venomous=FALSE,catsize=FALSE}
                                         => {hair=FALSE} 0.3861386 0.7800000
                                         => {hair=FALSE} 0.1386139 0.7777778
  [44] {backbone=FALSE}
   [45]
        {backbone=TRUE, catsize=FALSE}
                                            {hair=FALSE} 0.3069307 0.7750000
                                           {hair=FALSE} 0.4356436 0.7719298
##
  [46] {catsize=FALSE}
## [47] {airborne=TRUE}
                                            {hair=FALSE} 0.1782178 0.7500000
## [48] {tail=FALSE,domestic=FALSE}
                                           {hair=FALSE} 0.1584158 0.6956522
       {predator=TRUE}
                                            {hair=FALSE} 0.3564356 0.6428571
  [49]
  [50] {venomous=FALSE,tail=FALSE}
                                           {hair=FALSE} 0.1386139 0.6363636
  [51] {tail=FALSE}
                                           {hair=FALSE} 0.1584158 0.6153846
                                           {hair=FALSE} 0.4356436 0.5301205
  [52] {backbone=TRUE}
##
   [53] {breathes=TRUE}
                                         => {hair=FALSE} 0.3663366 0.4625000
                                         => {hair=FALSE} 0.3564356 0.4615385
##
   [54] {legs=TRUE}
##
   [55] {aquatic=FALSE}
                                         => {hair=FALSE} 0.2574257 0.4000000
##
        lift
##
  [1]
        1.7413793
   [2]
##
        1.7413793
##
   [3]
        1.7413793
##
   [4]
        1.7413793
   [5]
##
        1.7413793
##
  [6]
        1.7413793
## [7]
        1.7413793
## [8]
        1.7413793
```

```
## [9] 1.7413793
  [10] 1.7413793
  [11] 1.7413793
  [12] 1.7413793
  [13] 1.7413793
  [14] 1.7413793
  [15] 1.7413793
## [16] 1.7413793
   [17] 1.7413793
  [18] 1.6999179
  [19] 1.6967286
  [20] 1.6943150
  [21] 1.6886102
  [22] 1.6833333
  [23] 1.6744032
   [24] 1.6656672
   [25] 1.6656672
   [26] 1.6622257
  [27] 1.6497278
   [28] 1.6463950
##
  [29] 1.6446360
  [30] 1.6169951
  [31] 1.6123883
   [32] 1.6074271
  [33] 1.6074271
  [34] 1.5580762
   [35] 1.5478927
   [36] 1.5478927
  [37] 1.5478927
  [38] 1.5237069
   [39] 1.4926108
   [40] 1.4027778
  [41] 1.3931034
  [42] 1.3648649
   [43] 1.3582759
  [44] 1.3544061
##
  [45] 1.3495690
## [46] 1.3442226
  [47] 1.3060345
  [48] 1.2113943
  [49] 1.1194581
  [50] 1.1081505
   [51] 1.0716180
   [52] 0.9231408
  [53] 0.8053879
  [54] 0.8037135
##
   [55] 0.6965517
##
       lhs
                           rhs
                                        support
                                                  confidence lift
  [1] {milk=TRUE}
                        => {hair=TRUE} 0.3861386 0.9512195 2.2342598
   [2] {type=mammal}
                        => {hair=TRUE} 0.3861386 0.9512195
                                                             2.2342598
                        => {hair=TRUE} 0.3762376 0.9047619
##
  [3] {eggs=FALSE}
                                                             2.1251384
## [4] {toothed=TRUE}
                        => {hair=TRUE} 0.3762376 0.6229508
## [5] {predator=FALSE} => {hair=TRUE} 0.2277228 0.5111111
                                                             1.2005168
## [6] {backbone=TRUE} => {hair=TRUE} 0.3861386 0.4698795 1.1036705
```

```
## [7] {domestic=FALSE} => {hair=TRUE} 0.3366337 0.3863636
                                                             0.9075053
##
       lhs
                                    rhs
                                                  support
                                                            confidence
  [1] {eggs=TRUE,toothed=TRUE} => {hair=FALSE} 0.1980198 1
   [2] {milk=FALSE,toothed=TRUE} => {hair=FALSE} 0.2079208 1
       lift.
## [1] 1.741379
##
  [2] 1.741379
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
## [1] {milk=FALSE,backbone=TRUE}
                                      => {hair=FALSE} 0.4158416 1.0000000
   [2] {eggs=TRUE,backbone=TRUE}
                                      => {hair=FALSE} 0.4059406 0.9761905
  [3] {toothed=FALSE,backbone=TRUE} => {hair=FALSE} 0.2079208 0.9545455
   [4] {airborne=TRUE,backbone=TRUE} => {hair=FALSE} 0.1584158 0.8888889
   [5] {backbone=TRUE,catsize=FALSE} => {hair=FALSE} 0.3069307 0.7750000
##
       lift
## [1] 1.741379
## [2] 1.699918
  [3] 1.662226
  [4] 1.547893
  [5] 1.349569
##
##
       lhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,domestic=FALSE}
                                       => {hair=FALSE} 0.5148515 0.9454545
## [2] {eggs=TRUE,domestic=FALSE}
                                       => {hair=FALSE} 0.4950495 0.9259259
## [3] {toothed=FALSE,domestic=FALSE} => {hair=FALSE} 0.3168317 0.8888889
  [4] {domestic=FALSE, catsize=FALSE} => {hair=FALSE} 0.3960396 0.8000000
##
  [5] {tail=FALSE,domestic=FALSE}
                                       => {hair=FALSE} 0.1584158 0.6956522
       lift
## [1] 1.646395
##
  [2] 1.612388
## [3] 1.547893
## [4] 1.393103
##
  [5] 1.211394
##
   [1] "Número de reglas con consecuente negado"
##
                                                            support
##
  [1]
                                           {airborne=TRUE} 0.1287129
        {catsize=FALSE, type=bird}
   [2]
        {feathers=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.1287129
##
  [3]
        {type=bird}
##
                                         => {airborne=TRUE} 0.1584158
## [4]
        {feathers=TRUE}
                                         => {airborne=TRUE} 0.1584158
## [5]
        {toothed=FALSE,backbone=TRUE}
                                         => {airborne=TRUE} 0.1584158
        {predator=FALSE, toothed=FALSE}
                                            {airborne=TRUE} 0.1485149
  [6]
## [7]
        {toothed=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1584158
  [8]
        {toothed=FALSE, breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
  [9]
        {aquatic=FALSE, toothed=FALSE}
                                         => {airborne=TRUE} 0.1683168
## [10] {toothed=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
## [11] {toothed=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [12] {eggs=TRUE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1683168
## [13] {eggs=TRUE,predator=FALSE}
                                         => {airborne=TRUE} 0.1485149
## [14] {milk=FALSE,predator=FALSE}
                                         => {airborne=TRUE} 0.1485149
## [15] {milk=FALSE,aquatic=FALSE}
                                         => {airborne=TRUE} 0.1683168
                                         => {airborne=TRUE} 0.2178218
## [16] {eggs=TRUE,breathes=TRUE}
## [17] {milk=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [18] {toothed=FALSE, venomous=FALSE}
                                         => {airborne=TRUE} 0.1980198
## [19] {toothed=FALSE}
                                         => {airborne=TRUE} 0.2178218
## [20] {eggs=TRUE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
## [21] {milk=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
```

```
## [22] {predator=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1485149
  [23] {legs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
  [24] {breathes=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
  [25] {hair=FALSE,predator=FALSE}
                                            {airborne=TRUE} 0.1089109
##
   [26] {aquatic=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1683168
   [27]
       {hair=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1287129
##
  Г287
       {hair=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1782178
  [29] {hair=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1782178
##
   [30] {eggs=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2178218
   [31] {milk=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.2178218
   [32] {fins=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
   [33]
       {predator=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1683168
##
   [34]
       {hair=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1782178
       {predator=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1683168
                                            {airborne=TRUE} 0.1683168
  [36] {predator=FALSE,fins=FALSE}
   [37]
        {eggs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
   [38]
        {eggs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
   [39] {tail=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
  [40] {milk=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
   [41] {milk=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
##
  [42] {milk=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [43] {predator=FALSE,domestic=FALSE}
                                            {airborne=TRUE} 0.1287129
  [44] {hair=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
       {eggs=TRUE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
   [45]
  [46]
       {milk=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [47]
       {venomous=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
   [48] {eggs=TRUE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
   [49] {backbone=TRUE, catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
  [50] {hair=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1782178
   [51] {breathes=TRUE,legs=TRUE}
                                         => {airborne=TRUE} 0.2376238
   [52]
        {aquatic=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1881188
##
   [53]
       {legs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1782178
       {breathes=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2376238
   [55] {fins=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2376238
   [56]
       {fins=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1782178
##
   [57]
       {aquatic=FALSE}
                                         => {airborne=TRUE} 0.1881188
##
       {venomous=FALSE}
                                         => {airborne=TRUE} 0.2178218
##
        confidence lift
        0.9285714
                   3.9077381
##
   [1]
   [2]
##
        0.9285714
                   3.9077381
   [3]
        0.8000000
                   3.3666667
   [4]
        0.8000000
##
                   3.3666667
##
   [5]
        0.7272727
                   3.0606061
##
   [6]
        0.7142857
                   3.0059524
##
  [7]
        0.6956522
                   2.9275362
   [8]
##
        0.6666667
                   2.8055556
##
   [9]
        0.6296296
                   2.6496914
   [10] 0.6129032
                   2.5793011
   [11] 0.6111111
                   2.5717593
   [12]
        0.5862069
                   2.4669540
##
  [13] 0.5769231
                   2.4278846
## [14] 0.5769231
                   2.4278846
## [15] 0.5666667
                   2.3847222
## [16] 0.5641026
                   2.3739316
```

```
## [17] 0.5641026
                   2.3739316
   [18] 0.5555556
                   2.3379630
   [19] 0.5500000
                    2.3145833
   [20] 0.5500000
                    2.3145833
   [21] 0.5500000
                    2.3145833
   [22] 0.5172414
                    2.1767241
   [23] 0.5121951
                    2.1554878
   [24] 0.5121951
                    2.1554878
   [25] 0.5000000
                    2.1041667
   [26] 0.5000000
                    2.1041667
   [27] 0.5000000
                    2.1041667
   [28] 0.5000000
                    2.1041667
##
   [29] 0.4864865
                    2.0472973
   [30] 0.4782609
                    2.0126812
   [31] 0.4680851
                    1.9698582
   [32] 0.4375000
                    1.8411458
   [33] 0.4358974
                    1.8344017
   [34] 0.4186047
                    1.7616279
   [35] 0.4146341
                    1.7449187
   [36] 0.4146341
                    1.7449187
##
   [37] 0.4130435
                    1.7382246
   [38] 0.4102564
                    1.7264957
   [39] 0.4054054
                    1.7060811
   [40] 0.4000000
##
                    1.6833333
   [41] 0.3958333
                    1.6657986
   [42] 0.3846154
                    1.6185897
   [43] 0.3823529
                    1.6090686
##
   [44] 0.3809524
                    1.6031746
   [45] 0.3809524
                    1.6031746
   [46] 0.3809524
                    1.6031746
   [47] 0.3800000
                    1.5991667
##
   [48] 0.3773585
                    1.5880503
   [49] 0.3750000
                    1.5781250
   [50] 0.3461538
                    1.4567308
   [51] 0.3287671
                    1.3835616
##
   [52] 0.3166667
                    1.3326389
   [53] 0.3157895
                    1.3289474
##
   [54] 0.3157895
                    1.3289474
##
   [55]
        0.3116883
                    1.3116883
##
   [56] 0.3050847
                    1.2838983
   [57]
       0.2923077
                    1.2301282
   [58]
        0.2365591
                    0.9955197
##
##
        lhs
                             rhs
                                               support
                                                          confidence lift
##
   [1]
                             {airborne=FALSE} 0.1287129 1.0000000 1.3116883
        {type=fish}
   [2]
##
        {fins=TRUE}
                             {airborne=FALSE} 0.1683168 1.0000000
                                                                     1.3116883
   [3]
##
        {breathes=FALSE} =>
                             {airborne=FALSE} 0.2079208 1.0000000
                                                                     1.3116883
                                                                     1.3116883
##
   [4]
        {legs=FALSE}
                             {airborne=FALSE} 0.2277228 1.0000000
##
   [5]
        {toothed=TRUE}
                             {airborne=FALSE} 0.5841584 0.9672131
                                                                      1.2686821
##
   [6]
        {eggs=FALSE}
                             {airborne=FALSE} 0.3960396 0.9523810
                                                                      1.2492270
##
   [7]
        {milk=TRUE}
                             {airborne=FALSE} 0.3861386 0.9512195
                                                                      1.2477035
##
   [8]
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                      1.2477035
        {type=mammal}
   [9]
        {catsize=TRUE}
                             {airborne=FALSE} 0.4059406 0.9318182
                             {airborne=FALSE} 0.4851485 0.8750000
  [10] {predator=TRUE}
                                                                      1.1477273
## [11] {aquatic=TRUE}
                          => {airborne=FALSE} 0.3069307 0.8611111
```

```
## [12] {hair=TRUE}
                         => {airborne=FALSE} 0.3663366 0.8604651 1.1286620
                         => {airborne=FALSE} 0.6435644 0.7831325 1.0272258
## [13] {backbone=TRUE}
## [14] {tail=FALSE}
                         => {airborne=FALSE} 0.1980198 0.7692308 1.0089910
                         => {airborne=FALSE} 0.5643564 0.7600000
## [15] {tail=TRUE}
                                                                  0.9968831
## [16] {aquatic=FALSE}
                         => {airborne=FALSE} 0.4554455 0.7076923
                                                                  0.9282717
                         => {airborne=FALSE} 0.3960396 0.6896552 0.9046126
## [17] {hair=FALSE}
## [18] {backbone=FALSE} => {airborne=FALSE} 0.1188119 0.6666667
                                                                   0.8744589
## [19] {milk=FALSE}
                         => {airborne=FALSE} 0.3762376 0.6333333 0.8307359
## [20] {eggs=TRUE}
                         => {airborne=FALSE} 0.3663366 0.6271186
                                                                   0.8225842
## [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.6222222
                                                                   0.8161616
  [22] {toothed=FALSE} => {airborne=FALSE} 0.1782178 0.4500000
                                                                   0.5902597
##
       lhs
                                        rhs
                                                         support
                                                                   confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
## [2] {eggs=TRUE,backbone=TRUE}
                                     => {airborne=TRUE} 0.1584158 0.3809524
## [3] {milk=FALSE,backbone=TRUE}
                                     => {airborne=TRUE} 0.1584158 0.3809524
## [4] {backbone=TRUE, catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift
## [1] 3.060606
## [2] 1.603175
## [3] 1.603175
## [4] 1.578125
##
                                    rhs
                                                    support
                                                               confidence
## [1] {toothed=FALSE,tail=TRUE} => {airborne=TRUE} 0.1584158 0.6956522
## [2] {eggs=TRUE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4102564
## [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4000000
## [5] {hair=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.3809524
                                 => {airborne=TRUE} 0.1782178 0.3157895
## [6] {legs=TRUE,tail=TRUE}
## [7] {fins=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1782178 0.3050847
##
       lift
## [1] 2.927536
## [2] 1.726496
## [3] 1.706081
## [4] 1.683333
## [5] 1.603175
## [6] 1.328947
## [7] 1.283898
##
       lhs
                                        rhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
## [2] {eggs=TRUE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5862069
## [3] {milk=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5666667
  [4] {aquatic=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
## [5] {hair=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1287129 0.5000000
                                     => {airborne=TRUE} 0.1881188 0.3166667
  [6] {aquatic=FALSE,legs=TRUE}
##
##
       lift
## [1] 2.649691
## [2] 2.466954
## [3] 2.384722
## [4] 2.104167
## [5] 2.104167
## [6] 1.332639
##
                                      rhs
                                                      support
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
## [2] {hair=FALSE,aquatic=FALSE} => {airborne=TRUE} 0.1287129 0.5000000
```

```
## [3] {hair=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.5000000
## [4] {hair=FALSE,breathes=TRUE} => {airborne=TRUE} 0.1782178 0.4864865
## [5] {hair=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.1782178 0.4186047
## [6] {hair=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.3809524
##
  [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
##
       lift
## [1] 2.104167
## [2] 2.104167
## [3] 2.104167
## [4] 2.047297
## [5] 1.761628
## [6] 1.603175
##
  [7] 1.456731
##
       lhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
## [2] {milk=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1683168 0.5666667
## [3] {milk=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5641026
## [4] {milk=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5500000
                                   => {airborne=TRUE} 0.2178218 0.4680851
## [5] {milk=FALSE,fins=FALSE}
## [6] {milk=FALSE,tail=TRUE}
                                    => {airborne=TRUE} 0.1584158 0.4000000
## [7] {milk=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1881188 0.3958333
## [8] {milk=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
## [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
       lift.
## [1] 2.427885
## [2] 2.384722
## [3] 2.373932
## [4] 2.314583
## [5] 1.969858
## [6] 1.683333
## [7] 1.665799
## [8] 1.618590
## [9] 1.603175
##
       lhs
                                     rhs
                                                      support
                                                                confidence
## [1] {eggs=TRUE,aquatic=FALSE}
                                  => {airborne=TRUE} 0.1683168 0.5862069
## [2] {eggs=TRUE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
## [3] {eggs=TRUE,breathes=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5641026
                                  => {airborne=TRUE} 0.2178218 0.5500000
## [4] {eggs=TRUE,legs=TRUE}
## [5] {eggs=TRUE,fins=FALSE}
                                  => {airborne=TRUE} 0.2178218 0.4782609
                                  => {airborne=TRUE} 0.1881188 0.4130435
## [6] {eggs=TRUE,catsize=FALSE}
## [7] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
  [8] {eggs=TRUE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
  [9] {eggs=TRUE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
       lift
## [1] 2.466954
## [2] 2.427885
## [3] 2.373932
## [4] 2.314583
## [5] 2.012681
## [6] 1.738225
## [7] 1.726496
## [8] 1.603175
## [9] 1.588050
##
                                                           support
       lhs
                                           rhs
```

```
## [1] {predator=FALSE,toothed=FALSE}
                                        => {airborne=TRUE} 0.1485149
## [2] {eggs=TRUE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
## [3] {milk=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
## [4] {predator=FALSE,catsize=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [5] {hair=FALSE, predator=FALSE}
                                        => {airborne=TRUE} 0.1089109
  [6] {predator=FALSE,legs=TRUE}
                                        => {airborne=TRUE} 0.1683168
  [7] {predator=FALSE,breathes=TRUE}
                                        => {airborne=TRUE} 0.1683168
  [8] {predator=FALSE,fins=FALSE}
                                        => {airborne=TRUE} 0.1683168
##
   [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
##
       confidence lift
  [1] 0.7142857
                  3.005952
  [2] 0.5769231
                  2.427885
  [3] 0.5769231
                  2.427885
                  2.176724
## [4] 0.5172414
## [5] 0.5000000
                  2.104167
  [6] 0.4358974
                  1.834402
  [7] 0.4146341
                  1.744919
  [8] 0.4146341
                  1.744919
  [9] 0.3823529
##
                  1.609069
##
                                                          support
                                                                     confidence
## [1] {toothed=FALSE,backbone=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.7272727
  [2] {predator=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1485149 0.7142857
                                       => {airborne=TRUE} 0.1584158 0.6956522
## [3] {toothed=FALSE,tail=TRUE}
## [4] {toothed=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6666667
  [5] {aquatic=FALSE, toothed=FALSE}
                                       => {airborne=TRUE} 0.1683168 0.6296296
  [6] {toothed=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1881188 0.6129032
   [7] {toothed=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6111111
##
   [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
       lift
## [1] 3.060606
## [2] 3.005952
  [3] 2.927536
  [4] 2.805556
  [5] 2.649691
   [6] 2.579301
##
  [7] 2.571759
  [8] 2.337963
##
  [1] "Número de reglas con consecuente negado"
##
        lhs
                                           rhs
                                                             support
##
  [1]
        {domestic=TRUE}
                                        => {predator=FALSE} 0.1089109
        {hair=TRUE,catsize=FALSE}
  [2]
                                        => {predator=FALSE} 0.1089109
  [3]
        {airborne=TRUE, aquatic=FALSE}
##
                                        => {predator=FALSE} 0.1485149
##
   [4]
        {airborne=TRUE}
                                        => {predator=FALSE} 0.1683168
##
  [5]
        {aquatic=FALSE, toothed=FALSE}
                                        => {predator=FALSE} 0.1881188
  [6]
        {aquatic=FALSE,tail=FALSE}
                                        => {predator=FALSE} 0.1089109
## [7]
        {aquatic=FALSE, catsize=FALSE}
                                        => {predator=FALSE} 0.2277228
##
  [8]
        {eggs=TRUE,aquatic=FALSE}
                                        => {predator=FALSE} 0.1881188
  [9]
        {toothed=FALSE, breathes=TRUE}
                                        => {predator=FALSE} 0.2079208
  [10] {milk=FALSE,aquatic=FALSE}
                                        => {predator=FALSE} 0.1881188
  [11] {breathes=TRUE,tail=FALSE}
                                        => {predator=FALSE} 0.1188119
## [12]
       {breathes=TRUE,catsize=FALSE}
                                        => {predator=FALSE} 0.2475248
## [13] {aquatic=FALSE, venomous=FALSE}
                                        => {predator=FALSE} 0.3564356
## [14] {eggs=TRUE,breathes=TRUE}
                                        => {predator=FALSE} 0.2178218
## [15] {milk=FALSE,breathes=TRUE}
                                        => {predator=FALSE} 0.2178218
```

```
## [16] {legs=TRUE,catsize=FALSE}
                                        => {predator=FALSE} 0.2277228
   [17] {type=bird}
                                         => {predator=FALSE} 0.1089109
   [18] {feathers=TRUE}
                                         => {predator=FALSE} 0.1089109
   [19] {toothed=FALSE,backbone=TRUE}
                                        => {predator=FALSE} 0.1188119
   [20] {venomous=FALSE, catsize=FALSE} => {predator=FALSE} 0.2673267
   [21] {toothed=FALSE, venomous=FALSE} => {predator=FALSE} 0.1881188
   [22] {toothed=FALSE}
                                         => {predator=FALSE} 0.2079208
  [23] {fins=FALSE,catsize=FALSE}
                                        => {predator=FALSE} 0.2475248
   [24]
       {breathes=TRUE, venomous=FALSE} => {predator=FALSE} 0.3861386
   [25] {catsize=FALSE}
                                         => {predator=FALSE} 0.2871287
   [26] {legs=TRUE,tail=TRUE}
                                         => {predator=FALSE} 0.2871287
   [27] {venomous=FALSE,fins=FALSE}
                                        => {predator=FALSE} 0.3861386
   [28] {fins=FALSE,tail=TRUE}
                                        => {predator=FALSE} 0.2871287
   [29] {milk=TRUE}
                                        => {predator=FALSE} 0.1881188
   [30] {type=mammal}
                                        => {predator=FALSE} 0.1881188
   [31]
        {tail=FALSE}
                                           {predator=FALSE} 0.1188119
##
   [32]
       {eggs=FALSE}
                                        => {predator=FALSE} 0.1881188
   [33] {eggs=TRUE}
                                        => {predator=FALSE} 0.2574257
   [34] {milk=FALSE}
                                        => {predator=FALSE} 0.2574257
   [35] {domestic=FALSE}
                                         => {predator=FALSE} 0.3366337
##
   [36] {hair=FALSE}
                                        => {predator=FALSE} 0.2178218
                                        => {predator=FALSE} 0.1584158
   [37] {catsize=TRUE}
##
        confidence lift
##
   [1]
        0.8461538
                   1.8991453
   [2]
                   1.8991453
        0.8461538
   [3]
        0.7894737
                   1.7719298
   [4]
##
        0.7083333
                   1.5898148
##
   [5]
        0.7037037
                   1.5794239
   [6]
##
        0.6875000
                   1.5430556
                   1.5183007
   [7]
        0.6764706
##
   [8]
        0.6551724
                   1.4704981
##
   [9]
        0.6363636
                   1.4282828
                   1.4214815
   [10] 0.6333333
   [11] 0.6315789
                   1.4175439
   [12] 0.6097561
                   1.3685637
   [13] 0.5901639
                   1.3245902
   [14] 0.5641026
                   1.2660969
   [15] 0.5641026
                   1.2660969
   [16] 0.5609756
                   1.2590786
   [17] 0.5500000
                   1.2344444
   [18] 0.5500000
                   1.2344444
   [19] 0.5454545
                   1.2242424
   [20] 0.5400000
                   1.2120000
   [21] 0.5277778
                   1.1845679
   [22] 0.5250000
                   1.1783333
   [23] 0.5208333
                   1.1689815
   [24] 0.5200000
                   1.1671111
   [25] 0.5087719
                   1.1419103
   [26] 0.5087719
                   1.1419103
   [27]
        0.5064935
                   1.1367965
##
   [28] 0.4915254
                   1.1032015
## [29] 0.4634146
                   1.0401084
## [30] 0.4634146
                   1.0401084
## [31] 0.4615385
                   1.0358974
```

```
## [32] 0.4523810 1.0153439
  [33] 0.4406780
                   0.9890772
  [34] 0.4333333
                   0.9725926
  [35] 0.3863636
                   0.8671717
   [36] 0.3793103
                   0.8513410
   [37] 0.3636364
                   0.8161616
##
##
       lhs
                                                      confidence lift
                           rhs
                                            support
## [1] {breathes=FALSE} => {predator=TRUE} 0.1683168 0.8095238
                                                                  1.4600340
   [2] {aquatic=TRUE}
                        => {predator=TRUE} 0.2871287 0.8055556
                                                                  1.4528770
  [3] {fins=TRUE}
                        => {predator=TRUE} 0.1287129 0.7647059
## [4] {catsize=TRUE}
                         => {predator=TRUE} 0.2772277 0.6363636
                                                                  1.1477273
  [5] {backbone=TRUE}
                        => {predator=TRUE} 0.4653465 0.5662651
  [6] {eggs=FALSE}
                        => {predator=TRUE} 0.2277228 0.5476190
                                                                  0.9876701
  [7] {legs=TRUE}
                        => {predator=TRUE} 0.3861386 0.5000000
                        => {predator=TRUE} 0.1980198 0.4651163
## [8] {hair=TRUE}
                                                                  0.8388704
   [9] {aquatic=FALSE}
                        => {predator=TRUE} 0.2673267 0.4153846
                                                                  0.7491758
##
                                         rhs
                                                           support
                                                                     confidence
   [1] {toothed=FALSE,backbone=TRUE} => {predator=FALSE} 0.1188119 0.5454545
##
##
       lift
##
  [1] 1.224242
##
       lhs
                                     rhs
                                                                 confidence
                                                      support
  [1] {legs=TRUE,catsize=FALSE} => {predator=FALSE} 0.2277228 0.5609756
                                  => {predator=FALSE} 0.2871287 0.5087719
   [2] {legs=TRUE,tail=TRUE}
##
       lift
##
  [1] 1.259079
   [2] 1.141910
##
       lhs
                                     rhs
                                                      support
                                                                 confidence
   [1] {hair=TRUE,catsize=FALSE} => {predator=FALSE} 0.1089109 0.8461538
##
##
       lift
##
  [1] 1.899145
##
       lhs
                                          rhs
                                                            support
##
  [1] {airborne=TRUE, aquatic=FALSE}
                                       => {predator=FALSE} 0.1485149
  [2] {aquatic=FALSE,toothed=FALSE}
                                       => {predator=FALSE} 0.1881188
  [3] {aquatic=FALSE,tail=FALSE}
                                       => {predator=FALSE} 0.1089109
   [4] {aquatic=FALSE, catsize=FALSE}
                                       => {predator=FALSE} 0.2277228
  [5] {eggs=TRUE,aquatic=FALSE}
                                       => {predator=FALSE} 0.1881188
## [6] {milk=FALSE,aquatic=FALSE}
                                       => {predator=FALSE} 0.1881188
  [7] {aquatic=FALSE, venomous=FALSE} => {predator=FALSE} 0.3564356
##
       confidence lift
##
  [1] 0.7894737 1.771930
  [2] 0.7037037
                 1.579424
  [3] 0.6875000
                 1.543056
  [4] 0.6764706
                  1.518301
## [5] 0.6551724
                  1.470498
## [6] 0.6333333
                  1.421481
       0.5901639 1.324590
## [7]
##
  [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                                             support
                                         => {breathes=TRUE} 0.1980198
## [1]
        {type=bird}
##
  [2]
        {feathers=TRUE}
                                           {breathes=TRUE} 0.1980198
## [3]
                                         => {breathes=TRUE} 0.2376238
        {airborne=TRUE}
## [4]
        {milk=TRUE}
                                         => {breathes=TRUE} 0.4059406
## [5]
        {type=mammal}
                                         => {breathes=TRUE} 0.4059406
## [6]
        {hair=TRUE}
                                            {breathes=TRUE} 0.4257426
```

```
{fins=FALSE,domestic=TRUE}
                                          => {breathes=TRUE} 0.1188119
   [8]
        {toothed=FALSE,tail=TRUE}
                                            {breathes=TRUE} 0.2277228
   [9]
        {toothed=FALSE,backbone=TRUE}
                                             {breathes=TRUE} 0.2178218
   [10] {eggs=FALSE,predator=FALSE}
                                             {breathes=TRUE} 0.1881188
##
   [11] {eggs=FALSE,legs=TRUE}
                                             {breathes=TRUE} 0.3762376
   [12] {predator=FALSE, catsize=TRUE}
                                             {breathes=TRUE} 0.1584158
##
   [13] {aquatic=FALSE, catsize=TRUE}
                                             {breathes=TRUE} 0.3069307
   [14] {predator=FALSE,legs=TRUE}
                                             {breathes=TRUE} 0.3861386
   [15] {predator=FALSE,fins=FALSE}
                                             {breathes=TRUE} 0.4059406
   [16] {aquatic=FALSE, toothed=TRUE}
                                             {breathes=TRUE} 0.3762376
   [17] {toothed=TRUE,legs=TRUE}
                                            {breathes=TRUE} 0.4158416
   [18] {aquatic=FALSE,tail=TRUE}
                                            {breathes=TRUE} 0.4851485
       {aquatic=FALSE,backbone=TRUE}
                                             {breathes=TRUE} 0.5247525
   [19]
       {legs=TRUE,tail=TRUE}
                                            {breathes=TRUE} 0.5643564
                                            {breathes=TRUE} 0.6336634
   [21] {backbone=TRUE,legs=TRUE}
   [22]
        {backbone=TRUE,fins=FALSE}
                                             {breathes=TRUE} 0.6435644
   [23]
        {aquatic=FALSE}
                                             {breathes=TRUE} 0.6336634
       {fins=FALSE,tail=TRUE}
                                             {breathes=TRUE} 0.5742574
   [24]
                                            {breathes=TRUE} 0.4257426
   [25] {toothed=TRUE,fins=FALSE}
   [26] {eggs=FALSE}
                                             {breathes=TRUE} 0.4059406
##
   [27]
       {legs=TRUE,catsize=TRUE}
                                             {breathes=TRUE} 0.3564356
       {fins=FALSE,catsize=TRUE}
                                             {breathes=TRUE} 0.3465347
   [28]
   [29] {legs=TRUE}
                                             {breathes=TRUE} 0.7227723
##
                                             {breathes=TRUE} 0.1188119
   [30]
       {domestic=TRUE}
   [31]
       {venomous=FALSE,fins=FALSE}
                                             {breathes=TRUE} 0.7029703
   [32] {predator=FALSE,domestic=FALSE} =>
                                             {breathes=TRUE} 0.3069307
                                             {breathes=TRUE} 0.4059406
   [33] {predator=FALSE}
   [34] {catsize=TRUE}
                                             {breathes=TRUE} 0.3861386
   [35] {toothed=FALSE, venomous=FALSE}
                                            {breathes=TRUE} 0.2970297
   [36] {toothed=FALSE}
                                             {breathes=TRUE} 0.3267327
   [37]
        {tail=TRUE}
                                             {breathes=TRUE} 0.6039604
##
   [38]
        {domestic=FALSE}
                                             {breathes=TRUE} 0.6732673
   [39]
       {tail=FALSE}
                                            {breathes=TRUE} 0.1881188
   [40] {airborne=FALSE}
                                            {breathes=TRUE} 0.5544554
        {catsize=FALSE}
                                             {breathes=TRUE} 0.4059406
   Γ417
##
   [42]
       {predator=TRUE}
                                            {breathes=TRUE} 0.3861386
   [43]
       {eggs=TRUE}
                                            {breathes=TRUE} 0.3861386
   [44] {milk=FALSE}
                                            {breathes=TRUE} 0.3861386
##
   [45] {backbone=FALSE}
                                            {breathes=TRUE} 0.1089109
##
        confidence lift
   [1]
        1.0000000
                   1.2625000
   [2]
        1.0000000
                   1.2625000
##
##
   [3]
        1.0000000
                   1.2625000
##
   [4]
        1.0000000
                   1.2625000
##
   [5]
        1.0000000
                   1.2625000
   [6]
##
        1.0000000
                   1.2625000
##
   [7]
        1.0000000
                   1.2625000
##
   [8]
        1.0000000
                   1.2625000
   [9]
        1.0000000
                   1.2625000
   [10]
        1.0000000
                   1.2625000
##
##
   [11]
       1.0000000
                   1.2625000
## [12] 1.0000000
                   1.2625000
## [13] 1.0000000
                   1.2625000
## [14] 1.0000000
                   1.2625000
```

```
## [15] 1.0000000
                   1.2625000
   [16] 1.0000000
                   1.2625000
   [17] 1.0000000
                   1.2625000
  [18] 1.0000000
                   1.2625000
   [19] 1.0000000
                   1.2625000
                   1.2625000
  [20] 1.0000000
   [21] 1.0000000
                   1.2625000
  [22] 0.9848485
                   1.2433712
##
   [23] 0.9846154
                   1.2430769
   [24] 0.9830508
                   1.2411017
   [25] 0.9772727
                   1.2338068
   [26] 0.9761905
                   1.2324405
   [27] 0.9729730
                   1.2283784
                   1.2274306
   [28] 0.9722222
   [29] 0.9358974
                   1.1815705
   [30] 0.9230769
                   1.1653846
   [31] 0.9220779
                   1.1641234
   [32] 0.9117647
                   1.1511029
   [33] 0.9111111
                   1.1502778
   [34] 0.8863636
                   1.1190341
##
   [35] 0.8333333
                   1.0520833
   [36] 0.8250000
                   1.0415625
   [37] 0.8133333
                   1.0268333
##
   [38] 0.7727273
                   0.9755682
   [39] 0.7307692
                   0.9225962
   [40] 0.7272727
                   0.9181818
   [41] 0.7192982
                   0.9081140
##
   [42] 0.6964286
                   0.8792411
   [43] 0.6610169
                   0.8345339
   [44] 0.6500000
                   0.8206250
##
   [45] 0.6111111
                   0.7715278
##
       lhs
                       rhs
                                                   confidence lift
                                        support
   [1] {type=fish} => {breathes=FALSE} 0.1287129 1.0000000 4.8095238
   [2] {tail=TRUE} => {breathes=FALSE} 0.1386139 0.1866667
                                                              0.8977778
##
       lhs
                                     rhs
                                                      support
                                                                 confidence
## [1] {toothed=FALSE,tail=TRUE} => {breathes=TRUE} 0.2277228 1.0000000
   [2] {aquatic=FALSE,tail=TRUE} => {breathes=TRUE} 0.4851485 1.0000000
  [3] {legs=TRUE,tail=TRUE}
                                  => {breathes=TRUE} 0.5643564 1.0000000
##
   [4] {fins=FALSE,tail=TRUE}
                                  => {breathes=TRUE} 0.5742574 0.9830508
##
##
       lift
  [1] 1.262500
   [2] 1.262500
##
##
   [3] 1.262500
##
   [4] 1.241102
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                             rhs
                                                         support
                                                                    confidence
##
   [1]
        {hair=TRUE,eggs=FALSE}
                                         => {milk=TRUE} 0.3762376 1.0000000
##
   [2]
        {eggs=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3069307 1.0000000
##
   [3]
        {eggs=FALSE,predator=FALSE}
                                            {milk=TRUE} 0.1881188 1.0000000
##
   [4]
        {eggs=FALSE, venomous=FALSE}
                                             {milk=TRUE} 0.3960396 1.0000000
   [5]
##
        {hair=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2970297 1.0000000
##
   [6]
        {hair=TRUE, predator=TRUE}
                                            {milk=TRUE} 0.1980198 1.0000000
##
  [7]
        {hair=TRUE, toothed=TRUE}
                                          => {milk=TRUE} 0.3762376 1.0000000
## [8]
        {hair=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 1.0000000
```

```
{hair=TRUE,airborne=FALSE}
                                         => {milk=TRUE} 0.3663366 1.0000000
   [10] {hair=TRUE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 1.0000000
  [11] {eggs=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.9756098
                                            {milk=TRUE} 0.3960396 0.9756098
   [12] {eggs=FALSE,backbone=TRUE}
##
   [13] {eggs=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3663366 0.9736842
  [14] {hair=TRUE, venomous=FALSE}
                                            {milk=TRUE} 0.3861386 0.9512195
##
  [15] {aquatic=FALSE, toothed=TRUE}
                                            {milk=TRUE} 0.3465347 0.9210526
   [16] {hair=TRUE,domestic=FALSE}
                                            {milk=TRUE} 0.3069307 0.9117647
   [17] {toothed=TRUE,catsize=TRUE}
                                            fmilk=TRUE} 0.3069307 0.8857143
   [18] {toothed=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3663366 0.8809524
   [19] {toothed=TRUE,breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.8510638
   [20] {feathers=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.8421053
       {aquatic=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.2574257 0.8387097
   [21]
   [22]
        {breathes=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.8205128
       {toothed=TRUE,fins=FALSE}
                                            {milk=TRUE} 0.3564356 0.8181818
  [23]
   [24]
        {predator=FALSE, toothed=TRUE}
                                            {milk=TRUE} 0.1881188 0.7916667
   [25]
       {legs=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2871287 0.7837838
   [26] {airborne=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.7804878
   [27] {fins=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.2772277 0.7777778
   [28] {predator=FALSE, catsize=TRUE}
                                            {milk=TRUE} 0.1188119 0.7500000
##
   [29] {backbone=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.7441860
  [30] {venomous=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.7441860
   [31] {airborne=FALSE, aquatic=FALSE}
                                            {milk=TRUE} 0.3267327 0.7173913
   [32] {toothed=TRUE.venomous=FALSE}
##
                                            {milk=TRUE} 0.3960396 0.7017544
##
   [33] {airborne=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.3861386 0.6964286
   [34] {feathers=FALSE, aquatic=FALSE}
                                            {milk=TRUE} 0.3465347 0.6862745
   [35] {feathers=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.4059406 0.6833333
##
   [36] {airborne=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3564356 0.6666667
   [37] {aquatic=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.3465347 0.6603774
   [38] {toothed=TRUE}
                                           {milk=TRUE} 0.3960396 0.6557377
##
   [39]
        {feathers=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.6551724
##
   [40]
       {feathers=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.4059406 0.6507937
   [41] {feathers=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.3465347 0.6363636
   [42] {aquatic=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.2970297 0.6122449
   [43] {airborne=FALSE, predator=FALSE}
                                            {milk=TRUE} 0.1683168 0.6071429
##
   [44] {airborne=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 0.6000000
       {backbone=TRUE, breathes=TRUE}
                                            {milk=TRUE} 0.4059406 0.5942029
       {backbone=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.5937500
  [46]
   [47] {aquatic=FALSE,predator=TRUE}
##
                                            {milk=TRUE} 0.1584158 0.5925926
##
       {aquatic=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3465347 0.5833333
   [48]
   [49] {airborne=FALSE,fins=FALSE}
                                            {milk=TRUE} 0.3465347 0.5833333
   [50] {airborne=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 0.5789474
##
   [51] {legs=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 0.5789474
   [52] {feathers=FALSE,fins=FALSE}
##
                                            {milk=TRUE} 0.3663366 0.5781250
  [53] {aquatic=FALSE, venomous=FALSE}
                                           {milk=TRUE} 0.3465347 0.5737705
   [54]
        {breathes=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.5737705
   [55]
##
        {predator=TRUE, breathes=TRUE}
                                            {milk=TRUE} 0.2178218 0.5641026
   [56]
       {feathers=FALSE, venomous=FALSE} =>
                                            {milk=TRUE} 0.4059406 0.5616438
   [57]
       {backbone=TRUE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.5606061
   [58]
       {feathers=FALSE, predator=FALSE}
                                            {milk=TRUE} 0.1881188 0.5588235
                                        =>
##
   [59]
       {airborne=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3861386 0.5492958
  [60] {aquatic=FALSE, breathes=TRUE}
                                           {milk=TRUE} 0.3465347 0.5468750
  [61] {breathes=TRUE, venomous=FALSE}
                                         => {milk=TRUE} 0.4059406 0.5466667
## [62] {fins=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.3168317 0.5423729
```

```
## [63] {feathers=FALSE,airborne=FALSE} => {milk=TRUE} 0.3861386 0.5342466
  [64] {predator=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.1881188 0.5277778
  [65] {breathes=TRUE,legs=TRUE}
                                         => {milk=TRUE} 0.3762376 0.5205479
  [66] {backbone=TRUE, venomous=FALSE}
                                         => {milk=TRUE} 0.4059406 0.5189873
  [67] {predator=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.1683168 0.5151515
  [68] {venomous=FALSE,legs=TRUE}
                                         => {milk=TRUE} 0.3762376 0.5135135
## [69] {feathers=FALSE}
                                         => {milk=TRUE} 0.4059406 0.5061728
## [70] {venomous=FALSE,tail=TRUE}
                                         => {milk=TRUE} 0.3465347 0.4929577
## [71] {venomous=FALSE,fins=FALSE}
                                         => {milk=TRUE} 0.3663366 0.4805195
  [72] {predator=FALSE, venomous=FALSE} => {milk=TRUE} 0.1881188 0.4418605
   [73] {predator=TRUE}
                                         => {milk=TRUE} 0.2178218 0.3928571
##
        lift
## [1]
        2.463415
## [2]
        2.463415
## [3]
        2.463415
## [4]
        2.463415
##
  [5]
        2.463415
  [6]
        2.463415
  [7]
##
        2.463415
   [8]
        2.463415
##
  [9]
        2.463415
## [10] 2.463415
## [11] 2.403331
## [12] 2.403331
## [13] 2.398588
## [14] 2.343248
## [15] 2.268935
## [16] 2.246055
## [17] 2.181882
## [18] 2.170151
## [19] 2.096523
## [20] 2.074454
## [21] 2.066090
## [22] 2.021263
## [23] 2.015521
## [24] 1.950203
## [25] 1.930784
## [26] 1.922665
## [27] 1.915989
## [28] 1.847561
## [29] 1.833239
## [30] 1.833239
## [31] 1.767232
## [32] 1.728712
## [33] 1.715592
## [34] 1.690579
## [35] 1.683333
  [36] 1.642276
## [37] 1.626783
## [38] 1.615354
## [39] 1.613961
## [40] 1.603175
## [41] 1.567627
## [42] 1.508213
```

```
## [43] 1.495645
   [44] 1.478049
   [45] 1.463768
   [46] 1.462652
   [47] 1.459801
##
   [48] 1.436992
   [49] 1.436992
   [50] 1.426187
   [51] 1.426187
   [52] 1.424162
   [53] 1.413435
   [54] 1.413435
##
   [55] 1.389619
   [56] 1.383562
   [57] 1.381005
   [58] 1.376614
##
   [59] 1.353143
   [60] 1.347180
   [61] 1.346667
##
   [62] 1.336089
##
   [63] 1.316071
   [64] 1.300136
   [65] 1.282325
##
##
   [66] 1.278481
   [67] 1.269032
##
   [68] 1.264997
   [69] 1.246914
##
   [70] 1.214359
##
   [71] 1.183719
   [72] 1.088486
##
   [73] 0.967770
##
        lhs
                             rhs
                                                     confidence lift
                                           support
##
   [1]
        {type=fish}
                          => {milk=FALSE} 0.1287129 1.0000000
        {backbone=FALSE} => {milk=FALSE} 0.1782178 1.0000000
##
   [2]
                                                                 1.6833333
##
   [3]
        {type=bird}
                             {milk=FALSE} 0.1980198 1.0000000
                                                                 1.6833333
##
   [4]
        {feathers=TRUE}
                          => {milk=FALSE} 0.1980198 1.0000000
                                                                 1.6833333
##
   [5]
        {breathes=FALSE} => {milk=FALSE} 0.2079208 1.0000000
                                                                 1.6833333
##
   [6]
                          => {milk=FALSE} 0.5742574 0.9830508
        {eggs=TRUE}
                                                                 1.6548023
   [7]
        {hair=FALSE}
                             {milk=FALSE} 0.5544554 0.9655172
##
                                                                 1.6252874
   [8]
                             {milk=FALSE} 0.2178218 0.9166667
##
        {airborne=TRUE}
                                                                 1.5430556
   [9]
        {legs=FALSE}
                             {milk=FALSE} 0.1980198 0.8695652
                                                                 1.4637681
                             {milk=FALSE} 0.2970297 0.8333333
   [10]
       {aquatic=TRUE}
                                                                 1.4027778
   [11] {tail=FALSE}
                             {milk=FALSE} 0.1980198 0.7692308
                                                                 1.2948718
##
   [12] {fins=TRUE}
                          => {milk=FALSE} 0.1287129 0.7647059
                                                                 1.2872549
   [13] {predator=TRUE}
                          => {milk=FALSE} 0.3366337 0.6071429
                                                                 1.0220238
                             {milk=FALSE} 0.4653465 0.5595238
   [14] {fins=FALSE}
                          =>
                                                                 0.9418651
##
   [15] {tail=TRUE}
                             {milk=FALSE} 0.3960396 0.5333333
                                                                 0.8977778
   [16] {backbone=TRUE}
                             {milk=FALSE} 0.4158416 0.5060241
                                                                 0.8518072
   [17] {aquatic=FALSE}
                             {milk=FALSE} 0.2970297 0.4615385
                                                                 0.7769231
##
   [18] {toothed=TRUE}
                             {milk=FALSE} 0.2079208 0.3442623
                                                                 0.5795082
##
       lhs
                                          rhs
                                                      support
                                                                 confidence
## [1] {hair=TRUE,predator=TRUE}
                                      => {milk=TRUE} 0.1980198 1.0000000
  [2] {aquatic=FALSE,predator=TRUE} => {milk=TRUE} 0.1584158 0.5925926
## [3] {predator=TRUE,breathes=TRUE} => {milk=TRUE} 0.2178218 0.5641026
```

```
lift
##
  [1] 2.463415
##
   [2] 1.459801
   [3] 1.389619
##
       lhs
                                       rhs
                                                   support
                                                             confidence
## [1] {toothed=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3564356 0.8181818
  [2] {fins=FALSE,catsize=TRUE}
                                    => {milk=TRUE} 0.2772277 0.7777778
  [3] {airborne=FALSE,fins=FALSE} => {milk=TRUE} 0.3465347 0.5833333
  [4] {feathers=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5781250
   [5] {backbone=TRUE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5606061
  [6] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
   [7] {venomous=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.4805195
##
##
       lift
## [1] 2.015521
## [2] 1.915989
   [3] 1.436992
##
  [4] 1.424162
  [5] 1.381005
  [6] 1.336089
##
   [7] 1.183719
##
       lhs
                                                            confidence
                                      rhs
                                                  support
## [1] {hair=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 1.0000000
## [2] {feathers=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.6363636
## [3] {aquatic=FALSE,tail=TRUE}
                                  => {milk=TRUE} 0.2970297 0.6122449
  [4] {airborne=FALSE,tail=TRUE} => {milk=TRUE} 0.3267327 0.5789474
  [5] {legs=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 0.5789474
                                  => {milk=TRUE} 0.3465347 0.5737705
  [6] {breathes=TRUE,tail=TRUE}
  [7] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
  [8] {predator=FALSE,tail=TRUE} => {milk=TRUE} 0.1683168 0.5151515
  [9] {venomous=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.4929577
##
       lift
## [1] 2.463415
  [2] 1.567627
  [3] 1.508213
   [4] 1.426187
##
  [5] 1.426187
  [6] 1.413435
  [7] 1.336089
##
   [8] 1.269032
  [9] 1.214359
##
##
        lhs
                                           rhs
                                                       support
                                                                 confidence
                                        => {milk=TRUE} 0.3861386 1.0000000
##
  [1]
        {hair=TRUE,backbone=TRUE}
        {eggs=FALSE,backbone=TRUE}
##
   [2]
                                        => {milk=TRUE} 0.3960396 0.9756098
##
  [3]
        {backbone=TRUE, catsize=TRUE}
                                        => {milk=TRUE} 0.3168317 0.7441860
##
  [4]
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
  [5]
        {feathers=FALSE,backbone=TRUE} => {milk=TRUE} 0.4059406 0.6507937
##
##
   [6]
        {airborne=FALSE,backbone=TRUE} => {milk=TRUE} 0.3861386 0.6000000
        {backbone=TRUE,breathes=TRUE}
##
  [7]
                                        => {milk=TRUE} 0.4059406 0.5942029
##
  [8]
        {backbone=TRUE,legs=TRUE}
                                        => {milk=TRUE} 0.3762376 0.5937500
   [9]
        {backbone=TRUE,fins=FALSE}
                                        => {milk=TRUE} 0.3663366 0.5606061
       {predator=FALSE,backbone=TRUE} => {milk=TRUE} 0.1881188 0.5277778
##
  [11] {backbone=TRUE, venomous=FALSE} => {milk=TRUE} 0.4059406 0.5189873
##
        lift
## [1] 2.463415
```

```
## [2]
        2.403331
##
   [3]
        1.833239
   [4]
        1.626783
   [5]
##
        1.603175
##
   [6]
        1.478049
##
   [7]
        1.463768
   [8]
        1.462652
##
   [9]
        1.381005
   [10] 1.300136
##
   [11] 1.278481
##
        lhs
                                            rhs
                                                                   confidence
                                                        support
##
   [1]
        {aquatic=FALSE, toothed=TRUE}
                                        => {milk=TRUE} 0.3465347 0.9210526
##
   [2]
        {aquatic=FALSE, catsize=TRUE}
                                        => {milk=TRUE} 0.2574257 0.8387097
        {airborne=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3267327 0.7173913
##
   [3]
## [4]
        {feathers=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3465347 0.6862745
##
  [5]
        {aquatic=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.3465347 0.6603774
##
   [6]
        {aquatic=FALSE,tail=TRUE}
                                        => {milk=TRUE} 0.2970297 0.6122449
   [7]
        {aquatic=FALSE,predator=TRUE}
                                        => {milk=TRUE} 0.1584158 0.5925926
##
   [8]
        {aquatic=FALSE,legs=TRUE}
                                        => {milk=TRUE} 0.3465347 0.5833333
   [9]
##
        {aquatic=FALSE, venomous=FALSE} => {milk=TRUE} 0.3465347 0.5737705
##
   [10]
       {aquatic=FALSE,breathes=TRUE} => {milk=TRUE} 0.3465347 0.5468750
##
        2.268935
  [1]
##
   [2]
        2.066090
##
##
   [3]
        1.767232
   [4]
        1.690579
   [5]
##
        1.626783
##
   [6]
        1.508213
   [7]
##
        1.459801
##
   [8]
        1.436992
##
   [9]
        1.413435
##
   [10] 1.347180
##
       lhs
                                                      support
                                                                 confidence
  [1] {hair=TRUE,toothed=TRUE}
##
                                      => {milk=TRUE} 0.3762376 1.0000000
   [2] {aquatic=FALSE,toothed=TRUE}
                                      => {milk=TRUE} 0.3465347 0.9210526
   [3] {toothed=TRUE,catsize=TRUE}
                                      => {milk=TRUE} 0.3069307 0.8857143
  [4] {toothed=TRUE,legs=TRUE}
                                      => {milk=TRUE} 0.3663366 0.8809524
  [5] {toothed=TRUE,breathes=TRUE}
                                      => {milk=TRUE} 0.3960396 0.8510638
   [6] {toothed=TRUE,fins=FALSE}
                                      => {milk=TRUE} 0.3564356 0.8181818
   [7] {predator=FALSE,toothed=TRUE} => {milk=TRUE} 0.1881188 0.7916667
   [8] {toothed=TRUE, venomous=FALSE} => {milk=TRUE} 0.3960396 0.7017544
##
       lift
## [1] 2.463415
##
  [2] 2.268935
## [3] 2.181882
## [4] 2.170151
##
   [5] 2.096523
   [6] 2.015521
  [7] 1.950203
##
   [8]
       1.728712
##
       "Número de reglas con consecuente negado"
   [1]
##
                                               support
                                                         confidence lift
## [1]
        {milk=TRUE}
                          => {venomous=FALSE} 0.4059406 1.0000000 1.0860215
## [2]
        {type=mammal}
                          => {venomous=FALSE} 0.4059406 1.0000000 1.0860215
```

```
[3]
        {catsize=TRUE}
                             {venomous=FALSE} 0.4257426 0.9772727
                                                                    1.0613392
##
   [4]
                                                                    1.0377539
        {predator=FALSE}
                             {venomous=FALSE} 0.4257426 0.9555556
        {hair=TRUE}
                             {venomous=FALSE} 0.4059406 0.9534884
##
   [5]
                                                                    1.0355089
   [6]
                             {venomous=FALSE} 0.3960396 0.9523810
##
        {eggs=FALSE}
                                                                    1.0343062
##
   [7]
        {backbone=TRUE}
                             {venomous=FALSE} 0.7821782 0.9518072
                                                                    1.0336831
##
   [8]
                             {venomous=FALSE} 0.7326733 0.9487179
        {legs=TRUE}
                                                                    1.0303281
##
   [9]
        {tail=TRUE}
                             {venomous=FALSE} 0.7029703 0.9466667
                                                                    1.0281004
##
   [10]
       {fins=TRUE}
                             {venomous=FALSE} 0.1584158 0.9411765
                                                                    1.0221379
##
   Γ11]
       {aquatic=FALSE}
                             {venomous=FALSE} 0.6039604 0.9384615
                                                                    1.0191894
   [12]
       {breathes=TRUE}
                             {venomous=FALSE} 0.7425743 0.9375000
                                                                    1.0181452
   [13]
       {toothed=TRUE}
                             {venomous=FALSE} 0.5643564 0.9344262
                                                                    1.0148070
   [14]
        {domestic=TRUE}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
##
   [15]
                             {venomous=FALSE} 0.1188119 0.9230769
       {type=fish}
                                                                    1.0024814
   [16]
       {airborne=FALSE}
                             {venomous=FALSE} 0.7029703 0.9220779
                                                                    1.0013965
   [17]
        {domestic=FALSE}
                             {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
        {feathers=FALSE}
                             {venomous=FALSE} 0.7227723 0.9012346
   Г187
                                                                    0.9787601
##
                             {venomous=FALSE} 0.3564356 0.9000000
   [19]
        {toothed=FALSE}
                                                                    0.9774194
                             {venomous=FALSE} 0.5247525 0.8983051
   [20]
       {eggs=TRUE}
                                                                    0.9755786
   [21] {hair=FALSE}
                          => {venomous=FALSE} 0.5148515 0.8965517
                                                                    0.9736745
   [22] {predator=TRUE}
                             {venomous=FALSE} 0.4950495 0.8928571
                                                                    0.9696621
##
  [23] {catsize=FALSE}
                             {venomous=FALSE} 0.4950495 0.8771930
                                                                    0.9526504
  [24] {milk=FALSE}
                          => {venomous=FALSE} 0.5148515 0.8666667
                                                                    0.9412186
  [25] {breathes=FALSE} =>
                             {venomous=FALSE} 0.1782178 0.8571429
##
                                                                    0.9308756
##
   [26] {legs=FALSE}
                            {venomous=FALSE} 0.1881188 0.8260870
                                                                    0.8971482
   [27] {backbone=FALSE}
                         => {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                          support
                                                                    confidence
        {type=fish}
##
   [1]
                                            {legs=FALSE} 0.1287129 1.0000000
   [2]
##
        {hair=FALSE,fins=TRUE}
                                            {legs=FALSE} 0.1485149 1.0000000
        {eggs=TRUE,fins=TRUE}
##
   [3]
                                            {legs=FALSE} 0.1287129 1.0000000
##
   [4]
        {milk=FALSE,fins=TRUE}
                                            {legs=FALSE} 0.1287129 1.0000000
##
   [5]
        {toothed=TRUE,breathes=FALSE}
                                            {legs=FALSE} 0.1386139 1.0000000
##
   [6]
        {breathes=FALSE,tail=TRUE}
                                            {legs=FALSE} 0.1386139 1.0000000
##
   [7]
        {backbone=TRUE,breathes=FALSE}
                                            {legs=FALSE} 0.1386139 1.0000000
   [8]
##
        {fins=TRUE}
                                            {legs=FALSE} 0.1584158 0.9411765
##
   [9]
        {hair=FALSE, toothed=TRUE}
                                            {legs=FALSE} 0.1782178 0.7826087
       {breathes=FALSE}
                                            {legs=FALSE} 0.1584158 0.7619048
       {milk=FALSE,toothed=TRUE}
##
  [11]
                                            {legs=FALSE} 0.1584158 0.7619048
       {eggs=TRUE,toothed=TRUE}
##
   [12]
                                            {legs=FALSE} 0.1485149 0.7500000
       {aquatic=TRUE, toothed=TRUE}
                                            {legs=FALSE} 0.1683168 0.7391304
##
   [13]
  [14] {aquatic=TRUE,tail=TRUE}
                                            {legs=FALSE} 0.1584158 0.6153846
   [15] {feathers=FALSE,aquatic=TRUE}
                                            {legs=FALSE} 0.1782178 0.6000000
   [16] {airborne=FALSE,aquatic=TRUE}
                                            {legs=FALSE} 0.1782178 0.5806452
   [17] {hair=FALSE, feathers=FALSE}
                                            {legs=FALSE} 0.2178218 0.5789474
  [18] {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
   [19]
        {hair=FALSE,aquatic=TRUE}
                                            {legs=FALSE} 0.1683168 0.5312500
##
   [20]
       {milk=FALSE,airborne=FALSE}
                                            {legs=FALSE} 0.1980198 0.5263158
   [21] {eggs=TRUE,airborne=FALSE}
                                            {legs=FALSE} 0.1881188 0.5135135
   [22] {feathers=FALSE,milk=FALSE}
                                            {legs=FALSE} 0.1980198 0.5000000
   [23] {feathers=FALSE,eggs=TRUE}
                                            {legs=FALSE} 0.1881188 0.4871795
  [24] {toothed=TRUE,catsize=FALSE}
                                            {legs=FALSE} 0.1188119 0.4615385
##
  [25] {hair=FALSE,predator=TRUE}
                                            {legs=FALSE} 0.1584158 0.4444444
## [26] {airborne=FALSE,catsize=FALSE}
                                            {legs=FALSE} 0.1584158 0.4444444
## [27] {hair=FALSE,tail=TRUE}
                                            {legs=FALSE} 0.1782178 0.4285714
```

```
## [28] {milk=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1386139 0.4117647
  [29] {hair=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4090909
  [30] {predator=TRUE, toothed=TRUE}
                                         => {legs=FALSE} 0.1485149 0.4054054
  [31] {milk=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4000000
##
   [32] {eggs=TRUE,predator=TRUE}
                                         => {legs=FALSE} 0.1287129 0.3939394
   [33] {hair=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.2079208 0.3888889
##
  [34] {eggs=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1485149 0.3846154
   [35]
       {milk=FALSE,backbone=TRUE}
                                           {legs=FALSE} 0.1584158 0.3809524
   [36]
       {feathers=FALSE, catsize=FALSE}
                                            {legs=FALSE} 0.1584158 0.3720930
   [37]
       {feathers=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3617021
   [38] {eggs=TRUE,backbone=TRUE}
                                         => {legs=FALSE} 0.1485149 0.3571429
   [39] {airborne=FALSE,predator=TRUE}
                                            {legs=FALSE} 0.1683168 0.3469388
   [40] {toothed=TRUE,domestic=FALSE}
                                           {legs=FALSE} 0.1782178 0.3461538
  [41] {milk=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.1881188 0.3454545
                                           {legs=FALSE} 0.1386139 0.3333333
  [42] {predator=TRUE,tail=TRUE}
       {eggs=TRUE,domestic=FALSE}
                                            {legs=FALSE} 0.1782178 0.3333333
   [43]
   [44] {feathers=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3272727
   [45] {tail=TRUE, catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3243243
   [46] {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
   [47] {airborne=FALSE, toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
##
  [48] {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
  [49] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
   [50] {feathers=FALSE,domestic=FALSE} =>
                                           {legs=FALSE} 0.2178218 0.3098592
##
   Γ51]
       {predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3035714
   [52]
       {feathers=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3015873
   [53]
       {backbone=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
       {domestic=FALSE,catsize=FALSE}
   [54]
                                         => {legs=FALSE} 0.1485149 0.3000000
##
   [55] {tail=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1683168 0.2615385
   [56] {backbone=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.2535211
##
##
        lift
##
   [1]
        4.391304
##
   [2]
        4.391304
##
   [3]
        4.391304
   [4]
##
        4.391304
   [5]
##
        4.391304
##
   [6]
        4.391304
##
   [7]
        4.391304
  [8]
##
        4.132992
##
   [9]
        3.436673
##
  [10] 3.345756
  [11] 3.345756
   [12] 3.293478
##
   [13] 3.245747
##
  [14] 2.702341
  [15] 2.634783
  [16] 2.549790
##
   [17] 2.542334
  [18] 2.415217
  [19] 2.332880
   [20] 2.311213
##
  [21] 2.254994
## [22] 2.195652
## [23] 2.139353
## [24] 2.026756
```

```
[25] 1.951691
##
   [26] 1.951691
   [27] 1.881988
   [28] 1.808184
##
   [29] 1.796443
   [30] 1.780259
##
   [31] 1.756522
   [32] 1.729908
##
   [33] 1.707729
   [34] 1.688963
   [35] 1.672878
   [36] 1.633974
##
   [37] 1.588344
   [38] 1.568323
   [39] 1.523514
   [40] 1.520067
##
   [41] 1.516996
   [42] 1.463768
   [43] 1.463768
   [44] 1.437154
##
   [45] 1.424207
   [46] 1.420716
##
   [47] 1.414149
##
   [48] 1.386728
   [49] 1.383562
   [50] 1.360686
   [51] 1.333075
##
   [52] 1.324362
##
   [53] 1.317391
   [54] 1.317391
##
   [55] 1.148495
##
   [56]
       1.113288
##
        lhs
                                                    confidence lift
                                          support
##
   [1]
                          => {legs=TRUE} 0.1980198 1.0000000
                                                                1.2948718
        {type=bird}
##
   [2]
                          => {legs=TRUE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                                1.2948718
##
   [3]
        {airborne=TRUE}
                          => {legs=TRUE} 0.2376238 1.0000000
                                                                1.2948718
##
   [4]
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                                1.2647585
##
   [5]
        {milk=TRUE}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
   [6]
                             {legs=TRUE} 0.3762376 0.9268293
##
        {type=mammal}
                                                                1.2001251
##
   [7]
        {domestic=TRUE}
                             {legs=TRUE} 0.1188119 0.9230769
                                                                1.1952663
   [8]
        {aquatic=FALSE}
                          => {legs=TRUE} 0.5940594 0.9230769
                                                                1.1952663
                          => {legs=TRUE} 0.3762376 0.9047619
##
   [9]
        {eggs=FALSE}
                                                                1.1715507
       {toothed=FALSE}
                                                                1.1653846
##
   Γ10]
                          => {legs=TRUE} 0.3564356 0.9000000
                          => {legs=TRUE} 0.3861386 0.8666667
       {predator=FALSE}
                                                                1.122222
   [12] {catsize=TRUE}
                          => {legs=TRUE} 0.3663366 0.8409091
                                                                1.0888695
                             {legs=TRUE} 0.2079208 0.8076923
   [13]
        {tail=FALSE}
                                                                1.0458580
   [14]
##
       {backbone=FALSE}
                             {legs=TRUE} 0.1386139 0.7777778
                                                                1.0071225
   [15] {tail=TRUE}
                             {legs=TRUE} 0.5643564 0.7600000
                                                                0.9841026
   [16] {catsize=FALSE}
                          => {legs=TRUE} 0.4059406 0.7192982
                                                                0.9313990
       {airborne=FALSE}
                          => {legs=TRUE} 0.5346535 0.7012987
                                                                0.9080919
   Γ17]
##
   [18]
                          => {legs=TRUE} 0.4158416 0.6885246
       {toothed=TRUE}
                                                                0.8915511
   [19] {eggs=TRUE}
                          => {legs=TRUE} 0.3960396 0.6779661
                                                                0.8778792
## [20] {milk=FALSE}
                          => {legs=TRUE} 0.3960396 0.6666667
                                                                0.8632479
## [21] {aquatic=TRUE}
                          => {legs=TRUE} 0.1782178 0.5000000
                                                                0.6474359
```

```
##
                                                     support
                                                               confidence
##
  [1]
        {breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
        {aquatic=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.6153846
  [3]
        {hair=FALSE,tail=TRUE}
##
                                    => {legs=FALSE} 0.1782178 0.4285714
##
   [4]
        {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
##
   [5]
        {eggs=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1485149 0.3846154
  [6]
        {predator=TRUE, tail=TRUE}
                                    => {legs=FALSE} 0.1386139 0.3333333
##
  [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
##
   [8]
        {tail=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3243243
##
   [9]
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
       {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
        lift
## [1]
        4.391304
##
  [2]
        2.702341
  [3]
##
        1.881988
##
  [4]
        1.756522
  [5]
##
        1.688963
   [6]
##
        1.463768
  [7]
##
        1.437154
##
   [8]
        1.424207
##
  [9]
        1.386728
  [10] 1.148495
##
##
       lhs
                                          rhs
                                                        support
                                                                   confidence
## [1] {toothed=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.4615385
  [2] {airborne=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.4444444
  [3] {feathers=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
  [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
   [5] {backbone=TRUE, catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3000000
   [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
##
       lift
## [1] 2.026756
  [2] 1.951691
  [3] 1.633974
  [4] 1.424207
   [5] 1.317391
##
   [6] 1.317391
##
                                                          support
                                                                    confidence
## [1]
                                         => {legs=FALSE} 0.1782178 0.5806452
        {airborne=FALSE, aquatic=TRUE}
        {hair=FALSE,airborne=FALSE}
  [2]
                                         => {legs=FALSE} 0.2178218 0.5500000
  [3]
##
        {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
  [4]
        {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
        {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
##
   [5]
##
   [6]
        {airborne=FALSE, predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
  [7]
        {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
##
  [8]
        {airborne=FALSE, toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
        {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
  [9]
##
   [10] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
        lift
## [1]
        2.549790
##
   [2]
        2.415217
   [3]
##
        2.311213
## [4]
        2.254994
## [5]
        1.951691
## [6]
        1.523514
```

```
[7]
        1.420716
   [8]
##
        1.414149
  [9]
        1.386728
   [10] 1.383562
##
##
                                         rhs
                                                      support
                                                                 confidence
## [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
## [2] {hair=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1782178 0.7826087
  [3] {milk=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1584158 0.7619048
  [4] {eggs=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.7500000
  [5] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
  [6] {toothed=TRUE,catsize=FALSE}
                                      => {legs=FALSE} 0.1188119 0.4615385
   [7] {predator=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.4054054
   [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
##
   [9] {airborne=FALSE,toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
       lift
##
   [1] 4.391304
##
   [2] 3.436673
  [3] 3.345756
  [4] 3.293478
##
   [5] 3.245747
##
  [6] 2.026756
  [7] 1.780259
  [8] 1.520067
##
##
   [9] 1.414149
##
       lhs
                                      rhs
                                                   support
                                                              confidence
  [1] {eggs=TRUE,fins=TRUE}
                                   => {legs=FALSE} 0.1287129 1.0000000
   [2] {eggs=TRUE,toothed=TRUE}
                                   => {legs=FALSE} 0.1485149 0.7500000
   [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
  [4] {feathers=FALSE,eggs=TRUE} => {legs=FALSE} 0.1881188 0.4871795
                                   => {legs=FALSE} 0.1287129 0.3939394
  [5] {eggs=TRUE,predator=TRUE}
   [6] {eggs=TRUE,tail=TRUE}
                                   => {legs=FALSE} 0.1485149 0.3846154
   [7] {eggs=TRUE,backbone=TRUE}
                                  => {legs=FALSE} 0.1485149 0.3571429
##
   [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
       lift
   [1] 4.391304
##
##
   [2] 3.293478
   [3] 2.254994
  [4] 2.139353
##
##
   [5] 1.729908
##
  [6] 1.688963
  [7] 1.568323
##
   [8] 1.463768
##
       lhs
                                       rhs
                                                    support
                                                               confidence
                                      {legs=FALSE} 0.1287129 1.0000000
##
  [1] {milk=FALSE,fins=TRUE}
  [2] {milk=FALSE,toothed=TRUE}
                                    => {legs=FALSE} 0.1584158 0.7619048
  [3] {milk=FALSE,airborne=FALSE} =>
                                       {legs=FALSE} 0.1980198 0.5263158
  [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
   [5] {milk=FALSE,predator=TRUE}
                                    => {legs=FALSE} 0.1386139 0.4117647
  [6] {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
   [7] {milk=FALSE,backbone=TRUE}
                                    => {legs=FALSE} 0.1584158 0.3809524
##
   [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
       lift
## [1] 4.391304
## [2] 3.345756
```

```
## [3] 2.311213
  [4] 2.195652
  [5] 1.808184
  [6] 1.756522
   [7] 1.672878
##
   [8] 1.516996
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
## [1] {aquatic=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
   [2] {aquatic=TRUE,tail=TRUE}
                                      => {legs=FALSE} 0.1584158 0.6153846
   [3] {feathers=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.6000000
   [4] {airborne=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.5806452
##
   [5] {hair=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1683168 0.5312500
##
       lift
  [1] 3.245747
##
  [2] 2.702341
##
   [3] 2.634783
##
   [4] 2.549790
   [5] 2.332880
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                        support
                                                                   confidence
##
  [1]
        {type=fish}
                                         => {fins=TRUE} 0.1287129 1.0000000
  [2]
        {toothed=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
  [3]
##
        {breathes=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.9285714
##
   [4]
        {backbone=TRUE, breathes=FALSE}
                                            {fins=TRUE} 0.1287129 0.9285714
                                         => {fins=TRUE} 0.1584158 0.8888889
##
  [5]
        {aquatic=TRUE,legs=FALSE}
  [6]
        {toothed=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
   [7]
                                           {fins=TRUE} 0.1584158 0.8421053
##
        {backbone=TRUE,legs=FALSE}
##
   [8]
        {legs=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.8333333
##
  [9]
        {breathes=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1287129 0.8125000
## [10] {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
  [11] {aquatic=TRUE, toothed=TRUE}
                                           {fins=TRUE} 0.1683168 0.7391304
  [12] {predator=TRUE,legs=FALSE}
                                            {fins=TRUE} 0.1188119 0.7058824
  [13] {breathes=FALSE, venomous=FALSE} =>
                                           {fins=TRUE} 0.1188119 0.6666667
                                         => {fins=TRUE} 0.1485149 0.6521739
  [14] {hair=FALSE,toothed=TRUE}
   [15] {aquatic=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.6500000
## [16] {eggs=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6500000
## [17] {breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6190476
## [18] {milk=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6190476
## [19] {aquatic=TRUE,tail=TRUE}
                                            {fins=TRUE} 0.1584158 0.6153846
## [20] {feathers=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
  [21] {aquatic=TRUE, backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
  [22] {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
## [23] {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
                                         => {fins=TRUE} 0.1485149 0.3947368
## [24] {hair=FALSE,feathers=FALSE}
## [25] {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
                                           {fins=TRUE} 0.1485149 0.3571429
## [26] {hair=FALSE,tail=TRUE}
## [27] {predator=TRUE, toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.3513514
  [28] {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [29] {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
  [30] {hair=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1485149 0.3409091
  [31] {eggs=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
## [32] {feathers=FALSE,eggs=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
## [33] {milk=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3250000
## [34] {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
```

```
## [35] {eggs=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
                                         => {fins=TRUE} 0.1287129 0.3095238
   [36] {milk=FALSE,backbone=TRUE}
  [37] {toothed=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.3076923
                                           {fins=TRUE} 0.1584158 0.3076923
  [38] {toothed=TRUE,domestic=FALSE}
##
  [39] {hair=FALSE,predator=TRUE}
                                            {fins=TRUE} 0.1089109 0.3055556
  [40] {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
  [41] {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
## [42] {predator=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1188119 0.2857143
  [43] {toothed=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1584158 0.2807018
  [44] {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
  [45] {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
   [46] {predator=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.2765957
  [47] {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
                                         => {fins=TRUE} 0.1386139 0.2692308
## [48] {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1287129 0.2653061
## [49] {airborne=FALSE,predator=TRUE}
       {airborne=FALSE,backbone=TRUE}
                                            {fins=TRUE} 0.1683168 0.2615385
   [51]
##
       {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
   [52] {hair=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2586207
  [53] {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
   [54] {airborne=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2352941
##
  [55] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [57] {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
##
   [58]
       {eggs=TRUE, venomous=FALSE}
                                            {fins=TRUE} 0.1188119 0.2264151
   [59]
       {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [60] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [61] {backbone=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2253521
##
   [62] {eggs=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2222222
   [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
   [64] {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
   [65]
       {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
##
   [66]
       {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
##
   [1]
        5.941176
##
   [2]
        5.516807
   [3]
##
       5.516807
##
   [4]
        5.516807
  [5]
##
        5.281046
   [6]
##
        5.003096
##
  [7]
        5.003096
  [8]
        4.950980
   [9]
##
        4.827206
##
   [10] 4.690402
##
  [11] 4.391304
## [12] 4.193772
## [13] 3.960784
##
  [14] 3.874680
  [15] 3.861765
  [16] 3.861765
  [17] 3.677871
## [18] 3.677871
## [19] 3.656109
## [20] 3.366667
## [21] 3.366667
```

```
## [22] 3.258065
  [23] 2.970588
   [24] 2.345201
  [25] 2.227941
   [26] 2.121849
  [27] 2.087440
##
   [28] 2.087440
## [29] 2.032508
   [30] 2.025401
   [31] 1.980392
   [32] 1.980392
   [33] 1.930882
##
   [34] 1.930882
   [35] 1.838936
   [36] 1.838936
   [37] 1.828054
   [38] 1.828054
##
   [39] 1.815359
  [40] 1.728342
  [41] 1.711864
## [42] 1.697479
  [43] 1.667699
## [44] 1.667699
   [45] 1.643304
## [46] 1.643304
  [47] 1.603175
  [48] 1.599548
##
  [49] 1.576230
  [50] 1.553846
   [51] 1.540305
   [52] 1.536511
##
   [53] 1.425882
   [54] 1.397924
   [55] 1.383562
   [56] 1.371041
##
   [57] 1.371041
   [58] 1.345172
   [59] 1.338857
##
   [60] 1.338857
   [61] 1.338857
##
   [62] 1.320261
   [63] 1.302176
##
   [64] 1.296257
##
   [65] 1.284579
##
   [66] 1.100218
##
        lhs
                             rhs
                                          support
                                                     confidence lift
##
   [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000 1.2023810
   [2]
                          => {fins=FALSE} 0.1980198 1.0000000
        {type=bird}
                                                                1.2023810
##
   [3]
        {feathers=TRUE}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
   [4]
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
                                                                1.2023810
##
   [5]
                          => {fins=FALSE} 0.3960396 1.0000000
        {toothed=FALSE}
                                                                1.2023810
##
   [6]
        {legs=TRUE}
                          => {fins=FALSE} 0.7623762 0.9871795
## [7]
        {hair=TRUE}
                          => {fins=FALSE} 0.4059406 0.9534884
                                                                1.1464563
## [8]
        {breathes=TRUE}
                         => {fins=FALSE} 0.7524752 0.9500000 1.1422619
```

```
{domestic=TRUE} => {fins=FALSE} 0.1188119 0.9230769
                                                                1.1098901
  [10] {predator=FALSE} => {fins=FALSE} 0.4059406 0.9111111
                                                                1.0955026
  [11] {eggs=FALSE}
                          => {fins=FALSE} 0.3762376 0.9047619
                          => {fins=FALSE} 0.3663366 0.9024390
  [12] {milk=TRUE}
                                                                1.0850755
##
  [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                1.0850755
  [14] {catsize=FALSE}
                         => {fins=FALSE} 0.4752475 0.8421053
                                                                1.0125313
  [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                0.9955197
## [16] {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                0.9837662
  [17] {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                0.9837662
  [18] {backbone=TRUE}
                         => {fins=FALSE} 0.6534653 0.7951807
                                                                0.9561102
## [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
                         => {fins=FALSE} 0.5841584 0.7866667
## [20] {tail=TRUE}
                                                                0.9458730
## [21] {eggs=TRUE}
                          => {fins=FALSE} 0.4554455 0.7796610
                                                                0.9374496
       {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                0.9369202
                         => {fins=FALSE} 0.4257426 0.7678571
## [23] {predator=TRUE}
                                                                0.9232568
        {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
  [24]
                                                                0.8914204
                          => {fins=FALSE} 0.4356436 0.7213115
##
   [25]
       {toothed=TRUE}
                                                                0.8672912
   [26]
        {aquatic=TRUE}
                          => {fins=FALSE} 0.1881188 0.5277778
                                                                0.6345899
##
                                                        support
        lhs
                                            rhs
                                                                   confidence
##
   [1]
        {venomous=FALSE,legs=FALSE}
                                            {fins=TRUE} 0.1485149 0.7894737
##
   [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
        {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
  [3]
  [4]
        {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
##
   [5]
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
##
   [6]
        {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
   [7]
        {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
        {eggs=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2264151
##
   [8]
   [9]
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
   [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
##
  [1]
        4.690402
##
   [2]
        3.960784
   [3]
##
        2.970588
   [4]
##
        1.667699
   [5]
##
        1.599548
##
  [6]
        1.425882
  [7]
        1.371041
##
  [8]
##
        1.345172
##
  [9]
        1.338857
  [10] 1.302176
##
   [11] 1.100218
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
  [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
##
## [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
## [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
  [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
  [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
   [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
   [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
##
   [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
       lift
## [1] 1.828054
```

```
## [2] 1.540305
   [3] 1.397924
   [4] 1.371041
  [5] 1.338857
   [6] 1.338857
##
   [7] 1.320261
   [8] 1.296257
##
   [9] 1.100218
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
   [1]
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
   [3]
##
        {aquatic=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
##
   [4]
        {hair=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3409091
##
   [5]
        {eggs=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
   [6]
##
        {milk=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
##
   [7]
        {predator=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
##
   [8]
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
   [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [11] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
##
        lift
##
  [1]
        5.516807
   [2]
        5.003096
##
   [3]
##
        3.366667
##
   [4]
        2.025401
   [5]
        1.838936
   [6]
##
        1.838936
##
   [7]
        1.643304
   [8]
##
        1.603175
##
   [9]
        1.553846
##
   [10] 1.338857
##
   [11] 1.284579
##
        lhs
                                                          support
                                                                    confidence
##
   [1]
        {feathers=FALSE, aquatic=TRUE}
                                          => {fins=TRUE} 0.1683168 0.5666667
##
   [2]
        {hair=FALSE, feathers=FALSE}
                                          => {fins=TRUE} 0.1485149 0.3947368
##
   [3]
        {feathers=FALSE,eggs=TRUE}
                                          => {fins=TRUE} 0.1287129 0.3333333
   [4]
        {feathers=FALSE,milk=FALSE}
                                          => {fins=TRUE} 0.1287129 0.3250000
   [5]
        {feathers=FALSE,tail=TRUE}
                                          => {fins=TRUE} 0.1584158 0.2909091
##
   [6]
        {feathers=FALSE,predator=TRUE}
                                            {fins=TRUE} 0.1287129 0.2765957
##
                                          =>
                                         => {fins=TRUE} 0.1683168 0.2698413
##
   [7]
        {feathers=FALSE,backbone=TRUE}
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
   Γ10]
##
        lift
## [1]
        3.366667
   [2]
        2.345201
##
##
   [3]
        1.980392
##
   [4]
        1.930882
##
   [5]
        1.728342
##
   [6]
        1.643304
   [7]
        1.603175
##
## [8]
        1.383562
## [9]
        1.338857
## [10] 1.302176
```

```
##
        lhs
                                                   support
                                                              confidence
##
  [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
        {legs=FALSE,tail=TRUE}
   [2]
                                    => {fins=TRUE} 0.1485149 0.8333333
  [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
##
##
   [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
##
   [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
  [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
##
  [7]
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
##
  [8]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
  [9]
        {predator=TRUE, tail=TRUE} => {fins=TRUE} 0.1188119 0.2857143
  [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
   [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
       {backbone=TRUE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
##
        lift
## [1]
        5.516807
##
  [2]
        4.950980
   [3]
##
        3.656109
  [4]
##
        2.121849
  [5]
##
        1.980392
##
   [6]
        1.930882
##
  [7]
        1.828054
  [8]
        1.728342
## [9]
        1.697479
  [10] 1.667699
## [11] 1.371041
  [12] 1.284579
##
       lhs
                                      rhs
                                                   support
                                                             confidence
##
  [1] {eggs=TRUE,toothed=TRUE}
                                   => {fins=TRUE} 0.1287129 0.6500000
  [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
## [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
  [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
   [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
   [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
##
       lift
## [1] 3.861765
## [2] 2.087440
## [3] 1.980392
  [4] 1.980392
##
  [5] 1.838936
  [6] 1.345172
  [7] 1.320261
##
                                                                   confidence
##
        lhs
                                            rhs
                                                         support
## [1]
        {airborne=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
## [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [3]
                                         => {fins=TRUE} 0.1287129 0.3513514
        {eggs=TRUE,airborne=FALSE}
##
  [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
##
  [5]
        {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
  [6]
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
  [7]
        {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
                                         => {fins=TRUE} 0.1683168 0.2615385
##
  [8]
        {airborne=FALSE,backbone=TRUE}
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
## [11] {airborne=FALSE,venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
```

```
##
        lift
##
        3.258065
  Г17
##
   [2]
        2.227941
  [3]
        2.087440
##
##
   [4]
        2.032508
##
   [5]
        1.711864
##
  [6]
        1.667699
  [7]
##
        1.576230
##
   [8]
        1.553846
##
  [9]
        1.397924
  [10] 1.383562
##
  [11] 1.338857
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
                                       => {fins=TRUE} 0.1287129 0.3513514
## [2] {predator=TRUE,toothed=TRUE}
  [3] {hair=FALSE,predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
  [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
  [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
  [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
  [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
##
   [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift.
## [1] 4.193772
   [2] 2.087440
##
## [3] 1.815359
  [4] 1.697479
  [5] 1.643304
   [6] 1.643304
##
  [7] 1.576230
## [8] 1.425882
##
       lhs
                                                   support
                                                              confidence
## [1] {hair=FALSE,toothed=TRUE}
                                    => {fins=TRUE} 0.1485149 0.6521739
  [2] {hair=FALSE, feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
  [4] {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
## [5] {hair=FALSE,backbone=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3409091
  [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
## [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
## [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
       lift.
## [1] 3.874680
## [2] 2.345201
  [3] 2.227941
##
  [4] 2.121849
## [5] 2.025401
## [6] 1.815359
##
  [7] 1.599548
##
  [8] 1.540305
##
        lhs
                                                       support
                                                                 confidence
                                          rhs
##
  [1]
        {toothed=TRUE,breathes=FALSE} =>
                                         {fins=TRUE} 0.1287129 0.9285714
##
  [2]
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
  [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
## [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
## [5]
        {eggs=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
```

```
{milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
        {predator=TRUE,toothed=TRUE} => {fins=TRUE} 0.1287129 0.3513514
  [7]
## [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
## [9]
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
  [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
  [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
        lift
## [1]
       5.516807
##
  [2]
       5.003096
  [3]
##
        4.391304
  [4]
        3.874680
  [5]
##
        3.861765
##
  [6]
        3.677871
## [7]
        2.087440
## [8]
        1.828054
## [9]
        1.828054
## [10] 1.711864
##
  [11] 1.667699
##
       lhs
                                         rhs
                                                     support
                                                               confidence
## [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
## [2] {aquatic=TRUE,toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
## [3] {aquatic=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
                                      => {fins=TRUE} 0.1584158 0.6153846
## [4] {aquatic=TRUE,tail=TRUE}
## [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
## [6] {aquatic=TRUE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
  [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
## [1] 5.281046
## [2] 4.391304
## [3] 3.861765
## [4] 3.656109
## [5] 3.366667
## [6] 3.366667
  [7] 3.258065
##
  [8] 2.970588
  [1] "Número de reglas con consecuente negado"
##
                                                         support
                                                                   confidence
        {backbone=FALSE, venomous=FALSE} => {tail=FALSE} 0.1386139 1.0000000
## [1]
  [2]
##
        {backbone=FALSE}
                                         => {tail=FALSE} 0.1683168 0.9444444
  [3]
        {feathers=FALSE, toothed=FALSE}
                                         => {tail=FALSE} 0.1683168 0.8500000
  [4]
        {airborne=FALSE, toothed=FALSE}
                                         => {tail=FALSE} 0.1089109 0.6111111
##
  [5]
        {feathers=FALSE,eggs=TRUE}
                                         => {tail=FALSE} 0.1980198 0.5128205
## [6]
        {feathers=FALSE,milk=FALSE}
                                         => {tail=FALSE} 0.1980198 0.5000000
## [7]
        {feathers=FALSE, catsize=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4651163
## [8]
                                         => {tail=FALSE} 0.1980198 0.4347826
        {eggs=TRUE,fins=FALSE}
## [9]
        {milk=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4255319
## [10] {hair=FALSE,feathers=FALSE}
                                         => {tail=FALSE} 0.1584158 0.4210526
## [11] {fins=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4166667
## [12] {eggs=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
## [13] {milk=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
## [14] {feathers=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.3906250
## [15] {legs=TRUE,catsize=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3902439
## [16] {airborne=FALSE, catsize=FALSE}
                                        => {tail=FALSE} 0.1386139 0.3888889
```

```
## [17] {eggs=TRUE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3793103
                                         => {tail=FALSE} 0.1386139 0.3783784
  [18] {eggs=TRUE,airborne=FALSE}
  [19] {hair=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.1584158 0.3720930
                                           {tail=FALSE} 0.1386139 0.3684211
  [20] {milk=FALSE,airborne=FALSE}
  [21] {milk=FALSE,aquatic=FALSE}
                                            {tail=FALSE} 0.1089109 0.3666667
                                           {tail=FALSE} 0.2079208 0.3620690
  [22] {feathers=FALSE,legs=TRUE}
  [23] {domestic=FALSE,catsize=FALSE}
                                           {tail=FALSE} 0.1782178 0.3600000
  [24] {feathers=FALSE,predator=FALSE} =>
                                            {tail=FALSE} 0.1188119 0.3529412
   [25] {aquatic=FALSE, catsize=FALSE}
                                            {tail=FALSE} 0.1188119 0.3529412
   [26] {hair=FALSE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3500000
  [27] {hair=FALSE,legs=TRUE}
                                           {tail=FALSE} 0.1188119 0.3333333
  [28] {feathers=FALSE,domestic=FALSE} =>
                                           {tail=FALSE} 0.2277228 0.3239437
  [29] {airborne=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1881188 0.3166667
                                         => {tail=FALSE} 0.2178218 0.3055556
## [30] {fins=FALSE,domestic=FALSE}
## [31] {predator=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1287129 0.3023256
  [32] {fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.2976190
   [33] {predator=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1089109 0.2820513
   [34] {airborne=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1485149 0.2777778
   [35] {legs=TRUE,domestic=FALSE}
                                         => {tail=FALSE} 0.1782178 0.2727273
   [36] {domestic=FALSE}
                                           {tail=FALSE} 0.2277228 0.2613636
##
  [37] {predator=TRUE}
                                         => {tail=FALSE} 0.1386139 0.2500000
                                         => {tail=FALSE} 0.2178218 0.2365591
   [38] {venomous=FALSE}
##
        lift.
        3.8846154
##
  Г17
   [2]
        3.6688034
  [3]
        3.3019231
   [4]
##
        2.3739316
##
   [5]
        1.9921105
##
  [6]
        1.9423077
  [7]
        1.8067979
## [8]
        1.6889632
##
  [9]
        1.6530278
  [10] 1.6356275
  [11] 1.6185897
   [12]
       1.5538462
##
  [13] 1.5538462
  [14] 1.5174279
## [15] 1.5159475
  [16] 1.5106838
  [17] 1.4734748
  [18] 1.4698545
  [19] 1.4454383
## [20] 1.4311741
## [21] 1.4243590
## [22] 1.4064987
## [23] 1.3984615
  [24] 1.3710407
  [25] 1.3710407
  [26] 1.3596154
  [27] 1.2948718
## [28] 1.2583965
## [29] 1.2301282
## [30] 1.1869658
## [31] 1.1744186
```

```
## [32] 1.1561355
  [33] 1.0956607
## [34] 1.0790598
## [35] 1.0594406
  [36] 1.0152972
  [37] 0.9711538
##
##
  [38] 0.9189413
##
        lhs
                             rhs
                                         support
                                                   confidence lift
## [1]
                         => {tail=TRUE} 0.1287129 1.0000000
                                                              1.3466667
        {type=fish}
##
  [2]
        {type=bird}
                         => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
  [3]
        {feathers=TRUE}
                         => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
  [4]
##
        {fins=TRUE}
                         => {tail=TRUE} 0.1584158 0.9411765
                                                               1.2674510
##
  [5]
        {catsize=TRUE}
                         => {tail=TRUE} 0.3762376 0.8636364
                                                               1.1630303
        {eggs=FALSE}
## [6]
                         => {tail=TRUE} 0.3564356 0.8571429
                                                               1.1542857
## [7]
                         => {tail=TRUE} 0.3465347 0.8536585
        {milk=TRUE}
                                                               1.1495935
## [8]
        {type=mammal}
                         => {tail=TRUE} 0.3465347 0.8536585
                                                               1.1495935
## [9]
        {legs=FALSE}
                         => {tail=TRUE} 0.1782178 0.7826087
                                                               1.0539130
## [10] {hair=TRUE}
                         => {tail=TRUE} 0.3267327 0.7674419
                                                               1.0334884
## [11] {aquatic=FALSE}
                         => {tail=TRUE} 0.4851485 0.7538462
                                                               1.0151795
## [12] {airborne=TRUE}
                         => {tail=TRUE} 0.1782178 0.7500000
                                                               1.0100000
## [13] {predator=TRUE}
                         => {tail=TRUE} 0.4158416 0.7500000
                                                               1.0100000
## [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
                                                               0.9946970
## [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                                                              0.9875556
## [16] {hair=FALSE}
                         => {tail=TRUE} 0.4158416 0.7241379
                                                               0.9751724
## [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
                                                              0.9144033
  [18] {eggs=TRUE}
                         => {tail=TRUE} 0.3861386 0.6610169
                                                              0.8901695
  [19] {catsize=FALSE}
                         => {tail=TRUE} 0.3663366 0.6491228
                                                              0.8741520
##
   [20] {toothed=FALSE} => {tail=TRUE} 0.2277228 0.5750000
                                                               0.7743333
##
       lhs
                                         rhs
                                                                 confidence
                                                      support
  [1] {eggs=TRUE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3793103
   [2] {milk=FALSE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3666667
##
   [3] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.473475
   [2] 1.424359
##
##
   [3] 1.371041
##
                                      rhs
                                                   support
                                                              confidence
## [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
   [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
##
##
       lift.
  [1] 1.174419
  [2] 1.095661
##
##
       lhs
                                           rhs
                                                        support
                                                                   confidence
## [1] {domestic=FALSE, catsize=FALSE}
                                        => {tail=FALSE} 0.1782178 0.3600000
## [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
  [3] {fins=FALSE,domestic=FALSE}
                                        => {tail=FALSE} 0.2178218 0.3055556
##
   [4] {legs=TRUE,domestic=FALSE}
                                        => {tail=FALSE} 0.1782178 0.2727273
##
       lift
## [1] 1.398462
## [2] 1.258397
## [3] 1.186966
## [4] 1.059441
##
       lhs
                                                        support
                                                                   confidence
                                           rhs
## [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
```

```
##
       lift
## [1] 1.371041
##
       lhs
                                                    support
                                                              confidence
## [1] {hair=FALSE,feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
  [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
  [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
  [4] {hair=FALSE,legs=TRUE}
                                   => {tail=FALSE} 0.1188119 0.3333333
##
       lift
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {tail=FALSE} 0.1683168 0.8500000
                                       => {tail=FALSE} 0.1980198 0.5128205
## [2] {feathers=FALSE,eggs=TRUE}
## [3] {feathers=FALSE,milk=FALSE}
                                        => {tail=FALSE} 0.1980198 0.5000000
## [4] {feathers=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4651163
## [5] {hair=FALSE,feathers=FALSE}
                                       => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                       => {tail=FALSE} 0.2475248 0.3906250
## [7] {feathers=FALSE,legs=TRUE}
                                       => {tail=FALSE} 0.2079208 0.3620690
## [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
## [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
##
       lift
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
## [7] 1.406499
## [8] 1.371041
## [9] 1.258397
##
                                     rhs
                                                   support
                                                             confidence
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
  [2] {eggs=TRUE,fins=FALSE}
                                  => {tail=FALSE} 0.1980198 0.4347826
## [3] {eggs=TRUE,legs=TRUE}
                                  => {tail=FALSE} 0.1584158 0.4000000
## [4] {eggs=TRUE,aquatic=FALSE} => {tail=FALSE} 0.1089109 0.3793103
## [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
       lift
## [1] 1.992110
## [2] 1.688963
## [3] 1.553846
##
  [4] 1.473475
##
  [5] 1.469854
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
  [2] {fins=FALSE,catsize=FALSE}
                                      => {tail=FALSE} 0.1980198 0.4166667
  [3] {legs=TRUE,catsize=FALSE}
                                      => {tail=FALSE} 0.1584158 0.3902439
## [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
  [5] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
##
   [6] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.806798
## [2] 1.618590
```

```
[3] 1.515947
   [4] 1.510684
   [5] 1.398462
   [6] 1.371041
##
       lhs
                                          rhs
                                                       support
                                                                  confidence
##
  [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
   [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
       lift.
##
   [1] 3.301923
##
   [2] 2.373932
   [1] "Número de reglas con consecuente negado"
##
                                                            support
        {milk=TRUE,predator=TRUE}
##
   [1]
                                            {catsize=TRUE} 0.1980198
        {predator=TRUE, type=mammal}
##
   [2]
                                         => {catsize=TRUE} 0.1980198
   [3]
##
        {hair=TRUE, predator=TRUE}
                                         => {catsize=TRUE} 0.1782178
##
   [4]
        {eggs=FALSE,predator=TRUE}
                                            {catsize=TRUE} 0.1881188
   [5]
##
                                         => {catsize=TRUE} 0.2970297
        {hair=TRUE,airborne=FALSE}
   [6]
        {milk=TRUE,domestic=FALSE}
                                            {catsize=TRUE} 0.2574257
##
   [7]
        {domestic=FALSE, type=mammal}
                                            {catsize=TRUE} 0.2574257
##
   [8]
        {milk=TRUE}
                                            {catsize=TRUE} 0.3168317
##
  [9]
        {type=mammal}
                                            {catsize=TRUE} 0.3168317
  [10] {eggs=FALSE, venomous=FALSE}
                                            {catsize=TRUE} 0.3069307
  [11] {hair=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2970297
##
  [12] {hair=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2475248
  [13] {eggs=FALSE,backbone=TRUE}
##
                                            {catsize=TRUE} 0.3069307
  [14] {eggs=FALSE}
                                            {catsize=TRUE} 0.3069307
   [15] {hair=TRUE, venomous=FALSE}
                                           {catsize=TRUE} 0.2970297
  [16] {hair=TRUE,domestic=FALSE}
                                            {catsize=TRUE} 0.2376238
  [17] {hair=TRUE}
                                         => {catsize=TRUE} 0.2970297
                                         => {catsize=TRUE} 0.2574257
  [18] {aquatic=FALSE,toothed=TRUE}
  [19] {toothed=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.2772277
  [20] {toothed=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.3069307
  [21] {airborne=FALSE,breathes=TRUE}
                                            {catsize=TRUE} 0.3564356
  [22] {airborne=FALSE,aquatic=FALSE}
                                           {catsize=TRUE} 0.2871287
   [23] {airborne=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3366337
  [24] {predator=TRUE,toothed=TRUE}
                                           {catsize=TRUE} 0.2277228
  [25] {airborne=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3960396
  [26] {airborne=FALSE,tail=TRUE}
                                           {catsize=TRUE} 0.3465347
  [27] {toothed=TRUE,fins=FALSE}
                                            {catsize=TRUE} 0.2673267
  [28] {toothed=TRUE, venomous=FALSE}
                                         => {catsize=TRUE} 0.3366337
  [29] {aquatic=FALSE, predator=TRUE}
                                           {catsize=TRUE} 0.1584158
  [30] {predator=TRUE, breathes=TRUE}
                                           {catsize=TRUE} 0.2277228
  [31] {feathers=FALSE,backbone=TRUE}
                                         => {catsize=TRUE} 0.3663366
                                         => {catsize=TRUE} 0.3069307
  [32] {aquatic=FALSE,backbone=TRUE}
## [33] {feathers=FALSE,tail=TRUE}
                                         => {catsize=TRUE} 0.3168317
## [34] {toothed=TRUE,tail=TRUE}
                                         => {catsize=TRUE} 0.2970297
  [35]
       {predator=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2673267
  [36] {backbone=TRUE,breathes=TRUE}
                                           {catsize=TRUE} 0.3861386
  [37] {airborne=FALSE,venomous=FALSE} => {catsize=TRUE} 0.3960396
   [38] {backbone=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.3564356
  [39]
       {legs=TRUE,tail=TRUE}
                                           {catsize=TRUE} 0.3168317
##
## [40] {breathes=TRUE,tail=TRUE}
                                         => {catsize=TRUE} 0.3366337
## [41] {aquatic=FALSE,tail=TRUE}
                                         => {catsize=TRUE} 0.2673267
## [42] {airborne=FALSE,fins=FALSE}
                                           {catsize=TRUE} 0.3267327
```

```
## [43] {feathers=FALSE,breathes=TRUE}
                                         => {catsize=TRUE} 0.3267327
   [44] {predator=TRUE,tail=TRUE}
                                             {catsize=TRUE} 0.2277228
   [45] {predator=TRUE, venomous=FALSE}
                                             {catsize=TRUE} 0.2673267
   [46] {predator=TRUE,legs=TRUE}
                                             {catsize=TRUE} 0.2079208
##
   [47] {feathers=FALSE,legs=TRUE}
                                             {catsize=TRUE} 0.3069307
##
   [48] {feathers=FALSE,predator=TRUE}
                                             {catsize=TRUE} 0.2475248
   [49] {backbone=TRUE, venomous=FALSE}
                                             {catsize=TRUE} 0.4158416
   [50]
       {backbone=TRUE,fins=FALSE}
                                             {catsize=TRUE} 0.3465347
##
   [51]
       {feathers=FALSE,aquatic=FALSE}
                                             {catsize=TRUE} 0.2673267
   [52]
       {fins=FALSE,tail=TRUE}
                                             {catsize=TRUE} 0.3069307
   [53] {venomous=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3663366
   [54]
       {backbone=TRUE,domestic=FALSE}
                                            {catsize=TRUE} 0.3663366
   [55]
       {breathes=TRUE, venomous=FALSE}
                                             {catsize=TRUE} 0.3861386
       {aquatic=FALSE, venomous=FALSE}
                                             {catsize=TRUE} 0.3069307
   [57]
        {feathers=FALSE, venomous=FALSE} =>
                                             {catsize=TRUE} 0.3663366
        {venomous=FALSE,legs=TRUE}
                                             {catsize=TRUE} 0.3663366
##
   [59]
        {aquatic=FALSE}
                                            {catsize=TRUE} 0.3069307
        {aquatic=TRUE}
                                            {catsize=TRUE} 0.1287129
   [60]
##
   [61] {hair=FALSE}
                                            {catsize=TRUE} 0.1386139
##
   Γ621
        {milk=FALSE}
                                            {catsize=TRUE} 0.1188119
##
        confidence lift
        0.9090909
                   2.0867769
##
   [1]
   [2]
##
        0.9090909
                   2.0867769
   [3]
##
        0.9000000
                    2.0659091
##
   [4]
        0.8260870
                    1.8962451
   [5]
        0.8108108
                    1.8611794
   [6]
##
        0.7878788
                    1.8085399
##
   [7]
        0.7878788
                    1.8085399
   [8]
##
        0.7804878
                    1.7915743
                    1.7915743
   [9]
        0.7804878
   [10] 0.7750000
                    1.7789773
   [11] 0.7692308
                    1.7657343
   [12] 0.7575758
                    1.7389807
   [13] 0.7560976
                    1.7355876
   [14] 0.7380952
                    1.6942641
##
   [15] 0.7317073
                    1.6796009
   [16] 0.7058824
                    1.6203209
   [17] 0.6976744
                    1.6014799
   [18] 0.6842105
                    1.5705742
   [19] 0.6666667
                    1.5303030
   [20] 0.6595745
                    1.5140232
   [21] 0.6428571
                    1.4756494
   [22] 0.6304348
                    1.4471344
   [23] 0.6296296
                    1.4452862
   [24] 0.6216216
                    1.4269042
   [25] 0.6153846
                    1.4125874
   [26] 0.6140351
                    1.4094896
   [27] 0.6136364
                    1.4085744
   [28] 0.5964912
                    1.3692185
   [29]
        0.5925926
                    1.3602694
##
   [30] 0.5897436
                    1.3537296
   [31] 0.5873016
                    1.3481241
  [32] 0.5849057
                    1.3426244
## [33] 0.5818182
                   1.3355372
```

```
[34] 0.5769231
                    1.3243007
   [35] 0.5744681
                    1.3186654
   [36] 0.5652174
                    1.2974308
   [37]
        0.5633803
                    1.2932138
##
   [38]
        0.5625000
                    1.2911932
   [39] 0.5614035
                    1.2886762
##
   [40] 0.5573770
                    1.2794337
   [41] 0.5510204
                    1.2648423
   [42] 0.5500000
                    1.2625000
   [43] 0.5500000
                    1.2625000
   [44] 0.5476190
                    1.2570346
   [45] 0.5400000
                    1.2395455
   [46] 0.5384615
                    1.2360140
##
   [47] 0.5344828
                    1.2268809
   [48] 0.5319149
                    1.2209865
   [49]
        0.5316456
                    1.2203682
##
   [50] 0.5303030
                    1.2172865
   [51] 0.5294118
                    1.2152406
                    1.2060863
   [52] 0.5254237
   [53] 0.5211268
                    1.1962228
##
   [54] 0.5211268
                    1.1962228
   [55] 0.5200000
                    1.1936364
   [56] 0.5081967
##
                    1.1665425
##
   [57] 0.5068493
                    1.1634496
##
   [58] 0.5000000
                    1.1477273
   [59] 0.4769231
                    1.0947552
##
   [60] 0.3611111
                    0.8289141
##
   [61]
        0.2413793
                    0.5540752
##
   [62] 0.2000000
                    0.4590909
##
        lhs
                             rhs
                                              support
                                                         confidence lift
##
   [1]
        {backbone=FALSE} => {catsize=FALSE} 0.1683168 0.9444444
                                                                     1.6734893
##
   [2]
        {airborne=TRUE}
                          => {catsize=FALSE} 0.2079208 0.8750000
                                                                     1.5504386
##
   [3]
        {milk=FALSE}
                          => {catsize=FALSE} 0.4752475 0.8000000
                                                                     1.4175439
   [4]
##
                          => {catsize=FALSE} 0.4554455 0.7796610
        {eggs=TRUE}
                                                                     1.3815046
   [5]
        {tail=FALSE}
                             {catsize=FALSE} 0.1980198 0.7692308
##
                                                                     1.3630229
##
   [6]
        {breathes=FALSE}
                          =>
                             {catsize=FALSE} 0.1584158 0.7619048
                                                                     1.3500418
##
   [7]
        {type=bird}
                             {catsize=FALSE} 0.1386139 0.7000000
                                                                     1.2403509
   [8]
        {feathers=TRUE}
                             {catsize=FALSE} 0.1386139 0.7000000
##
                                                                     1.2403509
   [9]
                             {catsize=FALSE} 0.1584158 0.6956522
##
        {legs=FALSE}
                                                                     1.2326468
                             {catsize=FALSE} 0.2277228 0.6388889
##
   [10] {aquatic=TRUE}
                                                                     1.1320663
   [11] {predator=TRUE}
                             {catsize=FALSE} 0.2772277 0.5000000
                                                                     0.8859649
   [12] {airborne=FALSE}
                             {catsize=FALSE} 0.3564356 0.4675325
                          =>
                                                                     0.8284347
##
   Г137
       {hair=TRUE}
                          => {catsize=FALSE} 0.1287129 0.3023256
                                                                     0.5356997
##
                          => {catsize=FALSE} 0.1089109 0.2619048
   [14]
        {eggs=FALSE}
                                                                     0.4640769
##
        lhs
                                            rhs
                                                                       confidence
                                                            support
   [1]
                                         => {catsize=TRUE} 0.1980198 0.9090909
##
        {milk=TRUE, predator=TRUE}
##
   [2]
        {predator=TRUE, type=mammal}
                                            {catsize=TRUE} 0.1980198 0.9090909
##
   [3]
        {hair=TRUE, predator=TRUE}
                                            {catsize=TRUE} 0.1782178 0.9000000
##
   [4]
        {eggs=FALSE,predator=TRUE}
                                         => {catsize=TRUE} 0.1881188 0.8260870
##
   [5]
        {predator=TRUE, toothed=TRUE}
                                            {catsize=TRUE} 0.2277228 0.6216216
##
   [6]
        {aquatic=FALSE,predator=TRUE}
                                         => {catsize=TRUE} 0.1584158 0.5925926
##
   [7]
        {predator=TRUE, breathes=TRUE}
                                         => {catsize=TRUE} 0.2277228 0.5897436
##
   [8]
        {predator=TRUE,backbone=TRUE}
                                         => {catsize=TRUE} 0.2673267 0.5744681
   [9]
        {predator=TRUE, tail=TRUE}
                                         => {catsize=TRUE} 0.2277228 0.5476190
```

```
## [10] {predator=TRUE,venomous=FALSE} => {catsize=TRUE} 0.2673267 0.5400000
                                       => {catsize=TRUE} 0.2079208 0.5384615
## [11] {predator=TRUE,legs=TRUE}
  [12] {feathers=FALSE,predator=TRUE} => {catsize=TRUE} 0.2475248 0.5319149
##
        lift.
##
  [1]
        2.086777
##
  [2]
       2.086777
  [3]
        2.065909
## [4]
        1.896245
##
  [5]
        1.426904
##
  [6]
        1.360269
  [7]
        1.353730
##
  [8]
        1.318665
##
  [9]
        1.257035
## [10] 1.239545
## [11] 1.236014
## [12] 1.220986
##
       lhs
                                                                    confidence
                                           rhs
                                                          support
## [1] {hair=TRUE,airborne=FALSE}
                                        => {catsize=TRUE} 0.2970297 0.8108108
## [2] {airborne=FALSE,breathes=TRUE}
                                       => {catsize=TRUE} 0.3564356 0.6428571
## [3] {airborne=FALSE,aquatic=FALSE}
                                        => {catsize=TRUE} 0.2871287 0.6304348
## [4] {airborne=FALSE,legs=TRUE}
                                        => {catsize=TRUE} 0.3366337 0.6296296
## [5] {airborne=FALSE,backbone=TRUE}
                                        => {catsize=TRUE} 0.3960396 0.6153846
                                        => {catsize=TRUE} 0.3465347 0.6140351
## [6] {airborne=FALSE,tail=TRUE}
## [7] {airborne=FALSE,venomous=FALSE} => {catsize=TRUE} 0.3960396 0.5633803
  [8] {airborne=FALSE,fins=FALSE}
                                        => {catsize=TRUE} 0.3267327 0.5500000
       lift
## [1] 1.861179
## [2] 1.475649
## [3] 1.447134
## [4] 1.445286
## [5] 1.412587
## [6] 1.409490
## [7] 1.293214
## [8] 1.262500
##
       lhs
                                      rhs
                                                     support
                                                               confidence
## [1] {hair=TRUE,predator=TRUE} => {catsize=TRUE} 0.1782178 0.9000000
## [2] {hair=TRUE,airborne=FALSE} => {catsize=TRUE} 0.2970297 0.8108108
## [3] {hair=TRUE,backbone=TRUE} => {catsize=TRUE} 0.2970297 0.7692308
## [4] {hair=TRUE,tail=TRUE}
                                  => {catsize=TRUE} 0.2475248 0.7575758
  [5] {hair=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2970297 0.7317073
  [6] {hair=TRUE,domestic=FALSE} => {catsize=TRUE} 0.2376238 0.7058824
##
       lift
## [1] 2.065909
## [2] 1.861179
## [3] 1.765734
## [4] 1.738981
## [5] 1.679601
##
  [6] 1.620321
##
       lhs
                                                                confidence
                                       rhs
                                                      support
  [1] {eggs=FALSE,predator=TRUE} => {catsize=TRUE} 0.1881188 0.8260870
## [2] {eggs=FALSE,venomous=FALSE} => {catsize=TRUE} 0.3069307 0.7750000
  [3] {eggs=FALSE,backbone=TRUE} => {catsize=TRUE} 0.3069307 0.7560976
##
       lift
## [1] 1.896245
```

```
[2] 1.778977
   [3] 1.735588
##
   [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                             support
##
   [1]
        {type=bird}
                                            {toothed=FALSE} 0.1980198
   [2]
##
        {feathers=TRUE}
                                            {toothed=FALSE} 0.1980198
   [3]
        {hair=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.1782178
   [4]
##
        {eggs=TRUE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
##
   [5]
        {milk=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
   [6]
##
        {milk=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2673267
   [7]
        {eggs=TRUE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2574257
   [8]
##
        {hair=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2277228
##
   [9]
        {eggs=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
                                            {toothed=FALSE} 0.3465347
   [10]
       {milk=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3069307
   [11]
       {hair=FALSE,legs=TRUE}
        {eggs=TRUE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   [12]
       {milk=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   Γ13]
   [14] {eggs=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
   [15] {milk=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
   [16] {eggs=TRUE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
##
  [17] {milk=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
  [18] {hair=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3465347
  [19] {hair=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1287129
   [20] {eggs=TRUE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
   [21] {milk=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
   [22] {tail=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1584158
   [23] {hair=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.1683168
   [24] {hair=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.2772277
  [25] {tail=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.1584158
   [26] {aquatic=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1089109
        {aquatic=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.1287129
   [28]
        {fins=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   [29] {eggs=TRUE, venomous=FALSE}
                                            {toothed=FALSE} 0.3564356
   [30] {milk=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3465347
   [31] {aquatic=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.1188119
##
   [32] {legs=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
   [33] {tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   [34] {milk=FALSE}
                                            {toothed=FALSE} 0.3861386
##
   [35]
       {aquatic=FALSE, catsize=FALSE}
                                            {toothed=FALSE} 0.2178218
##
   [36] {fins=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
   [37]
       {hair=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3267327
   [38] {hair=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
   [39]
       {breathes=TRUE, catsize=FALSE}
                                            {toothed=FALSE} 0.2475248
##
  [40] {predator=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1683168
  [41] {catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
  [42]
        {predator=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.2079208
   [43]
       {predator=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.1683168
       {fins=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.3564356
   [45] {predator=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.1881188
   [46] {legs=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.3168317
       {aquatic=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.2277228
  [48] {breathes=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.2871287
##
  [49] {predator=TRUE}
                                         => {toothed=FALSE} 0.1881188
##
        confidence lift
```

```
## [1]
        1.0000000
                   2.5250000
##
   [2]
        1.0000000
                    2.5250000
   [3]
        1.0000000
                    2.5250000
   [4]
##
        1.0000000
                    2.5250000
##
   [5]
        1.0000000
                    2.5250000
##
   [6]
        0.9000000
                    2.2725000
   [7]
        0.8965517
                    2.2637931
##
   [8]
        0.8846154
                    2.2336538
##
   [9]
        0.8750000
                    2.2093750
   [10] 0.8750000
                    2.2093750
   [11] 0.8611111
                    2.1743056
   [12] 0.8500000
                    2.1462500
   [13] 0.8500000
                    2.1462500
   [14] 0.8478261
                    2.1407609
   [15] 0.8297872
                    2.0952128
   [16] 0.8205128
                    2.0717949
   [17] 0.8205128
                    2.0717949
   [18] 0.8139535
                    2.0552326
   [19] 0.8125000
                    2.0515625
   [20] 0.8076923
                    2.0394231
##
   [21] 0.8076923
                    2.0394231
   [22] 0.8000000
                    2.0200000
   [23] 0.7727273
                    1.9511364
##
   [24] 0.7567568
                    1.9108108
   [25] 0.6956522
                    1.7565217
   [26] 0.6875000
                    1.7359375
   [27] 0.6842105
                    1.7276316
##
   [28] 0.6800000
                    1.7170000
   [29] 0.6792453
                    1.7150943
   [30] 0.6730769
                    1.6995192
   [31] 0.6666667
                    1.6833333
##
   [32] 0.6585366
                    1.6628049
   [33] 0.6538462
                    1.6509615
   [34] 0.6500000
                    1.6412500
   [35] 0.6470588
                    1.6338235
##
   [36] 0.6458333
                    1.6307292
   [37] 0.6346154
                    1.6024038
   [38] 0.6136364
                    1.5494318
   [39] 0.6097561
                    1.5396341
##
   [40] 0.5862069
                    1.4801724
   [41] 0.5438596
                    1.3732456
   [42] 0.5121951
                    1.2932927
   [43] 0.5000000
                    1.2625000
   [44] 0.5000000
                    1.2625000
   [45] 0.4871795
                    1.2301282
   [46] 0.4848485
                    1.2242424
##
   [47] 0.4339623
                    1.0957547
   [48] 0.4264706
                    1.0768382
##
   [49]
        0.3392857
                    0.8566964
##
        lhs
                                              support
                                                        confidence lift
                             rhs
##
   [1]
                             {toothed=TRUE} 0.1287129 1.0000000 1.6557377
        {type=fish}
##
   [2]
        {fins=TRUE}
                             {toothed=TRUE} 0.1683168 1.0000000
## [3]
        {eggs=FALSE}
                          => {toothed=TRUE} 0.4059406 0.9761905
                                                                    1.6163154
## [4]
        {legs=FALSE}
                          => {toothed=TRUE} 0.1881188 0.8260870
```

```
{catsize=TRUE}
                         => {toothed=TRUE} 0.3465347 0.7954545
                                                                 1.3170641
##
  [6]
        {feathers=FALSE} => {toothed=TRUE} 0.6039604 0.7530864
                                                                 1.2469136
  [7]
        {tail=TRUE}
                         => {toothed=TRUE} 0.5148515 0.6933333
                                                                 1.1479781
  [8]
        {breathes=FALSE} => {toothed=TRUE} 0.1386139 0.6666667
##
                                                                 1.1038251
##
   [9]
        {predator=TRUE}
                         => {toothed=TRUE} 0.3663366 0.6607143
                                                                 1.0939696
  [10] {aquatic=TRUE}
                         => {toothed=TRUE} 0.2277228 0.6388889
##
                                                                 1.0578324
  [11] {domestic=FALSE} => {toothed=TRUE} 0.5148515 0.5909091
                                                                 0.9783905
## [12] {breathes=TRUE}
                         => {toothed=TRUE} 0.4653465 0.5875000
                                                                 0.9727459
  [13] {predator=FALSE} => {toothed=TRUE} 0.2376238 0.5333333
                                                                 0.8830601
  [14] {catsize=FALSE}
                         => {toothed=TRUE} 0.2574257 0.4561404
                                                                 0.7552488
  [15] {hair=FALSE}
                         => {toothed=TRUE} 0.2277228 0.3965517
                                                                 0.6565856
##
   [16] {eggs=TRUE}
                         => {toothed=TRUE} 0.1980198 0.3389831
                                                                 0.5612670
##
       lhs
                                    rhs
                                                     support
                                                               confidence
   [1] {aquatic=TRUE,fins=FALSE} => {toothed=FALSE} 0.1287129 0.6842105
   [2] {aquatic=TRUE,legs=TRUE} => {toothed=FALSE} 0.1188119 0.6666667
##
       lift
##
  [1] 1.727632
   [2] 1.683333
##
       lhs
                                           rhs
                                                           support
##
  [1] {tail=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.1584158
##
  [2] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
  [3] {fins=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3564356
  [4] {legs=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3168317
   [5] {aquatic=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2277228
##
   [6] {breathes=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2871287
       confidence lift
  [1] 0.6956522 1.756522
##
   [2] 0.5000000
                  1.262500
  [3] 0.5000000
                  1.262500
  [4] 0.4848485
                  1.224242
##
  [5] 0.4339623
                  1.095755
##
   [6] 0.4264706
                  1.076838
##
       lhs
                                                          support
                                                                    confidence
##
  [1] {eggs=TRUE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
   [2] {milk=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
  [3] {hair=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.2772277 0.7567568
  [4] {breathes=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2475248 0.6097561
  [5] {breathes=TRUE,domestic=FALSE} => {toothed=FALSE} 0.2871287 0.4264706
##
##
       lift.
## [1] 2.071795
  [2] 2.071795
  [3] 1.910811
##
   [4] 1.539634
##
   [5] 1.076838
##
       lhs
                                           rhs
                                                           support
  [1] {eggs=TRUE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
   [2] {milk=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [3] {hair=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.1683168
  [4] {predator=FALSE,catsize=FALSE}
                                        => {toothed=FALSE} 0.1683168
   [5] {predator=FALSE,fins=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [6] {predator=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.1683168
  [7] {predator=FALSE,legs=TRUE}
                                        => {toothed=FALSE} 0.1881188
##
       confidence lift
## [1] 0.8076923 2.039423
```

```
[2] 0.8076923
                  2.039423
   [3] 0.7727273
                  1.951136
  [4] 0.5862069
                  1.480172
  [5] 0.5121951
                  1.293293
   [6] 0.5000000
                  1.262500
   [7] 0.4871795
                  1.230128
##
##
       lhs
                                          rhs
                                                          support
                                                                     confidence
                                       => {toothed=FALSE} 0.1584158 0.8000000
## [1] {tail=FALSE, catsize=FALSE}
   [2] {legs=TRUE,catsize=FALSE}
                                          {toothed=FALSE} 0.2673267 0.6585366
   [3] {aquatic=FALSE, catsize=FALSE}
                                       => {toothed=FALSE} 0.2178218 0.6470588
  [4] {fins=FALSE, catsize=FALSE}
                                       => {toothed=FALSE} 0.3069307 0.6458333
   [5] {hair=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6136364
   [6] {breathes=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2475248 0.6097561
##
   [7] {predator=FALSE,catsize=FALSE} => {toothed=FALSE} 0.1683168 0.5862069
##
       lift
##
   [1] 2.020000
##
   [2] 1.662805
  [3] 1.633824
  [4] 1.630729
   [5] 1.549432
##
   [6] 1.539634
##
   [7] 1.480172
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
##
  [1] {hair=FALSE,airborne=TRUE}
                                    => {toothed=FALSE} 0.1782178 1.0000000
   [2] {hair=FALSE,aquatic=FALSE}
                                    => {toothed=FALSE} 0.2277228 0.8846154
  [3] {hair=FALSE,legs=TRUE}
                                    => {toothed=FALSE} 0.3069307 0.8611111
   [4] {hair=FALSE,fins=FALSE}
                                    => {toothed=FALSE} 0.3465347 0.8139535
  [5] {hair=FALSE,tail=FALSE}
                                    => {toothed=FALSE} 0.1287129 0.8125000
  [6] {hair=FALSE,predator=FALSE} => {toothed=FALSE} 0.1683168 0.7727273
  [7] {hair=FALSE,breathes=TRUE}
                                    => {toothed=FALSE} 0.2772277 0.7567568
   [8] {hair=FALSE, venomous=FALSE} => {toothed=FALSE} 0.3267327 0.6346154
##
   [9] {hair=FALSE, catsize=FALSE} => {toothed=FALSE} 0.2673267 0.6136364
##
       lift
  [1] 2.525000
##
   [2] 2.233654
   [3] 2.174306
##
  [4] 2.055233
  [5] 2.051563
##
##
   [6] 1.951136
##
  [7] 1.910811
  [8] 1.602404
   [9] 1.549432
##
##
       lhs
                                      rhs
                                                                 confidence
                                                      support
                                      {toothed=FALSE} 0.2178218 1.0000000
##
  [1] {eggs=TRUE,airborne=TRUE}
                                   =>
  [2] {eggs=TRUE,aquatic=FALSE}
                                   => {toothed=FALSE} 0.2574257 0.8965517
   [3] {eggs=TRUE,legs=TRUE}
                                   => {toothed=FALSE} 0.3465347 0.8750000
##
   [4] {eggs=TRUE,tail=FALSE}
                                      {toothed=FALSE} 0.1683168 0.8500000
   [5] {eggs=TRUE,fins=FALSE}
                                   => {toothed=FALSE} 0.3861386 0.8478261
   [6] {eggs=TRUE,breathes=TRUE}
                                   => {toothed=FALSE} 0.3168317 0.8205128
   [7] {eggs=TRUE,predator=FALSE} => {toothed=FALSE} 0.2079208 0.8076923
##
   [8] {eggs=TRUE,venomous=FALSE} => {toothed=FALSE} 0.3564356 0.6792453
##
       lift
## [1] 2.525000
## [2] 2.263793
```

```
[3] 2.209375
   [4] 2.146250
   [5] 2.140761
   [6] 2.071795
##
   [7] 2.039423
##
   [8] 1.715094
##
       "Número de reglas con consecuente negado"
##
                                                              support
##
   [1]
        {type=fish}
                                            {breathes=FALSE} 0.1287129
   [2]
##
        {eggs=TRUE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
   [3]
        {milk=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
   [4]
##
        {hair=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
##
   [5]
        {aquatic=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
                                            {breathes=FALSE} 0.1584158
##
   [6]
        {milk=FALSE,legs=FALSE}
   [7]
                                            {breathes=FALSE} 0.1485149
##
        {eggs=TRUE,legs=FALSE}
##
   [8]
        {legs=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
##
   [9]
        {hair=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
   [10] {predator=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1188119
                                            {breathes=FALSE} 0.1980198
   [11] {milk=FALSE,aquatic=TRUE}
   [12] {feathers=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
##
  [13] {milk=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
  [14] {aquatic=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
                                            {breathes=FALSE} 0.1287129
   [15] {eggs=TRUE,toothed=TRUE}
                                            {breathes=FALSE} 0.1980198
##
   [16] {airborne=FALSE,aquatic=TRUE}
   [17] {eggs=TRUE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1881188
   [18] {hair=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [19] {aquatic=TRUE, toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
   [20] {hair=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
  [21] {hair=FALSE,feathers=FALSE}
                                            {breathes=FALSE} 0.2079208
  [22] {milk=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
        {eggs=TRUE,airborne=FALSE}
                                            {breathes=FALSE} 0.1980198
   [24]
        {hair=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
   [25] {feathers=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
   [26] {feathers=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
       {milk=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [27]
##
   [28]
       {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
  [29] {hair=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
  [30] {airborne=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
##
       {predator=TRUE,catsize=FALSE}
                                             {breathes=FALSE} 0.1188119
   [31]
   [32] {hair=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
   [33] {feathers=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [34] {hair=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
##
   [35] {hair=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
                                            {breathes=FALSE} 0.1584158
##
   [36] {hair=FALSE,catsize=FALSE}
   [37] {milk=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
                                            {breathes=FALSE} 0.1683168
   [38]
        {feathers=FALSE,predator=TRUE}
   [39]
##
        {eggs=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1881188
       {airborne=FALSE, predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [41] {domestic=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
   [42]
        {airborne=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
##
  [43]
       {feathers=FALSE,airborne=FALSE}
                                         =>
                                            {breathes=FALSE} 0.2079208
  [44] {feathers=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
## [45] {toothed=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1287129
## [46] {tail=TRUE}
                                            {breathes=FALSE} 0.1386139
```

```
##
        confidence lift
##
                   4.8095238
   [1]
        1.0000000
   [2]
        1.0000000
                    4.8095238
   [3]
##
        1.0000000
                    4.8095238
##
   [4]
        0.8666667
                    4.1682540
##
   [5]
        0.8333333
                    4.0079365
##
   [6]
        0.8000000
                    3.8476190
##
   [7]
        0.7894737
                    3.7969925
##
   [8]
        0.7500000
                    3.6071429
##
   [9]
        0.7272727
                    3.4978355
   [10] 0.7058824
                    3.3949580
   [11] 0.6666667
                    3.2063492
##
   [12] 0.6666667
                    3.2063492
   [13] 0.6666667
                    3.2063492
   [14] 0.6521739
                    3.1366460
   [15] 0.6500000
                    3.1261905
   [16] 0.6451613
                    3.1029186
   [17] 0.6333333
                    3.0460317
   [18] 0.6250000
                    3.0059524
   [19] 0.6086957
                    2.9275362
##
   [20] 0.6086957
                    2.9275362
   [21] 0.5526316
                    2.6578947
   [22] 0.5526316
                    2.6578947
   [23] 0.5405405
##
                    2.5997426
   [24] 0.5250000
                    2.5250000
   [25] 0.5250000
                    2.5250000
   [26] 0.5128205
                    2.4664225
##
   [27] 0.5000000
                    2.4047619
   [28] 0.4848485
                    2.3318903
   [29] 0.4722222
                    2.2711640
   [30] 0.444444
                    2.1375661
##
   [31] 0.4285714
                    2.0612245
   [32] 0.3750000
                    1.8035714
   [33] 0.3720930
                    1.7895903
   [34] 0.3703704
                    1.7813051
   [35] 0.3703704
##
                    1.7813051
   [36] 0.3636364
                    1.7489177
   [37] 0.3636364
                    1.7489177
##
   [38] 0.3617021
                    1.7396150
   [39] 0.3518519
##
                    1.6922399
   [40] 0.3469388
                    1.6686103
   [41] 0.3000000
                    1.4428571
   [42] 0.2941176
                    1.4145658
##
   [43] 0.2876712
                    1.3835616
   [44] 0.2816901
                    1.3547954
   [45] 0.2500000
                    1.2023810
##
   [46] 0.1866667
                    0.8977778
##
        lhs
                                               support
                                                         confidence lift
##
   [1]
        {type=bird}
                          => {breathes=TRUE} 0.1980198 1.0000000
                                                                     1.2625000
##
   [2]
        {feathers=TRUE}
                             {breathes=TRUE} 0.1980198 1.0000000
                                                                     1.2625000
##
   [3]
        {airborne=TRUE}
                             {breathes=TRUE} 0.2376238 1.0000000
                          =>
                                                                     1.2625000
##
   [4]
        {milk=TRUE}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                     1.2625000
##
  [5]
        {type=mammal}
                          => {breathes=TRUE} 0.4059406 1.0000000
                                                                     1.2625000
## [6]
        {hair=TRUE}
                          => {breathes=TRUE} 0.4257426 1.0000000
```

```
## [7]
        {aquatic=FALSE}
                         => {breathes=TRUE} 0.6336634 0.9846154
                                                                  1.2430769
  [8]
                         => {breathes=TRUE} 0.4059406 0.9761905
##
        {eggs=FALSE}
                                                                  1.2324405
        {legs=TRUE}
                         => {breathes=TRUE} 0.7227723 0.9358974
  [9]
                         => {breathes=TRUE} 0.1188119 0.9230769
  [10] {domestic=TRUE}
                                                                  1.1653846
##
  [11] {predator=FALSE}
                         =>
                            {breathes=TRUE} 0.4059406 0.9111111
                                                                  1.1502778
  [12] {catsize=TRUE}
                         => {breathes=TRUE} 0.3861386 0.8863636
                                                                  1.1190341
  [13] {toothed=FALSE}
                         => {breathes=TRUE} 0.3267327 0.8250000
                                                                  1.0415625
## [14] {tail=TRUE}
                         => {breathes=TRUE} 0.6039604 0.8133333
                                                                  1.0268333
  [15] {domestic=FALSE} => {breathes=TRUE} 0.6732673 0.7727273
                                                                  0.9755682
  [16] {tail=FALSE}
                         => {breathes=TRUE} 0.1881188 0.7307692
                                                                  0.9225962
## [17] {airborne=FALSE} => {breathes=TRUE} 0.5544554 0.7272727
                                                                  0.9181818
  [18] {catsize=FALSE}
                         => {breathes=TRUE} 0.4059406 0.7192982
                                                                  0.9081140
  [19] {predator=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6964286
                                                                  0.8792411
  [20] {eggs=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6610169
                                                                  0.8345339
                         => {breathes=TRUE} 0.3861386 0.6500000
## [21] {milk=FALSE}
                                                                  0.8206250
##
  [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
                                                                  0.7715278
##
       lhs
                                           rhs
                                                            support
  [1] {hair=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
##
  [2] {milk=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
   [3] {eggs=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1881188
  [4] {domestic=FALSE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1485149
  [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [7] {toothed=TRUE.domestic=FALSE}
##
                                       => {breathes=FALSE} 0.1287129
##
       confidence lift
## [1] 0.3703704 1.781305
  [2] 0.3636364
                  1.748918
  [3] 0.3518519
                  1.692240
## [4] 0.300000
                  1.442857
  [5] 0.2941176
                  1.414566
##
  [6] 0.2816901
                  1.354795
##
   [7] 0.2500000
                  1.202381
##
                                                            support
## [1] {airborne=FALSE,aquatic=TRUE}
                                        => {breathes=FALSE} 0.1980198
   [2] {milk=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
  [3] {eggs=TRUE,airborne=FALSE}
                                        => {breathes=FALSE} 0.1980198
  [4] {hair=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
  [5] {airborne=FALSE, catsize=FALSE}
                                        => {breathes=FALSE} 0.1584158
  [6] {airborne=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
##
       confidence lift
## [1] 0.6451613
                  3.102919
  [2] 0.5526316
                  2.657895
## [3] 0.5405405
                  2.599743
## [4] 0.5250000
                  2.525000
##
  [5] 0.444444
                  2.137566
  [6] 0.3469388
                  1.668610
  [7] 0.2941176
                  1.414566
##
   [8] 0.2876712
                  1.383562
##
       lhs
                                          rhs
                                                           support
## [1] {legs=FALSE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1188119
## [2] {aquatic=TRUE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1485149
## [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
```

```
## [4] {predator=TRUE,catsize=FALSE} => {breathes=FALSE} 0.1188119
  [5] {feathers=FALSE, catsize=FALSE} => {breathes=FALSE} 0.1584158
  [6] {hair=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1584158
   [7] {domestic=FALSE, catsize=FALSE} => {breathes=FALSE} 0.1485149
       confidence lift
## [1] 0.7500000
                  3.607143
  [2] 0.6521739
                  3.136646
## [3] 0.444444
                  2.137566
  [4] 0.4285714
                  2.061224
  [5] 0.3720930
                  1.789590
  [6] 0.3636364
                  1.748918
##
  [7] 0.3000000
                  1.442857
##
       lhs
                                          rhs
                                                           support
  [1] {predator=TRUE,legs=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [2] {milk=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
  [3] {eggs=TRUE,predator=TRUE}
                                       => {breathes=FALSE} 0.1584158
  [4] {hair=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
  [5] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE, predator=TRUE} => {breathes=FALSE} 0.1683168
##
       confidence lift
## [1] 0.7058824 3.394958
  [2] 0.5000000
                  2.404762
  [3] 0.4848485
                  2.331890
## [4] 0.4722222
                  2.271164
  [5] 0.4285714
                  2.061224
  [6] 0.3617021
                  1.739615
##
   [7] 0.3469388
                  1.668610
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
  [1] {eggs=TRUE,fins=TRUE}
                                  => {breathes=FALSE} 0.1287129 1.0000000
  [2] {eggs=TRUE,legs=FALSE}
                                  => {breathes=FALSE} 0.1485149 0.7894737
  [3] {eggs=TRUE,toothed=TRUE}
                                  => {breathes=FALSE} 0.1287129 0.6500000
  [4] {eggs=TRUE,aquatic=TRUE}
                                  => {breathes=FALSE} 0.1881188 0.6333333
  [5] {eggs=TRUE,airborne=FALSE} => {breathes=FALSE} 0.1980198 0.5405405
   [6] {feathers=FALSE,eggs=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.5128205
  [7] {eggs=TRUE,predator=TRUE}
                                  => {breathes=FALSE} 0.1584158 0.4848485
  [8] {hair=FALSE,eggs=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.3703704
  [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
##
       lift.
## [1] 4.809524
  [2] 3.796992
  [3] 3.126190
  [4] 3.046032
##
  [5] 2.599743
## [6] 2.466422
## [7] 2.331890
##
  [8] 1.781305
##
  [9] 1.692240
##
       lhs
                                                                  confidence
                                                        support
  [1] {milk=FALSE,fins=TRUE}
                                      {breathes=FALSE} 0.1287129 1.0000000
##
  [2] {milk=FALSE,legs=FALSE}
                                   => {breathes=FALSE} 0.1584158 0.8000000
## [3] {milk=FALSE,aquatic=TRUE}
                                   => {breathes=FALSE} 0.1980198 0.6666667
## [4] {milk=FALSE,toothed=TRUE}
                                   => {breathes=FALSE} 0.1386139 0.6666667
## [5] {milk=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208 0.5526316
```

```
## [6] {feathers=FALSE,milk=FALSE} => {breathes=FALSE} 0.2079208 0.5250000
   [7] {milk=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168 0.5000000
                                    => {breathes=FALSE} 0.2079208 0.3750000
   [8] {hair=FALSE,milk=FALSE}
   [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
       lift.
## [1] 4.809524
  [2] 3.847619
  [3] 3.206349
##
   [4] 3.206349
##
  [5] 2.657895
  [6] 2.525000
##
   [7] 2.404762
##
   [8] 1.803571
##
   [9] 1.748918
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                         support
                                                                    confidence
##
                                         => {legs=FALSE} 0.1287129 1.0000000
  [1]
        {type=fish}
   [2]
        {hair=FALSE,fins=TRUE}
                                           {legs=FALSE} 0.1485149 1.0000000
   [3]
##
        {eggs=TRUE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
##
   [4]
        {milk=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
##
   [5]
        {toothed=TRUE, breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
        {breathes=FALSE,tail=TRUE}
##
  [6]
                                           {legs=FALSE} 0.1386139 1.0000000
  [7]
##
        {backbone=TRUE, breathes=FALSE}
                                           {legs=FALSE} 0.1386139 1.0000000
##
   [8]
        {fins=TRUE}
                                         => {legs=FALSE} 0.1584158 0.9411765
##
  [9]
        {hair=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1782178 0.7826087
  [10] {breathes=FALSE}
                                         => {legs=FALSE} 0.1584158 0.7619048
  [11] {milk=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1584158 0.7619048
  [12] {eggs=TRUE,toothed=TRUE}
                                         => {legs=FALSE} 0.1485149 0.7500000
  [13] {aquatic=TRUE, toothed=TRUE}
                                         => {legs=FALSE} 0.1683168 0.7391304
                                         => {legs=FALSE} 0.1584158 0.6153846
## [14] {aquatic=TRUE,tail=TRUE}
   [15] {feathers=FALSE,aquatic=TRUE}
                                           {legs=FALSE} 0.1782178 0.6000000
   [16] {airborne=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
  [17] {hair=FALSE, feathers=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5789474
  [18] {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
       {hair=FALSE,aquatic=TRUE}
   [19]
                                         => {legs=FALSE} 0.1683168 0.5312500
##
  [20] {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
  [21] {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
  [22] {feathers=FALSE,milk=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5000000
  [23] {feathers=FALSE,eggs=TRUE}
##
                                           {legs=FALSE} 0.1881188 0.4871795
  [24] {toothed=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.4615385
  [25] {hair=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4444444
  [26] {airborne=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
## [27] {hair=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4285714
## [28] {milk=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1386139 0.4117647
## [29] {hair=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4090909
  [30] {predator=TRUE, toothed=TRUE}
                                           {legs=FALSE} 0.1485149 0.4054054
  [31] {milk=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1584158 0.4000000
  [32] {eggs=TRUE,predator=TRUE}
                                         => {legs=FALSE} 0.1287129 0.3939394
  [33] {hair=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.2079208 0.3888889
   [34] {eggs=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1485149 0.3846154
  [35] {milk=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1584158 0.3809524
##
## [36] {feathers=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.3720930
## [37] {feathers=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3617021
## [38] {eggs=TRUE,backbone=TRUE}
                                         => {legs=FALSE} 0.1485149 0.3571429
```

```
## [39] {airborne=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
  [40] {toothed=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3461538
  [41] {milk=FALSE,domestic=FALSE}
                                            {legs=FALSE} 0.1881188 0.3454545
  [42] {predator=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1386139 0.3333333
   [43] {eggs=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.3333333
  [44] {feathers=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3272727
  [45] {tail=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3243243
  [46] {airborne=FALSE,domestic=FALSE} =>
                                            {legs=FALSE} 0.2178218 0.3235294
   [47] {airborne=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
   [48] {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
  [49] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
   [50] {feathers=FALSE,domestic=FALSE}
                                            {legs=FALSE} 0.2178218 0.3098592
       {predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3035714
   [51]
                                         => {legs=FALSE} 0.1881188 0.3015873
       {feathers=FALSE,backbone=TRUE}
       {backbone=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
   [53]
        {domestic=FALSE, catsize=FALSE}
                                            {legs=FALSE} 0.1485149 0.3000000
##
   [55]
        {tail=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1683168 0.2615385
        {backbone=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.2535211
##
        lift
##
   [1]
        4.391304
##
   [2]
        4.391304
  [3]
##
        4.391304
  [4]
##
        4.391304
##
   [5]
        4.391304
##
   [6]
        4.391304
   [7]
        4.391304
   [8]
##
        4.132992
##
   [9]
        3.436673
##
  [10] 3.345756
  [11] 3.345756
   [12] 3.293478
##
   [13] 3.245747
   [14] 2.702341
  [15] 2.634783
   [16] 2.549790
##
  [17] 2.542334
  [18] 2.415217
  [19] 2.332880
##
  [20] 2.311213
##
  [21] 2.254994
  [22] 2.195652
  [23] 2.139353
  [24] 2.026756
##
  [25] 1.951691
  [26] 1.951691
  [27] 1.881988
##
   [28] 1.808184
  [29] 1.796443
  [30] 1.780259
   [31] 1.756522
##
  [32] 1.729908
## [33] 1.707729
## [34] 1.688963
## [35] 1.672878
```

```
[36] 1.633974
   [37] 1.588344
   [38] 1.568323
   [39] 1.523514
##
   [40] 1.520067
   [41] 1.516996
##
   [42] 1.463768
   [43] 1.463768
   [44] 1.437154
   [45] 1.424207
   [46] 1.420716
   [47] 1.414149
   [48] 1.386728
##
   [49] 1.383562
   [50] 1.360686
   [51] 1.333075
##
   [52] 1.324362
   [53] 1.317391
   [54] 1.317391
   [55] 1.148495
##
##
   [56]
       1.113288
##
        lhs
                                          support
                                                    confidence lift
##
   [1]
                          => {legs=TRUE} 0.1980198 1.0000000
                                                               1.2948718
        {type=bird}
##
   [2]
        {feathers=TRUE}
                             {legs=TRUE} 0.1980198 1.0000000
                                                               1.2948718
##
   [3]
        {airborne=TRUE}
                          => {legs=TRUE} 0.2376238 1.0000000
                                                                1.2948718
   [4]
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                                1.2647585
   [5]
##
        {milk=TRUE}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
        {type=mammal}
                                                                1.2001251
##
   [6]
                          => {legs=TRUE} 0.3762376 0.9268293
   [7]
##
        {domestic=TRUE}
                          => {legs=TRUE} 0.1188119 0.9230769
                                                                1.1952663
##
   [8]
                          => {legs=TRUE} 0.5940594 0.9230769
        {aquatic=FALSE}
                                                                1.1952663
##
   [9]
        {eggs=FALSE}
                          => {legs=TRUE} 0.3762376 0.9047619
                                                                1.1715507
##
   [10]
       {toothed=FALSE}
                          => {legs=TRUE} 0.3564356 0.9000000
                                                                1.1653846
   [11] {predator=FALSE}
                          => {legs=TRUE} 0.3861386 0.8666667
                                                                1.122222
   [12] {catsize=TRUE}
                          => {legs=TRUE} 0.3663366 0.8409091
                                                                1.0888695
        {tail=FALSE}
                          => {legs=TRUE} 0.2079208 0.8076923
   Γ13]
                                                                1.0458580
##
   [14] {backbone=FALSE}
                         => {legs=TRUE} 0.1386139 0.7777778
                                                                1.0071225
   [15] {tail=TRUE}
                          => {legs=TRUE} 0.5643564 0.7600000
                                                                0.9841026
   [16] {catsize=FALSE}
                          => {legs=TRUE} 0.4059406 0.7192982
                                                               0.9313990
   [17] {airborne=FALSE}
                         => {legs=TRUE} 0.5346535 0.7012987
                                                                0.9080919
   [18] {toothed=TRUE}
                          => {legs=TRUE} 0.4158416 0.6885246
                                                               0.8915511
   [19] {eggs=TRUE}
                          => {legs=TRUE} 0.3960396 0.6779661
                                                                0.8778792
                          => {legs=TRUE} 0.3960396 0.6666667
   [20] {milk=FALSE}
                                                               0.8632479
                                                               0.6474359
##
   [21]
       {aquatic=TRUE}
                          => {legs=TRUE} 0.1782178 0.5000000
##
        lhs
                                        rhs
                                                     support
                                                                confidence
##
  [1]
        {breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
   [2]
##
        {aquatic=TRUE,tail=TRUE}
                                    =>
                                       {legs=FALSE} 0.1584158 0.6153846
##
   [3]
        {hair=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1782178 0.4285714
##
   [4]
        {milk=FALSE,tail=TRUE}
                                       {legs=FALSE} 0.1584158 0.4000000
##
   [5]
        {eggs=TRUE,tail=TRUE}
                                       {legs=FALSE} 0.1485149 0.3846154
##
   [6]
        {predator=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1386139 0.3333333
##
   [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
   [8]
        {tail=TRUE,catsize=FALSE}
                                    => {legs=FALSE} 0.1188119 0.3243243
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
## [10] {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
```

```
##
        lift
##
   [1]
        4.391304
##
   [2]
        2.702341
   [3]
##
        1.881988
##
   [4]
        1.756522
   [5]
##
        1.688963
##
   [6]
        1.463768
##
   [7]
        1.437154
##
   [8]
        1.424207
##
   [9]
        1.386728
##
   [10] 1.148495
##
       lhs
                                                         support
                                                                   confidence
##
  [1] {toothed=TRUE,catsize=FALSE}
                                        => {legs=FALSE} 0.1188119 0.4615385
   [2] {airborne=FALSE,catsize=FALSE} =>
                                          {legs=FALSE} 0.1584158 0.4444444
   [3] {feathers=FALSE, catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
   [4] {tail=TRUE,catsize=FALSE}
                                        => {legs=FALSE} 0.1188119 0.3243243
   [5] {backbone=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3000000
   [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
##
       lift
##
   [1] 2.026756
##
   [2] 1.951691
   [3] 1.633974
   [4] 1.424207
##
##
   [5] 1.317391
##
   [6] 1.317391
##
        lhs
                                                           support
                                                                     confidence
        {airborne=FALSE,aquatic=TRUE}
                                            {legs=FALSE} 0.1782178 0.5806452
##
   [1]
##
   [2]
        {hair=FALSE,airborne=FALSE}
                                          => {legs=FALSE} 0.2178218 0.5500000
   [3]
        {milk=FALSE,airborne=FALSE}
##
                                          => {legs=FALSE} 0.1980198 0.5263158
                                          => {legs=FALSE} 0.1881188 0.5135135
##
   [4]
        {eggs=TRUE,airborne=FALSE}
##
   [5]
        {airborne=FALSE, catsize=FALSE}
                                            {legs=FALSE} 0.1584158 0.4444444
##
   [6]
        {airborne=FALSE,predator=TRUE}
                                          => {legs=FALSE} 0.1683168 0.3469388
##
   [7]
        {airborne=FALSE,domestic=FALSE}
                                            {legs=FALSE} 0.2178218 0.3235294
##
   [8]
        {airborne=FALSE, toothed=TRUE}
                                          => {legs=FALSE} 0.1881188 0.3220339
   [9]
        {airborne=FALSE,tail=TRUE}
                                          => {legs=FALSE} 0.1782178 0.3157895
       {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
   Γ10]
##
        lift
## [1]
        2.549790
   [2]
        2.415217
##
   [3]
##
        2.311213
   [4]
        2.254994
   [5]
##
        1.951691
##
   [6]
        1.523514
##
   [7]
        1.420716
##
   [8]
        1.414149
   [9]
##
        1.386728
##
   [10] 1.383562
##
       lhs
                                          rhs
                                                        support
                                                                  confidence
  [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
   [2] {hair=FALSE,toothed=TRUE}
                                       => {legs=FALSE} 0.1782178 0.7826087
##
   [3] {milk=FALSE,toothed=TRUE}
                                       => {legs=FALSE} 0.1584158 0.7619048
  [4] {eggs=TRUE,toothed=TRUE}
                                       => {legs=FALSE} 0.1485149 0.7500000
## [5] {aquatic=TRUE, toothed=TRUE}
                                       => {legs=FALSE} 0.1683168 0.7391304
## [6] {toothed=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.4615385
```

```
## [7] {predator=TRUE,toothed=TRUE} => {legs=FALSE} 0.1485149 0.4054054
  [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
   [9] {airborne=FALSE, toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
       lift
##
  [1] 4.391304
  [2] 3.436673
##
## [3] 3.345756
## [4] 3.293478
##
  [5] 3.245747
##
  [6] 2.026756
## [7] 1.780259
##
  [8] 1.520067
##
   [9] 1.414149
##
       lhs
                                                   support
                                                             confidence
## [1] {eggs=TRUE,fins=TRUE}
                                  => {legs=FALSE} 0.1287129 1.0000000
  [2] {eggs=TRUE,toothed=TRUE}
                                  => {legs=FALSE} 0.1485149 0.7500000
  [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
  [4] {feathers=FALSE,eggs=TRUE} => {legs=FALSE} 0.1881188 0.4871795
  [5] {eggs=TRUE,predator=TRUE}
                                  => {legs=FALSE} 0.1287129 0.3939394
  [6] {eggs=TRUE,tail=TRUE}
                                  => {legs=FALSE} 0.1485149 0.3846154
  [7] {eggs=TRUE,backbone=TRUE} => {legs=FALSE} 0.1485149 0.3571429
  [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
##
       lift.
## [1] 4.391304
## [2] 3.293478
## [3] 2.254994
## [4] 2.139353
## [5] 1.729908
## [6] 1.688963
## [7] 1.568323
## [8] 1.463768
##
       lhs
                                      rhs
                                                    support
                                                              confidence
## [1] {milk=FALSE,fins=TRUE}
                                    => {legs=FALSE} 0.1287129 1.0000000
## [2] {milk=FALSE,toothed=TRUE}
                                    => {legs=FALSE} 0.1584158 0.7619048
  [3] {milk=FALSE,airborne=FALSE} => {legs=FALSE} 0.1980198 0.5263158
## [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
## [5] {milk=FALSE,predator=TRUE}
                                   => {legs=FALSE} 0.1386139 0.4117647
## [6] {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
## [7] {milk=FALSE,backbone=TRUE} => {legs=FALSE} 0.1584158 0.3809524
  [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
##
       lift
## [1] 4.391304
## [2] 3.345756
## [3] 2.311213
## [4] 2.195652
## [5] 1.808184
##
  [6] 1.756522
  [7] 1.672878
  [8] 1.516996
##
##
       lhs
                                                      support
                                                                confidence
## [1] {aquatic=TRUE,toothed=TRUE}
                                     => {legs=FALSE} 0.1683168 0.7391304
## [2] {aquatic=TRUE, tail=TRUE}
                                     => {legs=FALSE} 0.1584158 0.6153846
## [3] {feathers=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.6000000
## [4] {airborne=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.5806452
```

```
[5] {hair=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1683168 0.5312500
##
       lift.
##
  [1] 3.245747
  [2] 2.702341
   [3] 2.634783
##
  [4] 2.549790
  [5] 2.332880
##
  [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                            support
##
  [1]
        {catsize=FALSE, type=bird}
                                         => {airborne=TRUE} 0.1287129
   [2]
        {feathers=TRUE, catsize=FALSE}
                                           {airborne=TRUE} 0.1287129
   [3]
##
        {type=bird}
                                           {airborne=TRUE} 0.1584158
##
   [4]
        {feathers=TRUE}
                                           {airborne=TRUE} 0.1584158
        {toothed=FALSE,backbone=TRUE}
##
  [5]
                                           {airborne=TRUE} 0.1584158
  [6]
                                         => {airborne=TRUE} 0.1485149
##
        {predator=FALSE, toothed=FALSE}
##
   [7]
        {toothed=FALSE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
  [8]
##
        {toothed=FALSE, breathes=TRUE}
                                         => {airborne=TRUE} 0.2178218
  [9]
        {aquatic=FALSE, toothed=FALSE}
                                           {airborne=TRUE} 0.1683168
  [10] {toothed=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.1881188
  [11] {toothed=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
##
  [12] {eggs=TRUE,aquatic=FALSE}
                                           {airborne=TRUE} 0.1683168
                                           {airborne=TRUE} 0.1485149
  [13] {eggs=TRUE,predator=FALSE}
  [14] {milk=FALSE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
##
  [15] {milk=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
  [16] {eggs=TRUE,breathes=TRUE}
                                           {airborne=TRUE} 0.2178218
  [17] {milk=FALSE,breathes=TRUE}
                                           {airborne=TRUE} 0.2178218
  [18] {toothed=FALSE, venomous=FALSE}
                                           {airborne=TRUE} 0.1980198
  [19] {toothed=FALSE}
                                            {airborne=TRUE} 0.2178218
## [20] {eggs=TRUE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
  [21] {milk=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
  [22] {predator=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.1485149
  [23] {legs=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.2079208
  [24] {breathes=TRUE, catsize=FALSE}
                                           {airborne=TRUE} 0.2079208
  [25] {hair=FALSE,predator=FALSE}
                                         => {airborne=TRUE} 0.1089109
   [26] {aquatic=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1683168
##
  [27] {hair=FALSE,aquatic=FALSE}
                                           {airborne=TRUE} 0.1287129
  [28] {hair=FALSE,legs=TRUE}
                                           {airborne=TRUE} 0.1782178
  [29] {hair=FALSE,breathes=TRUE}
                                           {airborne=TRUE} 0.1782178
  [30] {eggs=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2178218
  [31] {milk=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.2178218
  [32] {fins=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.2079208
  [33] {predator=FALSE,legs=TRUE}
                                           {airborne=TRUE} 0.1683168
  [34] {hair=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.1782178
  [35] {predator=FALSE,breathes=TRUE}
                                        => {airborne=TRUE} 0.1683168
  [36] {predator=FALSE,fins=FALSE}
                                         => {airborne=TRUE} 0.1683168
  [37]
        {eggs=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.1881188
       {eggs=TRUE,tail=TRUE}
##
  [38]
                                            {airborne=TRUE} 0.1584158
  [39] {tail=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1485149
  [40] {milk=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1584158
  [41] {milk=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.1881188
## [42] {milk=FALSE, venomous=FALSE}
                                           {airborne=TRUE} 0.1980198
## [43] {predator=FALSE,domestic=FALSE} =>
                                           {airborne=TRUE} 0.1287129
## [44] {hair=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1584158
## [45] {eggs=TRUE,backbone=TRUE}
                                         => {airborne=TRUE} 0.1584158
```

```
## [46] {milk=FALSE,backbone=TRUE}
                                          => {airborne=TRUE} 0.1584158
  [47] {venomous=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
   [48] {eggs=TRUE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [49] {backbone=TRUE, catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
   [50] {hair=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1782178
   [51] {breathes=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2376238
   [52] {aquatic=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1881188
   [53]
       {legs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1782178
   ſ541
       {breathes=TRUE,fins=FALSE}
                                             {airborne=TRUE} 0.2376238
   [55]
       {fins=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2376238
   [56] {fins=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1782178
   [57]
       {aquatic=FALSE}
                                         => {airborne=TRUE} 0.1881188
##
   [58]
       {venomous=FALSE}
                                         => {airborne=TRUE} 0.2178218
##
        confidence lift
## [1]
        0.9285714
                   3.9077381
##
   [2]
        0.9285714
                   3.9077381
   [3]
##
        0.8000000
                   3.3666667
   [4]
        0.8000000
                   3.3666667
   [5]
                   3.0606061
##
        0.7272727
   [6]
        0.7142857
                   3.0059524
##
   [7]
        0.6956522
                   2.9275362
  [8]
        0.6666667
                   2.8055556
##
  [9]
        0.6296296
                   2.6496914
   [10] 0.6129032
                   2.5793011
  [11] 0.6111111
                   2.5717593
   [12] 0.5862069
                   2.4669540
   [13] 0.5769231
                   2.4278846
   [14] 0.5769231
                   2.4278846
  [15] 0.5666667
                   2.3847222
  [16] 0.5641026
                   2.3739316
   [17] 0.5641026
                   2.3739316
   [18] 0.5555556
                   2.3379630
   [19] 0.5500000
                   2.3145833
   [20] 0.5500000
                   2.3145833
   [21] 0.5500000
                   2.3145833
  [22] 0.5172414
                   2.1767241
  [23] 0.5121951
                   2.1554878
  [24] 0.5121951
                   2.1554878
   [25] 0.5000000
                   2.1041667
   [26] 0.5000000
                   2.1041667
   [27] 0.5000000
                   2.1041667
   [28] 0.5000000
                   2.1041667
   [29] 0.4864865
                   2.0472973
   [30] 0.4782609
                   2.0126812
  [31] 0.4680851
                   1.9698582
  [32] 0.4375000
                   1.8411458
                   1.8344017
   [33] 0.4358974
   [34] 0.4186047
                   1.7616279
   [35] 0.4146341
                   1.7449187
   [36]
       0.4146341
                   1.7449187
                   1.7382246
##
   [37]
        0.4130435
  [38] 0.4102564
                   1.7264957
## [39] 0.4054054
                   1.7060811
```

## [40] 0.4000000

1.6833333

```
## [41] 0.3958333
                   1.6657986
  [42] 0.3846154
                   1.6185897
  [43] 0.3823529
                   1.6090686
  [44] 0.3809524
                   1.6031746
  [45] 0.3809524
                   1.6031746
  [46] 0.3809524
                   1.6031746
  [47] 0.3800000
                   1.5991667
## [48] 0.3773585
                   1.5880503
  [49] 0.3750000
                   1.5781250
  [50] 0.3461538
                   1.4567308
  [51] 0.3287671
                   1.3835616
  [52] 0.3166667
                   1.3326389
   [53] 0.3157895
                   1.3289474
                   1.3289474
  [54] 0.3157895
  [55] 0.3116883
                   1.3116883
   [56] 0.3050847
                   1.2838983
   [57] 0.2923077
                   1.2301282
   [58] 0.2365591
                   0.9955197
##
        lhs
                                                        confidence lift
                                              support
##
  [1]
        {type=fish}
                         => {airborne=FALSE} 0.1287129 1.0000000 1.3116883
##
  [2]
        {fins=TRUE}
                         => {airborne=FALSE} 0.1683168 1.0000000
                                                                   1.3116883
  [3]
                         => {airborne=FALSE} 0.2079208 1.0000000
        {breathes=FALSE}
## [4]
                         => {airborne=FALSE} 0.2277228 1.0000000
        {legs=FALSE}
                                                                    1.3116883
  [5]
                         => {airborne=FALSE} 0.5841584 0.9672131
##
        {toothed=TRUE}
                                                                    1.2686821
##
  [6]
        {eggs=FALSE}
                         => {airborne=FALSE} 0.3960396 0.9523810
                                                                    1.2492270
  [7]
        {milk=TRUE}
                         => {airborne=FALSE} 0.3861386 0.9512195
                                                                    1.2477035
##
  [8]
                         => {airborne=FALSE} 0.3861386 0.9512195
        {type=mammal}
                                                                    1.2477035
   [9]
        {catsize=TRUE}
                         => {airborne=FALSE} 0.4059406 0.9318182
                                                                    1.2222550
                         => {airborne=FALSE} 0.4851485 0.8750000
## [10] {predator=TRUE}
                                                                    1.1477273
## [11] {aquatic=TRUE}
                         => {airborne=FALSE} 0.3069307 0.8611111
                                                                    1.1295094
## [12]
        {hair=TRUE}
                         => {airborne=FALSE} 0.3663366 0.8604651
                                                                    1.1286620
  [13]
       {backbone=TRUE}
                         => {airborne=FALSE} 0.6435644 0.7831325
                                                                    1.0272258
## [14] {tail=FALSE}
                         => {airborne=FALSE} 0.1980198 0.7692308
                                                                    1.0089910
## [15] {tail=TRUE}
                         => {airborne=FALSE} 0.5643564 0.7600000
                                                                    0.9968831
   [16] {aquatic=FALSE}
                         => {airborne=FALSE} 0.4554455 0.7076923
                                                                    0.9282717
                         => {airborne=FALSE} 0.3960396 0.6896552
  [17] {hair=FALSE}
                                                                    0.9046126
## [18] {backbone=FALSE} => {airborne=FALSE} 0.1188119 0.6666667
                                                                    0.8744589
## [19] {milk=FALSE}
                         => {airborne=FALSE} 0.3762376 0.6333333
                                                                    0.8307359
                          => {airborne=FALSE} 0.3663366 0.6271186
## [20] {eggs=TRUE}
                                                                    0.8225842
  [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.6222222
                                                                    0.8161616
  [22] {toothed=FALSE} => {airborne=FALSE} 0.1782178 0.4500000
                                                                    0.5902597
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
   [2] {eggs=TRUE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
## [3] {milk=FALSE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
## [4] {backbone=TRUE, catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift
## [1] 3.060606
  [2] 1.603175
## [3] 1.603175
##
  [4] 1.578125
##
       lhs
                                     rhs
                                                     support
## [1] {toothed=FALSE,tail=TRUE} => {airborne=TRUE} 0.1584158 0.6956522
## [2] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
```

```
## [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
                                 => {airborne=TRUE} 0.1584158 0.4000000
## [4] {milk=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
  [5] {hair=FALSE,tail=TRUE}
  [6] {legs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1782178 0.3157895
##
   [7] {fins=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1782178 0.3050847
##
       lift
  [1] 2.927536
## [2] 1.726496
##
  [3] 1.706081
  [4] 1.683333
  [5] 1.603175
##
  [6] 1.328947
##
   [7] 1.283898
##
       lhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
   [2] {eggs=TRUE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1683168 0.5862069
  [3] {milk=FALSE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1683168 0.5666667
  [4] {aquatic=FALSE, catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
                                      => {airborne=TRUE} 0.1287129 0.5000000
  [5] {hair=FALSE,aquatic=FALSE}
   [6] {aquatic=FALSE,legs=TRUE}
                                      => {airborne=TRUE} 0.1881188 0.3166667
##
       lift
## [1] 2.649691
## [2] 2.466954
##
  [3] 2.384722
## [4] 2.104167
  [5] 2.104167
  [6] 1.332639
##
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
## [2] {hair=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1287129 0.5000000
## [3] {hair=FALSE,legs=TRUE}
                                    => {airborne=TRUE} 0.1782178 0.5000000
## [4] {hair=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.4864865
  [5] {hair=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.1782178 0.4186047
  [6] {hair=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.3809524
   [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
##
##
       lift
## [1] 2.104167
## [2] 2.104167
  [3] 2.104167
##
  [4] 2.047297
  [5] 1.761628
##
  [6] 1.603175
##
   [7] 1.456731
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
                                   => {airborne=TRUE} 0.1683168 0.5666667
  [2] {milk=FALSE,aquatic=FALSE}
  [3] {milk=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5641026
  [4] {milk=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5500000
  [5] {milk=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.2178218 0.4680851
  [6] {milk=FALSE,tail=TRUE}
                                    => {airborne=TRUE} 0.1584158 0.4000000
                                   => {airborne=TRUE} 0.1881188 0.3958333
  [7] {milk=FALSE,catsize=FALSE}
## [8] {milk=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
## [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
       lift
```

```
## [1] 2.427885
  [2] 2.384722
  [3] 2.373932
  [4] 2.314583
   [5] 1.969858
   [6] 1.683333
##
   [7] 1.665799
##
  [8] 1.618590
##
  [9] 1.603175
##
       lhs
                                      rhs
                                                      support
                                                                 confidence
  [1] {eggs=TRUE,aquatic=FALSE}
                                     {airborne=TRUE} 0.1683168 0.5862069
   [2] {eggs=TRUE,predator=FALSE}
                                     {airborne=TRUE} 0.1485149 0.5769231
   [3] {eggs=TRUE,breathes=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5641026
  [4] {eggs=TRUE,legs=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5500000
                                   => {airborne=TRUE} 0.2178218 0.4782609
  [5] {eggs=TRUE,fins=FALSE}
   [6] {eggs=TRUE,catsize=FALSE}
                                      {airborne=TRUE} 0.1881188 0.4130435
   [7] {eggs=TRUE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.4102564
   [8] {eggs=TRUE,backbone=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
   [9] {eggs=TRUE,venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
##
       lift.
##
  [1] 2.466954
  [2] 2.427885
  [3] 2.373932
##
##
   [4] 2.314583
##
  [5] 2.012681
  [6] 1.738225
  [7] 1.726496
##
   [8] 1.603175
  [9] 1.588050
##
##
       lhs
                                           rhs
                                                           support
## [1] {predator=FALSE, toothed=FALSE}
                                        => {airborne=TRUE} 0.1485149
   [2] {eggs=TRUE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [3] {milk=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [4] {predator=FALSE, catsize=FALSE}
                                        => {airborne=TRUE} 0.1485149
   [5] {hair=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1089109
  [6] {predator=FALSE,legs=TRUE}
                                        => {airborne=TRUE} 0.1683168
  [7] {predator=FALSE,breathes=TRUE}
                                        => {airborne=TRUE} 0.1683168
## [8] {predator=FALSE,fins=FALSE}
                                        => {airborne=TRUE} 0.1683168
  [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
##
##
       confidence lift
  [1] 0.7142857
                  3.005952
  [2] 0.5769231
                  2.427885
   [3] 0.5769231
                  2.427885
  [4] 0.5172414
                  2.176724
## [5] 0.5000000
                  2.104167
## [6] 0.4358974
                  1.834402
   [7] 0.4146341
                  1.744919
   [8] 0.4146341
                  1.744919
                  1.609069
##
  [9] 0.3823529
##
       lhs
                                                          support
                                                                     confidence
  [1] {toothed=FALSE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.7272727
## [2] {predator=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1485149 0.7142857
## [3] {toothed=FALSE,tail=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.6956522
## [4] {toothed=FALSE,breathes=TRUE} => {airborne=TRUE} 0.2178218 0.6666667
```

```
## [5] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
  [6] {toothed=FALSE,catsize=FALSE}
                                      => {airborne=TRUE} 0.1881188 0.6129032
  [7] {toothed=FALSE,legs=TRUE}
                                      => {airborne=TRUE} 0.2178218 0.6111111
   [8] {toothed=FALSE,venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
       lift.
## [1] 3.060606
## [2] 3.005952
## [3] 2.927536
  [4] 2.805556
  [5] 2.649691
  [6] 2.579301
  [7] 2.571759
##
   [8] 2.337963
##
       "Número de reglas con consecuente negado"
##
                                                                   confidence
                                                         support
##
  [1]
        {backbone=FALSE, venomous=FALSE} =>
                                           {tail=FALSE} 0.1386139 1.0000000
   [2]
##
        {backbone=FALSE}
                                           {tail=FALSE} 0.1683168 0.9444444
  [3]
        {feathers=FALSE, toothed=FALSE}
                                        => {tail=FALSE} 0.1683168 0.8500000
  [4]
##
        {airborne=FALSE, toothed=FALSE}
                                         => {tail=FALSE} 0.1089109 0.6111111
   [5]
        {feathers=FALSE,eggs=TRUE}
                                           {tail=FALSE} 0.1980198 0.5128205
##
  [6]
        {feathers=FALSE,milk=FALSE}
                                         => {tail=FALSE} 0.1980198 0.5000000
  [7]
        {feathers=FALSE, catsize=FALSE}
                                           {tail=FALSE} 0.1980198 0.4651163
## [8]
                                           {tail=FALSE} 0.1980198 0.4347826
        {eggs=TRUE,fins=FALSE}
## [9]
        {milk=FALSE,fins=FALSE}
                                           {tail=FALSE} 0.1980198 0.4255319
## [10] {hair=FALSE, feathers=FALSE}
                                           {tail=FALSE} 0.1584158 0.4210526
## [11] {fins=FALSE, catsize=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4166667
## [12] {eggs=TRUE,legs=TRUE}
                                           {tail=FALSE} 0.1584158 0.4000000
## [13] {milk=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
## [14] {feathers=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.3906250
## [15] {legs=TRUE,catsize=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3902439
## [16] {airborne=FALSE,catsize=FALSE}
                                        => {tail=FALSE} 0.1386139 0.3888889
  [17] {eggs=TRUE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3793103
  [18] {eggs=TRUE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3783784
## [19] {hair=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1584158 0.3720930
  [20] {milk=FALSE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3684211
## [21] {milk=FALSE,aquatic=FALSE}
                                         => {tail=FALSE} 0.1089109 0.3666667
## [22] {feathers=FALSE,legs=TRUE}
                                           {tail=FALSE} 0.2079208 0.3620690
## [23] {domestic=FALSE,catsize=FALSE}
                                           {tail=FALSE} 0.1782178 0.3600000
## [24] {feathers=FALSE,predator=FALSE} =>
                                            {tail=FALSE} 0.1188119 0.3529412
  [25] {aquatic=FALSE, catsize=FALSE}
                                         => {tail=FALSE} 0.1188119 0.3529412
  [26] {hair=FALSE,airborne=FALSE}
                                           {tail=FALSE} 0.1386139 0.3500000
  [27] {hair=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1188119 0.3333333
## [28] {feathers=FALSE,domestic=FALSE}
                                        => {tail=FALSE} 0.2277228 0.3239437
## [29] {airborne=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1881188 0.3166667
## [30] {fins=FALSE,domestic=FALSE}
                                         => {tail=FALSE} 0.2178218 0.3055556
## [31] {predator=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1287129 0.3023256
  [32] {fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.2976190
  [33] {predator=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1089109 0.2820513
  [34] {airborne=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1485149 0.2777778
  [35] {legs=TRUE,domestic=FALSE}
                                         => {tail=FALSE} 0.1782178 0.2727273
                                         => {tail=FALSE} 0.2277228 0.2613636
## [36] {domestic=FALSE}
## [37] {predator=TRUE}
                                         => {tail=FALSE} 0.1386139 0.2500000
## [38] {venomous=FALSE}
                                        => {tail=FALSE} 0.2178218 0.2365591
##
        lift
```

```
[1]
        3.8846154
##
   [2]
        3.6688034
   [3]
        3.3019231
   [4]
        2.3739316
##
##
   [5]
        1.9921105
##
   [6]
        1.9423077
   [7]
        1.8067979
   [8]
##
        1.6889632
##
   [9]
        1.6530278
##
   [10] 1.6356275
   [11] 1.6185897
   [12] 1.5538462
   [13] 1.5538462
   [14] 1.5174279
   [15] 1.5159475
   [16] 1.5106838
   [17] 1.4734748
   [18] 1.4698545
   [19] 1.4454383
   [20] 1.4311741
##
  [21] 1.4243590
  [22] 1.4064987
  [23] 1.3984615
   [24] 1.3710407
   [25] 1.3710407
   [26] 1.3596154
   [27] 1.2948718
   [28] 1.2583965
   [29] 1.2301282
   [30] 1.1869658
   [31] 1.1744186
##
   [32] 1.1561355
   [33] 1.0956607
   [34] 1.0790598
   [35] 1.0594406
   [36] 1.0152972
##
   [37] 0.9711538
##
   [38] 0.9189413
##
        lhs
                                          support
                                                    confidence lift
                             rhs
                          => {tail=TRUE} 0.1287129 1.0000000
##
   [1]
        {type=fish}
                                                                1.3466667
                          => {tail=TRUE} 0.1980198 1.0000000
   [2]
        {type=bird}
                                                                1.3466667
   [3]
        {feathers=TRUE}
                          => {tail=TRUE} 0.1980198 1.0000000
##
                                                                1.3466667
   [4]
        {fins=TRUE}
##
                          => {tail=TRUE} 0.1584158 0.9411765
                                                                1.2674510
##
   [5]
                          => {tail=TRUE} 0.3762376 0.8636364
        {catsize=TRUE}
                                                                1.1630303
   [6]
        {eggs=FALSE}
                          => {tail=TRUE} 0.3564356 0.8571429
                                                                1.1542857
   [7]
                          => {tail=TRUE} 0.3465347 0.8536585
##
        {milk=TRUE}
                                                                1.1495935
                                                                1.1495935
##
   [8]
        {type=mammal}
                             {tail=TRUE} 0.3465347 0.8536585
   [9]
        {legs=FALSE}
                          => {tail=TRUE} 0.1782178 0.7826087
                                                                1.0539130
   [10]
       {hair=TRUE}
                          => {tail=TRUE} 0.3267327 0.7674419
                                                                1.0334884
   [11] {aquatic=FALSE}
                          => {tail=TRUE} 0.4851485 0.7538462
                                                                1.0151795
                          => {tail=TRUE} 0.1782178 0.7500000
                                                                1.0100000
##
   [12]
       {airborne=TRUE}
## [13] {predator=TRUE}
                          => {tail=TRUE} 0.4158416 0.7500000
                                                                1.0100000
## [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
                                                                0.9946970
## [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
```

```
## [16] {hair=FALSE}
                         => {tail=TRUE} 0.4158416 0.7241379
                                                              0.9751724
## [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
                                                              0.9144033
## [18] {eggs=TRUE}
                         => {tail=TRUE} 0.3861386 0.6610169
                        => {tail=TRUE} 0.3663366 0.6491228
## [19] {catsize=FALSE}
                                                              0.8741520
  [20] {toothed=FALSE} => {tail=TRUE} 0.2277228 0.5750000
                                                              0.7743333
##
       lhs
                                        rhs
                                                      support
                                                                confidence
## [1] {eggs=TRUE,aquatic=FALSE}
                                     => {tail=FALSE} 0.1089109 0.3793103
## [2] {milk=FALSE,aquatic=FALSE}
                                     => {tail=FALSE} 0.1089109 0.3666667
  [3] {aquatic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.473475
## [2] 1.424359
  [3] 1.371041
##
       lhs
                                     rhs
                                                   support
## [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
   [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
##
       lift
## [1] 1.174419
## [2] 1.095661
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {domestic=FALSE, catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
## [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
## [3] {fins=FALSE,domestic=FALSE}
                                       => {tail=FALSE} 0.2178218 0.3055556
                                       => {tail=FALSE} 0.1782178 0.2727273
## [4] {legs=TRUE,domestic=FALSE}
##
       lift
## [1] 1.398462
## [2] 1.258397
## [3] 1.186966
## [4] 1.059441
##
                                          rhs
                                                        support
                                                                  confidence
## [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
       lift
## [1] 1.371041
##
       lhs
                                      rhs
                                                    support
                                                              confidence
## [1] {hair=FALSE,feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
## [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
## [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
## [4] {hair=FALSE,legs=TRUE}
                                   => {tail=FALSE} 0.1188119 0.3333333
##
       lift
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {tail=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE}
                                       => {tail=FALSE} 0.1980198 0.5128205
## [3] {feathers=FALSE,milk=FALSE}
                                       => {tail=FALSE} 0.1980198 0.5000000
## [4] {feathers=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4651163
## [5] {hair=FALSE,feathers=FALSE}
                                       => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                       => {tail=FALSE} 0.2475248 0.3906250
## [7] {feathers=FALSE,legs=TRUE}
                                       => {tail=FALSE} 0.2079208 0.3620690
## [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
## [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
##
       lift
```

```
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
## [7] 1.406499
## [8] 1.371041
## [9] 1.258397
##
       lhs
                                      rhs
                                                   support
                                                             confidence
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
  [2] {eggs=TRUE,fins=FALSE}
                                   => {tail=FALSE} 0.1980198 0.4347826
  [3] {eggs=TRUE,legs=TRUE}
                                   => {tail=FALSE} 0.1584158 0.4000000
## [4] {eggs=TRUE,aquatic=FALSE}
                                  => {tail=FALSE} 0.1089109 0.3793103
## [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
       lift
## [1] 1.992110
## [2] 1.688963
## [3] 1.553846
## [4] 1.473475
##
  [5] 1.469854
##
                                          rhs
                                                       support
                                                                 confidence
## [1] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
## [2] {fins=FALSE,catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4166667
## [3] {legs=TRUE,catsize=FALSE}
                                       => {tail=FALSE} 0.1584158 0.3902439
## [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
  [5] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
   [6] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
##
       lift
## [1] 1.806798
## [2] 1.618590
## [3] 1.515947
## [4] 1.510684
## [5] 1.398462
##
  [6] 1.371041
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
## [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
## [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
       lift
## [1] 3.301923
  [2] 2.373932
       "Número de reglas con consecuente negado"
##
  [1]
##
        lhs
                                                        support
                                                                   confidence
## [1]
        {type=fish}
                                         => {fins=TRUE} 0.1287129 1.0000000
## [2]
        {toothed=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
## [3]
                                         => {fins=TRUE} 0.1287129 0.9285714
        {breathes=FALSE,tail=TRUE}
## [4]
        {backbone=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
## [5]
        {aquatic=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8888889
                                         => {fins=TRUE} 0.1584158 0.8421053
  [6]
        {toothed=TRUE,legs=FALSE}
  [7]
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
                                         => {fins=TRUE} 0.1485149 0.8333333
## [8]
        {legs=FALSE,tail=TRUE}
        {breathes=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1287129 0.8125000
## [10] {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
## [11] {aquatic=TRUE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.7391304
```

```
## [12] {predator=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1188119 0.7058824
  [13] {breathes=FALSE, venomous=FALSE}
                                           {fins=TRUE} 0.1188119 0.6666667
  [14] {hair=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1485149 0.6521739
  [15] {aquatic=TRUE, breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.6500000
  [16] {eggs=TRUE,toothed=TRUE}
##
                                           {fins=TRUE} 0.1287129 0.6500000
  [17] {breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6190476
##
  [18] {milk=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6190476
## [19] {aquatic=TRUE, tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.6153846
  [20] {feathers=FALSE,aquatic=TRUE}
                                           {fins=TRUE} 0.1683168 0.5666667
  [21] {aquatic=TRUE, backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
  [22] {airborne=FALSE,aquatic=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5483871
                                           {fins=TRUE} 0.1584158 0.5000000
   [23] {aquatic=TRUE, venomous=FALSE}
       {hair=FALSE,feathers=FALSE}
                                        => {fins=TRUE} 0.1485149 0.3947368
  [24]
  [25]
       {hair=FALSE,airborne=FALSE}
                                        => {fins=TRUE} 0.1485149 0.3750000
       {hair=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.3571429
## [26]
   [27]
        {predator=TRUE, toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.3513514
                                        => {fins=TRUE} 0.1287129 0.3513514
  [28]
       {eggs=TRUE,airborne=FALSE}
   [29] {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
                                         => {fins=TRUE} 0.1485149 0.3409091
  [30] {hair=FALSE,backbone=TRUE}
   [31] {eggs=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1287129 0.3333333
##
  [32] {feathers=FALSE,eggs=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3333333
  [33] {milk=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3250000
                                           {fins=TRUE} 0.1287129 0.3250000
  [34] {feathers=FALSE,milk=FALSE}
  Γ351
       {eggs=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.3095238
  [36]
       {milk=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3095238
  [37] {toothed=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.3076923
                                           {fins=TRUE} 0.1584158 0.3076923
   [38] {toothed=TRUE,domestic=FALSE}
  [39] {hair=FALSE,predator=TRUE}
                                           {fins=TRUE} 0.1089109 0.3055556
  [40] {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
## [41] {airborne=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
## [42]
       {predator=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1188119 0.2857143
  [43]
       {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
  [44] {airborne=FALSE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2807018
                                        => {fins=TRUE} 0.1287129 0.2765957
  [45] {feathers=FALSE,predator=TRUE}
   [46] {predator=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.2765957
                                        => {fins=TRUE} 0.1683168 0.2698413
  [47] {feathers=FALSE,backbone=TRUE}
  [48] {hair=FALSE, venomous=FALSE}
                                           {fins=TRUE} 0.1386139 0.2692308
  [49] {airborne=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2653061
  [50] {airborne=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1683168 0.2615385
##
  [51] {hair=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2592593
  [52] {hair=FALSE}
                                           {fins=TRUE} 0.1485149 0.2586207
                                         => {fins=TRUE} 0.1188119 0.2400000
  [53] {predator=TRUE, venomous=FALSE}
   [54] {airborne=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2352941
  [55] {feathers=FALSE,airborne=FALSE}
                                        => {fins=TRUE} 0.1683168 0.2328767
  [56] {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
        {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
  [57]
##
  [58]
       {eggs=TRUE, venomous=FALSE}
                                           {fins=TRUE} 0.1188119 0.2264151
       {airborne=FALSE, venomous=FALSE}
                                           {fins=TRUE} 0.1584158 0.2253521
  [60] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [61] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
   [62]
                                         => {fins=TRUE} 0.1188119 0.2222222
##
       {eggs=TRUE,domestic=FALSE}
  [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
## [64] {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
## [65] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
```

```
## [66] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
        5.941176
## [1]
## [2]
        5.516807
##
  [3]
        5.516807
## [4]
        5.516807
## [5]
        5.281046
## [6]
        5.003096
## [7]
        5.003096
## [8]
        4.950980
## [9]
        4.827206
## [10] 4.690402
## [11] 4.391304
## [12] 4.193772
## [13] 3.960784
## [14] 3.874680
## [15] 3.861765
## [16] 3.861765
## [17] 3.677871
## [18] 3.677871
## [19] 3.656109
## [20] 3.366667
## [21] 3.366667
## [22] 3.258065
## [23] 2.970588
## [24] 2.345201
## [25] 2.227941
## [26] 2.121849
## [27] 2.087440
## [28] 2.087440
## [29] 2.032508
## [30] 2.025401
## [31] 1.980392
## [32] 1.980392
## [33] 1.930882
## [34] 1.930882
## [35] 1.838936
## [36] 1.838936
## [37] 1.828054
## [38] 1.828054
## [39] 1.815359
## [40] 1.728342
## [41] 1.711864
## [42] 1.697479
## [43] 1.667699
## [44] 1.667699
## [45] 1.643304
## [46] 1.643304
## [47] 1.603175
## [48] 1.599548
## [49] 1.576230
## [50] 1.553846
## [51] 1.540305
## [52] 1.536511
```

```
[53] 1.425882
##
   [54] 1.397924
   [55] 1.383562
   [56] 1.371041
##
##
   [57] 1.371041
   [58] 1.345172
##
   [59] 1.338857
##
   [60] 1.338857
##
   [61] 1.338857
##
   [62] 1.320261
   [63] 1.302176
##
   [64] 1.296257
##
   [65] 1.284579
##
   [66] 1.100218
##
        lhs
                             rhs
                                           support
                                                     confidence lift
##
   [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000
                                                                 1.2023810
##
   [2]
                          => {fins=FALSE} 0.1980198 1.0000000
        {type=bird}
                                                                 1.2023810
##
   [3]
        {feathers=TRUE}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                 1.2023810
   [4]
                                                                 1.2023810
##
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
##
   [5]
        {toothed=FALSE}
                          => {fins=FALSE} 0.3960396 1.0000000
                                                                 1.2023810
##
   [6]
        {legs=TRUE}
                          => {fins=FALSE} 0.7623762 0.9871795
                                                                 1.1869658
   [7]
                          => {fins=FALSE} 0.4059406 0.9534884
##
        {hair=TRUE}
                                                                 1.1464563
   [8]
        {breathes=TRUE}
                          => {fins=FALSE} 0.7524752 0.9500000
##
                                                                 1.1422619
                          => {fins=FALSE} 0.1188119 0.9230769
##
   [9]
        {domestic=TRUE}
                                                                 1.1098901
   [10] {predator=FALSE}
                         => {fins=FALSE} 0.4059406 0.9111111
                                                                 1.0955026
   [11] {eggs=FALSE}
                          => {fins=FALSE} 0.3762376 0.9047619
                                                                 1.0878685
                          => {fins=FALSE} 0.3663366 0.9024390
##
   [12] {milk=TRUE}
                                                                 1.0850755
##
   [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                 1.0850755
   [14] {catsize=FALSE}
                          => {fins=FALSE} 0.4752475 0.8421053
                                                                 1.0125313
   [15] {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                 0.9955197
   [16]
       {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                 0.9837662
   [17]
        {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                 0.9837662
       {backbone=TRUE}
                          => {fins=FALSE} 0.6534653 0.7951807
                                                                 0.9561102
   [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                 0.9500294
   [20]
        {tail=TRUE}
                          => {fins=FALSE} 0.5841584 0.7866667
                                                                 0.9458730
                          => {fins=FALSE} 0.4554455 0.7796610
##
  [21] {eggs=TRUE}
                                                                 0.9374496
   [22] {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
                                                                 0.9369202
                          => {fins=FALSE} 0.4257426 0.7678571
  [23] {predator=TRUE}
                                                                 0.9232568
   [24] {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
##
                                                                 0.8914204
                          => {fins=FALSE} 0.4356436 0.7213115
##
   [25] {toothed=TRUE}
                                                                 0.8672912
   [26]
       {aquatic=TRUE}
                          => {fins=FALSE} 0.1881188 0.5277778
                                                                0.6345899
##
        lhs
                                             rhs
                                                         support
                                                                    confidence
##
   [1]
        {venomous=FALSE,legs=FALSE}
                                            {fins=TRUE} 0.1485149 0.7894737
##
   [2]
        {breathes=FALSE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.6666667
##
   [3]
        {aquatic=TRUE, venomous=FALSE}
                                          => {fins=TRUE} 0.1584158 0.5000000
   [4]
                                          => {fins=TRUE} 0.1584158 0.2807018
##
        {toothed=TRUE, venomous=FALSE}
##
   [5]
        {hair=FALSE, venomous=FALSE}
                                            {fins=TRUE} 0.1386139 0.2692308
##
   [6]
        {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
##
   [7]
        {milk=FALSE, venomous=FALSE}
                                          => {fins=TRUE} 0.1188119 0.2307692
##
   [8]
        {eggs=TRUE, venomous=FALSE}
                                          => {fins=TRUE} 0.1188119 0.2264151
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
   [9]
   [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
   [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
```

```
## [1]
        4.690402
##
   [2]
        3.960784
##
   [3]
        2.970588
   [4]
##
        1.667699
##
   [5]
        1.599548
##
   [6]
        1.425882
##
   [7]
        1.371041
##
   [8]
        1.345172
##
   [9]
        1.338857
##
   [10] 1.302176
   [11] 1.100218
##
       lhs
                                            rhs
                                                        support
                                                                   confidence
## [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
  [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
## [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
   [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
   [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
   [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
   [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
##
   [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
       lift
## [1] 1.828054
   [2] 1.540305
##
  [3] 1.397924
##
  [4] 1.371041
   [5] 1.338857
##
   [6] 1.338857
##
   [7] 1.320261
  [8] 1.296257
##
   [9] 1.100218
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
##
  [1]
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
##
   [2]
        {backbone=TRUE,legs=FALSE}
                                        => {fins=TRUE} 0.1584158 0.8421053
   [3]
        {aquatic=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
##
   [4]
##
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
##
   [5]
        {eggs=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
   [6]
        {milk=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3095238
##
   [7]
        {predator=TRUE,backbone=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
##
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
##
   [8]
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
       {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
       {backbone=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
        lift
## [1]
        5.516807
   [2]
        5.003096
##
##
   [3]
        3.366667
##
   [4]
        2.025401
##
   [5]
        1.838936
##
   [6]
        1.838936
   [7]
##
        1.643304
## [8]
        1.603175
## [9]
        1.553846
## [10] 1.338857
```

```
## [11] 1.284579
        lhs
##
                                                         support
                                                                   confidence
                                            rhs
        {feathers=FALSE, aquatic=TRUE}
##
  [1]
                                         => {fins=TRUE} 0.1683168 0.5666667
  [2]
        {hair=FALSE, feathers=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3947368
        {feathers=FALSE,eggs=TRUE}
  [3]
                                         => {fins=TRUE} 0.1287129 0.3333333
  [4]
        {feathers=FALSE, milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
##
        {feathers=FALSE,tail=TRUE}
  [5]
                                         => {fins=TRUE} 0.1584158 0.2909091
## [6]
        {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
##
  [7]
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
  [8]
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
       {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
   [10]
##
        lift
## [1]
        3.366667
## [2]
        2.345201
## [3]
        1.980392
  [4]
##
        1.930882
##
  [5]
        1.728342
  [6]
##
        1.643304
##
   [7]
        1.603175
##
  [8]
        1.383562
## [9]
        1.338857
## [10] 1.302176
##
                                       rhs
                                                    support
                                                              confidence
## [1]
        {breathes=FALSE,tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
  [2]
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.8333333
  [3]
                                    => {fins=TRUE} 0.1584158 0.6153846
##
        {aquatic=TRUE,tail=TRUE}
##
  [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
## [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
## [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
## [7]
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
##
  [8]
        {feathers=FALSE, tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
        {predator=TRUE, tail=TRUE} => {fins=TRUE} 0.1188119 0.2857143
  [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
   [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
  [12] {backbone=TRUE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
##
        lift
## [1]
        5.516807
##
  [2]
        4.950980
  [3]
##
        3.656109
  [4]
        2.121849
  [5]
##
        1.980392
##
   [6]
        1.930882
##
  [7]
        1.828054
## [8]
        1.728342
## [9]
        1.697479
## [10] 1.667699
## [11] 1.371041
##
  [12] 1.284579
                                                             confidence
##
       lhs
                                                   support
                                      rhs
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {fins=TRUE} 0.1287129 0.6500000
## [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
## [3] {eggs=TRUE,tail=TRUE}
                                   => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
```

```
## [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
## [6] {eggs=TRUE,venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
  [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
       lift
## [1] 3.861765
## [2] 2.087440
## [3] 1.980392
## [4] 1.980392
## [5] 1.838936
## [6] 1.345172
## [7] 1.320261
##
        lhs
                                                        support
                                                                   confidence
## [1]
        {airborne=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
        {hair=FALSE,airborne=FALSE}
## [2]
                                         => {fins=TRUE} 0.1485149 0.3750000
## [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
## [5]
                                         => {fins=TRUE} 0.1683168 0.2881356
        {airborne=FALSE, toothed=TRUE}
## [6]
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
                                        => {fins=TRUE} 0.1287129 0.2653061
## [7]
       {airborne=FALSE,predator=TRUE}
## [8]
       {airborne=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2615385
## [9]
       {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
## [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
        lift
       3.258065
## [1]
## [2]
       2.227941
## [3]
       2.087440
##
  [4]
        2.032508
## [5]
        1.711864
## [6]
        1.667699
## [7]
        1.576230
## [8]
        1.553846
## [9]
        1.397924
## [10] 1.383562
##
  [11] 1.338857
##
       lhs
                                          rhs
                                                      support
                                                                confidence
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
## [2] {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
## [3] {hair=FALSE,predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
## [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
  [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
## [4] 1.697479
## [5] 1.643304
## [6] 1.643304
## [7] 1.576230
## [8] 1.425882
##
       lhs
                                                   support
                                                             confidence
                                       rhs
```

```
## [1] {hair=FALSE,toothed=TRUE}
                                   => {fins=TRUE} 0.1485149 0.6521739
## [2] {hair=FALSE,feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
## [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
## [4] {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
## [5] {hair=FALSE,backbone=TRUE}
                                   => {fins=TRUE} 0.1485149 0.3409091
## [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
## [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
## [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
       lift
## [1] 3.874680
## [2] 2.345201
## [3] 2.227941
## [4] 2.121849
## [5] 2.025401
## [6] 1.815359
## [7] 1.599548
##
  [8] 1.540305
##
        lhs
                                                      support
                                                                 confidence
## [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
  [2]
        {toothed=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1584158 0.8421053
##
  [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
## [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
## [5]
        {eggs=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
##
  [6]
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
## [7]
        {predator=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1287129 0.3513514
  [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
##
  [9]
   [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
  [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
##
        lift
## [1]
       5.516807
##
  [2]
       5.003096
##
  [3]
        4.391304
  [4]
##
        3.874680
   [5]
##
        3.861765
##
  [6]
       3.677871
  [7]
        2.087440
## [8]
        1.828054
## [9]
        1.828054
## [10] 1.711864
  [11] 1.667699
##
       lhs
                                         rhs
                                                     support
                                                                confidence
## [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
  [2] {aquatic=TRUE,toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
## [3] {aquatic=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
## [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
## [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [6] {aquatic=TRUE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
   [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
## [1] 5.281046
## [2] 4.391304
## [3] 3.861765
```

```
[4] 3.656109
   [5] 3.366667
   [6] 3.366667
##
   [7] 3.258065
##
   [8]
       2.970588
##
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                             support
##
  [1]
        {aquatic=TRUE, catsize=TRUE}
                                         => {predator=TRUE} 0.1188119
##
   [2]
        {breathes=FALSE,domestic=FALSE} =>
                                            {predator=TRUE} 0.1683168
##
   [3]
        {aquatic=TRUE,fins=FALSE}
                                            {predator=TRUE} 0.1584158
   [4]
        {airborne=FALSE,aquatic=TRUE}
                                            {predator=TRUE} 0.2574257
##
   [5]
        {aquatic=TRUE,legs=TRUE}
                                            {predator=TRUE} 0.1485149
##
   [6]
        {feathers=FALSE, aquatic=TRUE}
                                            {predator=TRUE} 0.2475248
        {fins=TRUE,domestic=FALSE}
##
   [7]
                                            {predator=TRUE} 0.1287129
   [8]
        {aquatic=TRUE, breathes=TRUE}
##
                                            {predator=TRUE} 0.1287129
##
   [9]
        {breathes=FALSE}
                                            {predator=TRUE} 0.1683168
       {aquatic=TRUE}
##
   [10]
                                            {predator=TRUE} 0.2871287
   [11] {backbone=TRUE,legs=FALSE}
                                            {predator=TRUE} 0.1485149
   [12] {hair=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1782178
   [13] {legs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.1683168
##
  [14] {fins=TRUE}
                                            {predator=TRUE} 0.1287129
  [15] {milk=FALSE,toothed=TRUE}
                                            {predator=TRUE} 0.1584158
   [16] {eggs=TRUE, toothed=TRUE}
                                            {predator=TRUE} 0.1485149
   [17] {hair=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2871287
   [18] {hair=FALSE, feathers=FALSE}
                                            {predator=TRUE} 0.2673267
  [19] {milk=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2673267
   [20] {eggs=TRUE,airborne=FALSE}
                                            {predator=TRUE} 0.2574257
   [21] {airborne=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.4653465
  [22] {domestic=FALSE,catsize=TRUE}
                                            {predator=TRUE} 0.2574257
  [23] {toothed=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.3465347
   [24]
       {airborne=FALSE,toothed=FALSE}
                                            {predator=TRUE} 0.1188119
   [25]
       {hair=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.3564356
   [26] {catsize=TRUE}
                                            {predator=TRUE} 0.2772277
   [27] {feathers=FALSE,domestic=FALSE} =>
                                            {predator=TRUE} 0.4455446
       {backbone=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4455446
                                            {predator=TRUE} 0.4059406
##
   [29] {tail=TRUE,domestic=FALSE}
  [30] {feathers=FALSE,milk=FALSE}
                                            {predator=TRUE} 0.2475248
   [31] {eggs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.2079208
       {feathers=FALSE,eggs=TRUE}
   [32]
                                            {predator=TRUE} 0.2376238
   [33] {feathers=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.3762376
##
   [34] {milk=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.2376238
   [35] {feathers=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.3267327
   [36] {eggs=TRUE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
       {milk=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
  [38] {eggs=TRUE,tail=TRUE}
                                            {predator=TRUE} 0.2277228
##
   [39]
        {backbone=TRUE}
                                            {predator=TRUE} 0.4653465
##
   [40]
       {eggs=FALSE}
                                            {predator=TRUE} 0.2277228
   [41]
       {venomous=FALSE,tail=FALSE}
                                            {predator=TRUE} 0.1188119
   [42] {legs=TRUE}
                                            {predator=TRUE} 0.3861386
   [43]
        {hair=TRUE}
                                            {predator=TRUE} 0.1980198
##
##
   [44]
                                            {predator=TRUE} 0.2673267
        {aquatic=FALSE}
##
        confidence lift
## [1]
        0.9230769 1.6648352
## [2]
        0.8500000 1.5330357
```

```
[3]
        0.8421053
                    1.5187970
##
   [4]
        0.8387097
                    1.5126728
        0.8333333
   [5]
                    1.5029762
   [6]
        0.8333333
##
                    1.5029762
##
   [7]
        0.8125000
                    1.4654018
##
   [8]
        0.8125000
                    1.4654018
   [9]
        0.8095238
                    1.4600340
   [10] 0.8055556
                    1.4528770
   [11] 0.7894737
                    1.4238722
   [12] 0.7826087
                    1.4114907
   [13] 0.7727273
                    1.3936688
   [14] 0.7647059
                    1.3792017
   [15] 0.7619048
                    1.3741497
   [16] 0.7500000
                    1.3526786
   [17] 0.7250000
                    1.3075893
   [18] 0.7105263
                    1.2814850
   [19] 0.7105263
                    1.2814850
   [20] 0.7027027
                    1.2673745
   [21] 0.6911765
                    1.2465861
   [22] 0.6842105
                    1.2340226
##
   [23] 0.6730769
                    1.2139423
   [24] 0.6666667
                    1.2023810
   [25] 0.6666667
                    1.2023810
   [26] 0.6363636
                    1.1477273
   [27] 0.6338028
                    1.1431087
   [28] 0.6338028
                    1.1431087
   [29] 0.6307692
                    1.1376374
##
   [30] 0.6250000
                    1.1272321
   [31] 0.6176471
                    1.1139706
   [32] 0.6153846
                    1.1098901
   [33] 0.6031746
                    1.0878685
##
   [34] 0.6000000
                    1.0821429
   [35] 0.6000000
                    1.0821429
   [36] 0.5952381
                    1.0735544
        0.5952381
                    1.0735544
   [37]
##
   [38] 0.5897436
                    1.0636447
   [39] 0.5662651
                    1.0212995
   [40] 0.5476190
                    0.9876701
   [41] 0.5454545
                    0.9837662
   [42] 0.5000000
                    0.9017857
   [43] 0.4651163
                    0.8388704
   [44]
        0.4153846
                    0.7491758
##
##
        lhs
                                                support
                                                          confidence lift
##
   [1]
        {domestic=TRUE}
                              {predator=FALSE} 0.1089109 0.8461538
                          =>
                                                                      1.8991453
   [2]
##
        {airborne=TRUE}
                             {predator=FALSE} 0.1683168 0.7083333
                                                                      1.5898148
   [3]
##
        {type=bird}
                             {predator=FALSE} 0.1089109 0.5500000
                                                                      1.2344444
##
   [4]
        {feathers=TRUE}
                             {predator=FALSE} 0.1089109 0.5500000
                                                                      1.2344444
##
   [5]
        {toothed=FALSE}
                             {predator=FALSE} 0.2079208 0.5250000
        {catsize=FALSE}
##
   [6]
                          => {predator=FALSE} 0.2871287 0.5087719
                                                                      1.1419103
##
   [7]
        {milk=TRUE}
                          => {predator=FALSE} 0.1881188 0.4634146
                                                                      1.0401084
##
   [8]
                          => {predator=FALSE} 0.1881188 0.4634146
                                                                      1.0401084
        {type=mammal}
   [9]
        {tail=FALSE}
                          => {predator=FALSE} 0.1188119 0.4615385
## [10] {eggs=FALSE}
                          => {predator=FALSE} 0.1881188 0.4523810
                                                                      1.0153439
## [11] {eggs=TRUE}
                          => {predator=FALSE} 0.2574257 0.4406780
```

```
## [12] {milk=FALSE}
                         => {predator=FALSE} 0.2574257 0.4333333 0.9725926
                                                                   0.8671717
  [13] {domestic=FALSE} => {predator=FALSE} 0.3366337 0.3863636
  [14] {hair=FALSE}
                         => {predator=FALSE} 0.2178218 0.3793103
                         => {predator=FALSE} 0.1584158 0.3636364
  [15] {catsize=TRUE}
                                                                   0.8161616
##
                                          rhs
                                                          support
                                                                     confidence
  [1] {airborne=FALSE,toothed=FALSE} => {predator=TRUE} 0.1188119 0.6666667
##
##
       lift
##
  [1] 1.202381
                                                       support
##
       lhs
                                                                  confidence
                                       rhs
##
   [1] {venomous=FALSE,tail=FALSE} => {predator=TRUE} 0.1188119 0.5454545
   [1] 0.9837662
##
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
##
   [1] {eggs=FALSE,domestic=FALSE} => {predator=TRUE} 0.2079208 0.6176471
##
       lift
##
   [1] 1.113971
##
       lhs
                                                      support
                                                                 confidence
                                      rhs
  [1] {eggs=TRUE,toothed=TRUE}
                                   => {predator=TRUE} 0.1485149 0.7500000
   [2] {eggs=TRUE,airborne=FALSE} => {predator=TRUE} 0.2574257 0.7027027
   [3] {feathers=FALSE,eggs=TRUE} => {predator=TRUE} 0.2376238 0.6153846
  [4] {eggs=TRUE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
  [5] {eggs=TRUE,tail=TRUE}
                                   => {predator=TRUE} 0.2277228 0.5897436
##
##
       lift
## [1] 1.352679
## [2] 1.267375
  [3] 1.109890
  [4] 1.073554
##
   [5] 1.063645
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
## [1] {milk=FALSE,toothed=TRUE}
                                   => {predator=TRUE} 0.1584158 0.7619048
  [2] {milk=FALSE,airborne=FALSE} => {predator=TRUE} 0.2673267 0.7105263
  [3] {feathers=FALSE,milk=FALSE} => {predator=TRUE} 0.2475248 0.6250000
  [4] {milk=FALSE,tail=TRUE}
                                    => {predator=TRUE} 0.2376238 0.6000000
  [5] {milk=FALSE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
       lift
##
## [1] 1.374150
## [2] 1.281485
## [3] 1.127232
  [4] 1.082143
##
  [5] 1.073554
##
        lhs
                                            rhs
                                                            support
        {breathes=FALSE,domestic=FALSE} => {predator=TRUE} 0.1683168
##
  [1]
##
  [2]
        {fins=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.1287129
  [3]
        {legs=FALSE,domestic=FALSE}
##
                                         => {predator=TRUE} 0.1683168
## [4]
        {airborne=FALSE,domestic=FALSE} => {predator=TRUE} 0.4653465
  [5]
##
        {domestic=FALSE, catsize=TRUE}
                                         => {predator=TRUE} 0.2574257
##
  [6]
        {toothed=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.3465347
##
  [7]
        {hair=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.3564356
  [8]
        {feathers=FALSE,domestic=FALSE} => {predator=TRUE} 0.4455446
   [9]
        {backbone=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4455446
   [10] {tail=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4059406
##
   [11] {eggs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.2079208
##
        confidence lift
## [1]
       0.8500000 1.533036
```

```
[2]
        0.8125000
                   1.465402
##
   [3]
        0.7727273
                   1.393669
  [4]
        0.6911765
                   1.246586
   [5]
        0.6842105
                   1.234023
##
##
   [6]
        0.6730769
                   1.213942
   [7]
        0.6666667
                   1.202381
##
   [8]
        0.6338028
                   1.143109
##
  [9]
        0.6338028
                   1.143109
   [10] 0.6307692
                   1.137637
##
   [11] 0.6176471
                   1.113971
##
       lhs
                                       rhs
                                                        support
                                                                  confidence
                                    => {predator=TRUE} 0.1782178 0.7826087
##
   [1] {hair=FALSE,toothed=TRUE}
   [2] {hair=FALSE,airborne=FALSE} => {predator=TRUE} 0.2871287 0.7250000
   [3] {hair=FALSE,feathers=FALSE} => {predator=TRUE} 0.2673267 0.7105263
   [4] {hair=FALSE,domestic=FALSE} => {predator=TRUE} 0.3564356 0.6666667
##
       lift
  [1] 1.411491
##
   [2] 1.307589
   [3] 1.281485
##
   [4] 1.202381
##
       lhs
                                                          support
                                                                    confidence
                                         rhs
                                      => {predator=TRUE} 0.1188119 0.9230769
  [1] {aquatic=TRUE,catsize=TRUE}
   [2] {domestic=FALSE,catsize=TRUE} => {predator=TRUE} 0.2574257 0.6842105
##
       lift.
  [1] 1.664835
##
   [2] 1.234023
       "Número de reglas con consecuente negado"
##
##
        lhs
                                            rhs
                                                              support
##
  [1]
        {toothed=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
  [2]
        {feathers=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
##
  [3]
        {eggs=TRUE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
   [4]
        {milk=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
  [5]
        {hair=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1287129
##
  [6]
        {tail=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
   [7]
        {tail=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
##
  [8]
        {aquatic=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1089109
        {fins=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
## [10] {airborne=FALSE,toothed=FALSE}
                                            {backbone=FALSE} 0.1188119
  [11] {toothed=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
  [12] {toothed=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
  [13] {milk=FALSE,toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
  [14] {toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
  [15] {feathers=FALSE,milk=FALSE}
                                            {backbone=FALSE} 0.1782178
  [16] {feathers=FALSE,eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
## [17] {milk=FALSE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
## [18] {feathers=FALSE, catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
  [19] {milk=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
  [20] {eggs=TRUE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1089109
  [21] {eggs=TRUE,fins=FALSE}
                                            {backbone=FALSE} 0.1683168
  [22] {hair=FALSE,feathers=FALSE}
                                            {backbone=FALSE} 0.1386139
## [23] {milk=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
## [24] {fins=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
## [25] {aquatic=FALSE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1188119
## [26] {milk=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
```

```
## [27] {eggs=TRUE,catsize=FALSE}
                                             {backbone=FALSE} 0.1584158
   [28]
       {hair=FALSE,fins=FALSE}
                                             {backbone=FALSE} 0.1386139
   [29] {eggs=TRUE,legs=TRUE}
                                             {backbone=FALSE} 0.1287129
   [30] {domestic=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1584158
   [31] {legs=TRUE,catsize=FALSE}
##
                                             {backbone=FALSE} 0.1287129
##
   [32] {milk=FALSE,airborne=FALSE}
                                             {backbone=FALSE} 0.1188119
   [33] {milk=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
   [34]
       {airborne=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1089109
   [35]
        {eggs=TRUE,airborne=FALSE}
                                             {backbone=FALSE} 0.1089109
   [36]
        {eggs=TRUE,domestic=FALSE}
                                             {backbone=FALSE} 0.1584158
   [37]
       {eggs=TRUE}
                                             {backbone=FALSE} 0.1683168
   [38]
       {feathers=FALSE,fins=FALSE}
                                             {backbone=FALSE} 0.1782178
   [39]
##
       {hair=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1386139
        {feathers=FALSE,legs=TRUE}
                                             {backbone=FALSE} 0.1386139
   [41]
        {feathers=FALSE,domestic=FALSE} =>
                                             {backbone=FALSE} 0.1683168
   [42]
        {fins=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
   [43]
        {feathers=FALSE, aquatic=FALSE}
                                             {backbone=FALSE} 0.1188119
        {aquatic=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1089109
       {legs=TRUE,domestic=FALSE}
                                             {backbone=FALSE} 0.1287129
   [45]
##
   Γ461
        {aquatic=FALSE}
                                             {backbone=FALSE} 0.1188119
##
        confidence lift
##
  [1]
        1.0000000
                   5.611111
   [2]
##
        0.9000000
                   5.050000
##
   [3]
        0.8500000
                    4.769444
##
   [4]
        0.8500000
                    4.769444
   [5]
        0.8125000
                    4.559028
   [6]
##
        0.8000000
                    4.488889
##
   [7]
        0.6956522
                    3.903382
##
   [8]
        0.6875000
                    3.857639
##
   [9]
        0.6800000
                    3.815556
   [10]
       0.6666667
                    3.740741
##
   [11] 0.5483871
                    3.077061
   [12] 0.4722222
                    2.649691
   [13] 0.4615385
                    2.589744
        0.4500000
   Γ147
                    2.525000
##
   [15] 0.4500000
                    2.525000
   [16] 0.4358974
                    2.445869
   [17] 0.4000000
                    2.244444
   [18] 0.3953488
                    2.218346
   [19] 0.3829787
                    2.148936
   [20] 0.3793103
                    2.128352
   [21] 0.3695652
                    2.073671
   [22] 0.3684211
                    2.067251
   [23] 0.3541667
                    1.987269
   [24] 0.3541667
                    1.987269
   [25] 0.3529412
                    1.980392
##
   [26] 0.3500000
                    1.963889
   [27] 0.3478261
                    1.951691
   [28] 0.3255814
                    1.826873
   [29]
        0.3250000
                    1.823611
##
   [30] 0.3200000
                    1.795556
  [31] 0.3170732
                    1.779133
## [32] 0.3157895
                    1.771930
## [33] 0.3090909
                   1.734343
```

```
[34] 0.3055556
                   1.714506
   [35] 0.2972973
                   1.668168
   [36] 0.2962963
                   1.662551
   [37] 0.2881356
                   1.616761
##
   [38]
       0.2812500
                   1.578125
   [39] 0.2592593
##
                   1.454733
   [40] 0.2413793
                   1.354406
   [41] 0.2394366
                   1.343505
   [42] 0.2361111
                   1.324846
   [43] 0.2352941
                   1.320261
   [44] 0.2075472
                   1.164570
##
   [45]
       0.1969697
                   1.105219
##
   [46]
       0.1846154
                   1.035897
##
        lhs
                                              support
                                                        confidence lift
##
  [1]
        {type=fish}
                          => {backbone=TRUE} 0.1287129 1.0000000
                                                                    1.2168675
##
   [2]
        {fins=TRUE}
                             {backbone=TRUE} 0.1683168 1.0000000
                                                                    1.2168675
   [3]
##
                             {backbone=TRUE} 0.1980198 1.0000000
        {type=bird}
                                                                    1.2168675
##
   [4]
                             {backbone=TRUE} 0.1980198 1.0000000
        {feathers=TRUE}
                                                                    1.2168675
        {milk=TRUE}
##
   [5]
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                   1.2168675
##
   [6]
        {type=mammal}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                    1.2168675
                             {backbone=TRUE} 0.6039604 1.0000000
##
   [7]
        {toothed=TRUE}
                                                                    1.2168675
##
   [8]
        {tail=TRUE}
                             {backbone=TRUE} 0.7326733 0.9866667
                                                                    1.2006426
##
   [9]
        {catsize=TRUE}
                             {backbone=TRUE} 0.4257426 0.9772727
                                                                    1.1892114
   Γ10]
       {domestic=TRUE}
                             {backbone=TRUE} 0.1188119 0.9230769
                                                                    1.1232623
   [11] {breathes=TRUE}
                             {backbone=TRUE} 0.6831683 0.8625000
                                                                    1.0495482
   [12] {legs=FALSE}
                             {backbone=TRUE} 0.1881188 0.8260870
                                                                    1.0052383
                          => {backbone=TRUE} 0.6336634 0.8205128
##
   [13] {legs=TRUE}
                                                                    0.9984554
##
   [14] {aquatic=FALSE}
                             {backbone=TRUE} 0.5247525 0.8153846
                                                                    0.9922150
   [15] {predator=FALSE}
                             {backbone=TRUE} 0.3564356 0.8000000
                                                                    0.9734940
   [16] {feathers=FALSE} =>
                             {backbone=TRUE} 0.6237624 0.7777778
                                                                    0.9464525
   [17]
        {airborne=TRUE}
                             {backbone=TRUE} 0.1782178 0.7500000
                                                                    0.9126506
##
   [18]
       {eggs=TRUE}
                             {backbone=TRUE} 0.4158416 0.7118644
                                                                    0.8662446
   [19] {catsize=FALSE}
                          => {backbone=TRUE} 0.3960396 0.7017544
                                                                    0.8539421
   [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                    0.8112450
   [21] {toothed=FALSE}
                             {backbone=TRUE} 0.2178218 0.5500000
##
                         =>
                                                                    0.6692771
##
       lhs
                                      rhs
                                                        support
                                                                   confidence
   [1] {milk=FALSE,legs=TRUE}
                                   => {backbone=FALSE} 0.1386139 0.3500000
                                   => {backbone=FALSE} 0.1287129 0.3250000
##
   [2] {eggs=TRUE,legs=TRUE}
   [3] {legs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1287129 0.3170732
   [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
       lift
##
   [1] 1.963889
##
   [2] 1.823611
   [3] 1.779133
   [4] 1.354406
##
##
   [5] 1.105219
##
       lhs
                                          rhs
                                                            support
   [1] {aquatic=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1089109
   [2] {milk=FALSE,aquatic=FALSE}
                                       => {backbone=FALSE} 0.1188119
##
   [3] {eggs=TRUE,aquatic=FALSE}
                                          {backbone=FALSE} 0.1089109
   [4] {aquatic=FALSE, catsize=FALSE}
                                       => {backbone=FALSE} 0.1188119
  [5] {feathers=FALSE, aquatic=FALSE} => {backbone=FALSE} 0.1188119
## [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
```

```
confidence lift
##
##
  [1] 0.6875000 3.857639
   [2] 0.4000000
                  2.244444
   [3] 0.3793103
                  2.128352
   [4] 0.3529412
                  1.980392
   [5] 0.2352941
                  1.320261
##
##
   [6] 0.2075472 1.164570
##
       lhs
                                           rhs
                                                             support
##
  [1] {feathers=FALSE, toothed=FALSE}
                                        => {backbone=FALSE} 0.1782178
   [2] {feathers=FALSE,milk=FALSE}
                                        => {backbone=FALSE} 0.1782178
  [3] {feathers=FALSE,eggs=TRUE}
                                        => {backbone=FALSE} 0.1683168
   [4] {feathers=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
   [5] {hair=FALSE, feathers=FALSE}
                                           {backbone=FALSE} 0.1386139
   [6] {feathers=FALSE,fins=FALSE}
                                        => {backbone=FALSE} 0.1782178
  [7] {feathers=FALSE,legs=TRUE}
                                        => {backbone=FALSE} 0.1386139
   [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
##
   [9] {feathers=FALSE, aquatic=FALSE}
                                        => {backbone=FALSE} 0.1188119
##
       confidence lift
  [1] 0.9000000 5.050000
##
   [2] 0.4500000
                  2.525000
##
   [3] 0.4358974
                  2.445869
  [4] 0.3953488
                  2.218346
   [5] 0.3684211
                  2.067251
##
##
   [6] 0.2812500
                  1.578125
  [7] 0.2413793
                  1.354406
   [8] 0.2394366
                  1.343505
##
   [9] 0.2352941
                  1.320261
##
       lhs
                                      rhs
                                                        support
                                                                  confidence
##
  [1] {eggs=TRUE,tail=FALSE}
                                      {backbone=FALSE} 0.1683168 0.8500000
  [2] {feathers=FALSE,eggs=TRUE} =>
                                      {backbone=FALSE} 0.1683168 0.4358974
   [3] {eggs=TRUE,aquatic=FALSE}
                                      {backbone=FALSE} 0.1089109 0.3793103
##
   [4] {eggs=TRUE,fins=FALSE}
                                      {backbone=FALSE} 0.1683168 0.3695652
  [5] {eggs=TRUE,catsize=FALSE}
                                      {backbone=FALSE} 0.1584158 0.3478261
   [6] {eggs=TRUE,legs=TRUE}
                                   => {backbone=FALSE} 0.1287129 0.3250000
   [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
   [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
##
       lift
## [1] 4.769444
   [2] 2.445869
##
  [3] 2.128352
  [4] 2.073671
##
   [5] 1.951691
##
   [6] 1.823611
##
   [7] 1.668168
##
   [8] 1.662551
##
        lhs
                                           rhs
                                                             support
        {tail=FALSE,catsize=FALSE}
##
  [1]
                                        => {backbone=FALSE} 0.1584158
##
   [2]
        {toothed=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
   [3]
        {feathers=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1683168
##
   [4]
        {milk=FALSE,catsize=FALSE}
                                           {backbone=FALSE} 0.1683168
   [5]
##
        {fins=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
   [6]
        {aquatic=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1188119
##
  [7]
        {eggs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
  [8]
        {domestic=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1584158
```

```
{legs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1287129
##
   [10] {airborne=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1089109
##
        confidence lift
  [1]
        0.8000000
                   4.488889
##
##
   [2]
        0.5483871
                   3.077061
##
   [3]
                   2.218346
        0.3953488
  [4]
        0.3541667
                   1.987269
##
  [5]
        0.3541667
                   1.987269
##
   [6]
        0.3529412
                   1.980392
##
   [7]
        0.3478261
                   1.951691
   [8]
        0.3200000
                   1.795556
##
   [9]
        0.3170732
                   1.779133
##
   [10] 0.3055556
                   1.714506
##
       lhs
                                                            support
##
  [1] {toothed=FALSE,tail=FALSE}
                                         {backbone=FALSE} 0.1683168
   [2] {feathers=FALSE,toothed=FALSE} =>
                                          {backbone=FALSE} 0.1782178
   [3] {airborne=FALSE, toothed=FALSE} =>
                                          {backbone=FALSE} 0.1188119
   [4] {toothed=FALSE,catsize=FALSE}
                                          {backbone=FALSE} 0.1683168
   [5] {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
   [6] {milk=FALSE, toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
##
       confidence lift
  [1] 1.0000000 5.611111
  [2] 0.9000000
                  5.050000
   [3] 0.6666667
                  3.740741
  [4] 0.5483871
                  3.077061
  [5] 0.4722222
                  2.649691
   [6]
       0.4615385
                  2.589744
##
       "Número de reglas con consecuente negado"
##
                                                          support
                                                                    confidence
##
  [1]
                                            {legs=FALSE} 0.1287129 1.0000000
        {type=fish}
##
   [2]
        {hair=FALSE,fins=TRUE}
                                            {legs=FALSE} 0.1485149 1.0000000
##
   [3]
        {eggs=TRUE,fins=TRUE}
                                            {legs=FALSE} 0.1287129 1.0000000
##
   [4]
        {milk=FALSE,fins=TRUE}
                                            {legs=FALSE} 0.1287129 1.0000000
##
   [5]
        {toothed=TRUE,breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
   [6]
        {breathes=FALSE,tail=TRUE}
##
                                            {legs=FALSE} 0.1386139 1.0000000
##
   [7]
        {backbone=TRUE, breathes=FALSE}
                                         => {legs=FALSE} 0.1386139 1.0000000
  [8]
        {fins=TRUE}
                                            {legs=FALSE} 0.1584158 0.9411765
  [9]
                                         => {legs=FALSE} 0.1782178 0.7826087
##
        {hair=FALSE,toothed=TRUE}
  [10] {breathes=FALSE}
                                            {legs=FALSE} 0.1584158 0.7619048
  [11] {milk=FALSE,toothed=TRUE}
                                         => {legs=FALSE} 0.1584158 0.7619048
  [12] {eggs=TRUE,toothed=TRUE}
                                            {legs=FALSE} 0.1485149 0.7500000
  [13] {aquatic=TRUE, toothed=TRUE}
                                            {legs=FALSE} 0.1683168 0.7391304
  [14] {aquatic=TRUE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.6153846
  [15] {feathers=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.6000000
## [16] {airborne=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
  [17] {hair=FALSE,feathers=FALSE}
                                            {legs=FALSE} 0.2178218 0.5789474
  [18] {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
  [19] {hair=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1683168 0.5312500
  [20] {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
  [21] {eggs=TRUE,airborne=FALSE}
                                         => {legs=FALSE} 0.1881188 0.5135135
## [22] {feathers=FALSE,milk=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5000000
## [23] {feathers=FALSE,eggs=TRUE}
                                         => {legs=FALSE} 0.1881188 0.4871795
## [24] {toothed=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.4615385
## [25] {hair=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4444444
```

```
## [26] {airborne=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
  [27] {hair=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4285714
  [28] {milk=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1386139 0.4117647
  [29] {hair=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1782178 0.4090909
   [30] {predator=TRUE,toothed=TRUE}
##
                                         => {legs=FALSE} 0.1485149 0.4054054
   [31] {milk=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1584158 0.4000000
##
  [32] {eggs=TRUE,predator=TRUE}
                                         => {legs=FALSE} 0.1287129 0.3939394
   [33] {hair=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.2079208 0.3888889
##
   [34]
       {eggs=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1485149 0.3846154
   [35]
       {milk=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1584158 0.3809524
   [36] {feathers=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.3720930
   [37]
       {feathers=FALSE, predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3617021
       {eggs=TRUE,backbone=TRUE}
                                         => {legs=FALSE} 0.1485149 0.3571429
##
   [38]
       {airborne=FALSE, predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3469388
                                         => {legs=FALSE} 0.1782178 0.3461538
  [40] {toothed=TRUE,domestic=FALSE}
       {milk=FALSE,domestic=FALSE}
                                            {legs=FALSE} 0.1881188 0.3454545
   [41]
   [42] {predator=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1386139 0.3333333
   [43] {eggs=TRUE,domestic=FALSE}
                                           {legs=FALSE} 0.1782178 0.3333333
  [44] {feathers=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3272727
   [45] {tail=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3243243
##
  [46] {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
  [47] {airborne=FALSE, toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
  [48] {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
   [49] {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
   [50] {feathers=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3098592
   [51] {predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3035714
   [52] {feathers=FALSE,backbone=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3015873
##
   [53] {backbone=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
   [54] {domestic=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1485149 0.3000000
                                         => {legs=FALSE} 0.1683168 0.2615385
   [55] {tail=TRUE,domestic=FALSE}
##
   [56] {backbone=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.2535211
##
        lift
##
   [1]
        4.391304
   [2]
##
        4.391304
   [3]
##
        4.391304
   [4]
##
        4.391304
##
   [5]
        4.391304
  [6]
##
        4.391304
   [7]
##
        4.391304
##
  [8]
        4.132992
  [9]
        3.436673
   [10] 3.345756
##
   [11] 3.345756
##
  [12] 3.293478
  [13] 3.245747
##
  [14] 2.702341
##
   [15] 2.634783
   [16] 2.549790
  [17] 2.542334
   [18]
       2.415217
##
  [19] 2.332880
## [20] 2.311213
## [21] 2.254994
## [22] 2.195652
```

```
## [23] 2.139353
   [24] 2.026756
   [25] 1.951691
   [26] 1.951691
   [27] 1.881988
##
   [28] 1.808184
   [29] 1.796443
   [30] 1.780259
   [31] 1.756522
   [32] 1.729908
   [33] 1.707729
   [34] 1.688963
   [35] 1.672878
   [36] 1.633974
   [37] 1.588344
   [38] 1.568323
   [39] 1.523514
   [40] 1.520067
   [41] 1.516996
   [42] 1.463768
##
   [43] 1.463768
   [44] 1.437154
   [45] 1.424207
   [46] 1.420716
   [47] 1.414149
   [48] 1.386728
   [49] 1.383562
##
   [50] 1.360686
   [51] 1.333075
   [52] 1.324362
   [53] 1.317391
##
   [54]
       1.317391
   [55] 1.148495
   [56]
##
       1.113288
##
                                                    confidence lift
        lhs
                                          support
##
   [1]
        {type=bird}
                          => {legs=TRUE} 0.1980198 1.0000000
                                                               1.2948718
   [2]
        {feathers=TRUE}
                          => {legs=TRUE} 0.1980198 1.0000000
##
   [3]
                          => {legs=TRUE} 0.2376238 1.0000000
        {airborne=TRUE}
                                                                1.2948718
##
   [4]
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                                1.2647585
##
   [5]
        {milk=TRUE}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
   [6]
        {type=mammal}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                                1.2001251
   [7]
        {domestic=TRUE}
                          => {legs=TRUE} 0.1188119 0.9230769
##
                                                                1.1952663
                                                                1.1952663
##
   [8]
        {aquatic=FALSE}
                          => {legs=TRUE} 0.5940594 0.9230769
##
                          => {legs=TRUE} 0.3762376 0.9047619
   [9]
        {eggs=FALSE}
                                                                1.1715507
   [10] {toothed=FALSE}
                          => {legs=TRUE} 0.3564356 0.9000000
                                                                1.1653846
                             {legs=TRUE} 0.3861386 0.8666667
   [11]
        {predator=FALSE}
                          =>
                                                                1.122222
   [12] {catsize=TRUE}
                          => {legs=TRUE} 0.3663366 0.8409091
                                                                1.0888695
   [13] {tail=FALSE}
                          => {legs=TRUE} 0.2079208 0.8076923
                                                                1.0458580
   [14] {backbone=FALSE} => {legs=TRUE} 0.1386139 0.7777778
                                                                1.0071225
   [15]
       {tail=TRUE}
                          => {legs=TRUE} 0.5643564 0.7600000
                                                               0.9841026
   [16]
                          => {legs=TRUE} 0.4059406 0.7192982
       {catsize=FALSE}
                                                                0.9313990
  [17] {airborne=FALSE} => {legs=TRUE} 0.5346535 0.7012987
                                                                0.9080919
## [18] {toothed=TRUE}
                          => {legs=TRUE} 0.4158416 0.6885246
                                                               0.8915511
## [19] {eggs=TRUE}
                          => {legs=TRUE} 0.3960396 0.6779661
                                                               0.8778792
```

```
=> {legs=TRUE} 0.3960396 0.6666667
## [20] {milk=FALSE}
                                                               0.8632479
##
   [21] {aquatic=TRUE}
                          => {legs=TRUE} 0.1782178 0.5000000
                                                               0.6474359
##
        lhs
                                       rhs
                                                     support
                                                               confidence
##
  [1]
        {breathes=FALSE,tail=TRUE} => {legs=FALSE} 0.1386139 1.0000000
##
   [2]
        {aquatic=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.6153846
##
   [3]
        {hair=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1782178 0.4285714
##
  [4]
        {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
##
  [5]
        {eggs=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1485149 0.3846154
##
   [6]
        {predator=TRUE,tail=TRUE}
                                   => {legs=FALSE} 0.1386139 0.3333333
##
   [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
   [8]
        {tail=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3243243
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
##
   [9]
##
       {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
        lift
## [1]
        4.391304
##
   [2]
        2.702341
   [3]
##
        1.881988
   [4]
##
        1.756522
   [5]
##
        1.688963
##
   [6]
        1.463768
##
   [7]
        1.437154
##
  [8]
        1.424207
        1.386728
##
  [9]
##
  Γ10 1.148495
##
       lhs
                                          rhs
                                                        support
                                                                   confidence
## [1] {toothed=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.4615385
   [2] {airborne=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.4444444
  [3] {feathers=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
  [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
  [5] {backbone=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3000000
##
   [6] {domestic=FALSE,catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
##
       lift
##
  [1] 2.026756
  [2] 1.951691
   [3] 1.633974
##
  [4] 1.424207
  [5] 1.317391
  [6] 1.317391
##
##
        lhs
                                            rhs
                                                          support
                                                                    confidence
##
  [1]
        {airborne=FALSE,aquatic=TRUE}
                                         => {legs=FALSE} 0.1782178 0.5806452
        {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
  [3]
        {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
##
        {eggs=TRUE,airborne=FALSE}
##
   [4]
                                         => {legs=FALSE} 0.1881188 0.5135135
##
   [5]
        {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
##
  [6]
        {airborne=FALSE,predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3469388
  [7]
##
        {airborne=FALSE,domestic=FALSE}
                                         => {legs=FALSE} 0.2178218 0.3235294
##
   [8]
        {airborne=FALSE, toothed=TRUE}
                                         => {legs=FALSE} 0.1881188 0.3220339
##
   [9]
        {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
##
   [10]
       {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
        lift
##
  [1]
        2.549790
## [2]
        2.415217
## [3]
        2.311213
## [4]
        2.254994
```

```
[5]
        1.951691
##
   [6]
        1.523514
##
   [7]
        1.420716
   [8]
##
        1.414149
##
   [9]
        1.386728
##
   [10] 1.383562
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
## [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
   [2] {hair=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1782178 0.7826087
   [3] {milk=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1584158 0.7619048
  [4] {eggs=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.7500000
   [5] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
   [6] {toothed=TRUE,catsize=FALSE}
                                      => {legs=FALSE} 0.1188119 0.4615385
                                      => {legs=FALSE} 0.1485149 0.4054054
   [7] {predator=TRUE, toothed=TRUE}
  [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
   [9] {airborne=FALSE, toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
       lift
##
  [1] 4.391304
##
  [2] 3.436673
   [3] 3.345756
##
  [4] 3.293478
  [5] 3.245747
##
  [6] 2.026756
##
   [7] 1.780259
   [8] 1.520067
##
   [9] 1.414149
##
       lhs
                                      rhs
                                                    support
                                                              confidence
##
  [1] {eggs=TRUE,fins=TRUE}
                                   => {legs=FALSE} 0.1287129 1.0000000
                                   => {legs=FALSE} 0.1485149 0.7500000
   [2] {eggs=TRUE,toothed=TRUE}
  [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
   [4] {feathers=FALSE,eggs=TRUE}
                                  => {legs=FALSE} 0.1881188 0.4871795
   [5] {eggs=TRUE,predator=TRUE}
                                   => {legs=FALSE} 0.1287129 0.3939394
   [6] {eggs=TRUE,tail=TRUE}
                                   => {legs=FALSE} 0.1485149 0.3846154
   [7] {eggs=TRUE,backbone=TRUE}
                                   => {legs=FALSE} 0.1485149 0.3571429
      {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
##
       lift
##
  [1] 4.391304
  [2] 3.293478
##
##
   [3] 2.254994
##
  [4] 2.139353
  [5] 1.729908
   [6] 1.688963
##
   [7] 1.568323
##
   [8] 1.463768
##
       lhs
                                                    support
                                                               confidence
                                       {legs=FALSE} 0.1287129 1.0000000
##
  [1] {milk=FALSE,fins=TRUE}
##
   [2] {milk=FALSE,toothed=TRUE}
                                       {legs=FALSE} 0.1584158 0.7619048
   [3] {milk=FALSE,airborne=FALSE} =>
                                      {legs=FALSE} 0.1980198 0.5263158
   [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
   [5] {milk=FALSE,predator=TRUE}
                                    => {legs=FALSE} 0.1386139 0.4117647
   [6] {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
  [7] {milk=FALSE,backbone=TRUE}
                                    => {legs=FALSE} 0.1584158 0.3809524
  [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
##
       lift
```

```
[1] 4.391304
  [2] 3.345756
  [3] 2.311213
   [4] 2.195652
##
   [5] 1.808184
   [6] 1.756522
##
   [7] 1.672878
  [8] 1.516996
##
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
##
  [1] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
   [2] {aquatic=TRUE,tail=TRUE}
                                      => {legs=FALSE} 0.1584158 0.6153846
   [3] {feathers=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1782178 0.6000000
   [4] {airborne=FALSE,aquatic=TRUE}
                                     => {legs=FALSE} 0.1782178 0.5806452
##
                                      => {legs=FALSE} 0.1683168 0.5312500
##
   [5] {hair=FALSE,aquatic=TRUE}
##
       lift
##
   [1] 3.245747
##
   [2] 2.702341
   [3] 2.634783
##
   [4] 2.549790
##
   [5]
       2.332880
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                            support
##
  [1]
        {type=fish}
                                            {toothed=TRUE} 0.1287129
##
   [2]
        {fins=TRUE}
                                            {toothed=TRUE} 0.1683168
##
   [3]
        {breathes=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.1386139
   [4]
        {backbone=TRUE, breathes=FALSE}
                                            {toothed=TRUE} 0.1386139
   [5]
        {legs=FALSE,tail=TRUE}
##
                                            {toothed=TRUE} 0.1782178
##
   [6]
        {backbone=TRUE,legs=FALSE}
                                            {toothed=TRUE} 0.1881188
   [7]
##
        {eggs=FALSE,backbone=TRUE}
                                            {toothed=TRUE} 0.4059406
##
   [8]
                                            {toothed=TRUE} 0.4059406
        {eggs=FALSE}
##
   [9]
        {hair=TRUE,backbone=TRUE}
                                            {toothed=TRUE} 0.3762376
##
   [10]
       {hair=TRUE,airborne=FALSE}
                                            {toothed=TRUE} 0.3564356
   [11] {hair=TRUE,tail=TRUE}
                                            {toothed=TRUE} 0.3168317
  [12] {feathers=FALSE,backbone=TRUE}
                                            {toothed=TRUE} 0.6039604
   [13] {hair=TRUE, predator=TRUE}
                                            {toothed=TRUE} 0.1881188
##
  [14] {feathers=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.5148515
  [15] {feathers=FALSE,catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
  [16] {airborne=FALSE,backbone=TRUE}
                                            {toothed=TRUE} 0.5841584
  [17] {airborne=FALSE,tail=TRUE}
                                            {toothed=TRUE} 0.4950495
  [18] {airborne=FALSE,catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
  [19] {venomous=FALSE,legs=FALSE}
                                            {toothed=TRUE} 0.1584158
  [20] {legs=FALSE}
                                            {toothed=TRUE} 0.1881188
  [21] {backbone=TRUE,catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
  [22] {feathers=FALSE,airborne=FALSE}
                                            {toothed=TRUE} 0.5841584
## [23] {airborne=FALSE,breathes=TRUE}
                                            {toothed=TRUE} 0.4455446
## [24] {catsize=TRUE}
                                            {toothed=TRUE} 0.3465347
  [25] {feathers=FALSE,predator=TRUE}
                                            {toothed=TRUE} 0.3663366
   [26] {predator=TRUE,backbone=TRUE}
                                            {toothed=TRUE} 0.3663366
  [27] {airborne=FALSE,predator=FALSE} =>
                                            {toothed=TRUE} 0.2178218
   [28] {feathers=FALSE, breathes=TRUE}
                                            {toothed=TRUE} 0.4653465
  [29] {airborne=FALSE,aquatic=FALSE}
                                            {toothed=TRUE} 0.3564356
## [30] {feathers=FALSE, venomous=FALSE} =>
                                            {toothed=TRUE} 0.5643564
## [31] {airborne=FALSE,venomous=FALSE} => {toothed=TRUE} 0.5445545
## [32] {feathers=FALSE,aquatic=TRUE}
                                         => {toothed=TRUE} 0.2277228
```

```
## [33] {aquatic=TRUE,backbone=TRUE}
                                          => {toothed=TRUE} 0.2277228
   [34] {feathers=FALSE}
                                            {toothed=TRUE} 0.6039604
   [35] {predator=TRUE,tail=TRUE}
                                             {toothed=TRUE} 0.3069307
   [36] {aquatic=TRUE,tail=TRUE}
                                             {toothed=TRUE} 0.1881188
##
   [37] {aquatic=FALSE,predator=TRUE}
                                             {toothed=TRUE} 0.1881188
##
   [38] {tail=TRUE}
                                             {toothed=TRUE} 0.5148515
   [39] {predator=TRUE, breathes=TRUE}
                                             {toothed=TRUE} 0.2673267
   [40] {breathes=FALSE}
                                             {toothed=TRUE} 0.1386139
##
   [41]
       {predator=TRUE}
                                             {toothed=TRUE} 0.3663366
   [42] {aquatic=TRUE}
                                            {toothed=TRUE} 0.2277228
   [43] {domestic=FALSE}
                                          => {toothed=TRUE} 0.5148515
   [44]
       {breathes=TRUE}
                                            {toothed=TRUE} 0.4653465
   [45]
       {predator=FALSE}
                                         => {toothed=TRUE} 0.2376238
   [46]
       {catsize=FALSE}
                                         => {toothed=TRUE} 0.2574257
   [47]
                                         => {toothed=TRUE} 0.2277228
       {hair=FALSE}
##
   [48]
       {eggs=TRUE}
                                          => {toothed=TRUE} 0.1980198
##
        confidence lift
##
   [1]
        1.0000000
                   1.6557377
   [2]
##
        1.0000000
                   1.6557377
##
   [3]
        1.0000000
                    1.6557377
##
   [4]
        1.0000000
                    1.6557377
   [5]
        1.0000000
                    1.6557377
##
   [6]
        1.0000000
                    1.6557377
##
   [7]
        1.0000000
                    1.6557377
##
   [8]
        0.9761905
                    1.6163154
   [9]
        0.9743590
                    1.6132829
   [10] 0.9729730
                    1.6109880
##
   [11] 0.9696970
                    1.6055638
   [12] 0.9682540
                    1.6031746
   [13] 0.9500000
                    1.5729508
   [14] 0.9454545
                    1.5654247
   [15] 0.9210526
                    1.5250216
   [16] 0.9076923
                    1.5029004
   [17] 0.8771930
                    1.4524015
   [18] 0.8536585
                    1.4134346
##
   [19] 0.8421053
                    1.3943054
   [20] 0.8260870
                    1.3677833
   [21] 0.8139535
                    1.3476935
   [22] 0.8082192
                    1.3381990
   [23] 0.8035714
                    1.3305035
   [24] 0.7954545
                    1.3170641
   [25] 0.7872340
                    1.3034531
   [26] 0.7872340
                    1.3034531
                    1.3009368
   [27] 0.7857143
   [28] 0.7833333
                    1.2969945
   [29] 0.7826087
                    1.2957947
                    1.2928363
##
   [30] 0.7808219
   [31] 0.7746479
                    1.2826137
   [32] 0.7666667
                    1.2693989
   [33]
       0.7666667
                    1.2693989
##
   [34] 0.7530864
                    1.2469136
   [35] 0.7380952
                    1.2220921
## [36] 0.7307692
                   1.2099622
                   1.1651488
## [37] 0.7037037
```

```
[38] 0.6933333
                   1.1479781
   [39] 0.6923077
                   1.1462799
   [40] 0.6666667
                   1.1038251
  [41] 0.6607143
                   1.0939696
   [42] 0.6388889
                   1.0578324
  [43] 0.5909091
                   0.9783905
##
   [44] 0.5875000
                   0.9727459
   [45] 0.5333333
                   0.8830601
   [46] 0.4561404
                   0.7552488
   [47] 0.3965517
                   0.6565856
   [48] 0.3389831
                   0.5612670
##
       lhs
                                           support
                                                      confidence lift
##
                        => {toothed=FALSE} 0.1980198 1.0000000
  [1] {type=bird}
                                                                 2.5250000
   [2] {feathers=TRUE} => {toothed=FALSE} 0.1980198 1.0000000
   [3] {tail=FALSE}
                        => {toothed=FALSE} 0.1683168 0.6538462
                                                                 1.6509615
   [4] {milk=FALSE}
                        => {toothed=FALSE} 0.3861386 0.6500000
                                                                 1.6412500
##
   [5] {catsize=FALSE} => {toothed=FALSE} 0.3069307 0.5438596
                                                                 1.3732456
   [6] {predator=TRUE} => {toothed=FALSE} 0.1881188 0.3392857
                                                                 0.8566964
##
                                                          support
       lhs
                                          rhs
                                                                    confidence
##
   [1] {hair=TRUE, predator=TRUE}
                                       =>
                                          {toothed=TRUE} 0.1881188 0.9500000
##
   [2] {feathers=FALSE,predator=TRUE} => {toothed=TRUE} 0.3663366 0.7872340
  [3] {predator=TRUE,backbone=TRUE}
                                       => {toothed=TRUE} 0.3663366 0.7872340
                                          {toothed=TRUE} 0.3069307 0.7380952
  [4] {predator=TRUE,tail=TRUE}
##
   [5] {aquatic=FALSE,predator=TRUE}
                                       => {toothed=TRUE} 0.1881188 0.7037037
##
   [6] {predator=TRUE, breathes=TRUE}
                                       => {toothed=TRUE} 0.2673267 0.6923077
##
       lift
##
   [1] 1.572951
##
   [2] 1.303453
   [3] 1.303453
  [4] 1.222092
##
   [5] 1.165149
##
   [6] 1.146280
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                              support
   [1]
        {toothed=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
##
   [2]
        {feathers=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
   [3]
        {eggs=TRUE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
  [4]
        {milk=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
   [5]
                                            {backbone=FALSE} 0.1287129
##
        {hair=FALSE,tail=FALSE}
##
   [6]
        {tail=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
  [7]
        {tail=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
        {aquatic=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1089109
##
   [8]
##
   [9]
        {fins=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
  [10] {airborne=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1188119
  [11] {toothed=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
  [12]
       {toothed=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
  [13] {milk=FALSE,toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
  [14] {toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
  [15] {feathers=FALSE,milk=FALSE}
                                            {backbone=FALSE} 0.1782178
  [16] {feathers=FALSE,eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
## [17] {milk=FALSE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
## [18] {feathers=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1683168
## [19] {milk=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
## [20] {eggs=TRUE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1089109
```

```
## [21] {eggs=TRUE,fins=FALSE}
                                             {backbone=FALSE} 0.1683168
   [22] {hair=FALSE,feathers=FALSE}
                                             {backbone=FALSE} 0.1386139
   [23] {milk=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
   [24] {fins=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
##
   [25]
       {aquatic=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1188119
##
   [26]
       {milk=FALSE,legs=TRUE}
                                             {backbone=FALSE} 0.1386139
       {eggs=TRUE,catsize=FALSE}
   [27]
                                             {backbone=FALSE} 0.1584158
  [28]
       {hair=FALSE,fins=FALSE}
                                             {backbone=FALSE} 0.1386139
##
   [29]
        {eggs=TRUE,legs=TRUE}
                                             {backbone=FALSE} 0.1287129
   [30]
       {domestic=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1584158
   [31] {legs=TRUE,catsize=FALSE}
                                            {backbone=FALSE} 0.1287129
   [32]
       {milk=FALSE,airborne=FALSE}
                                            {backbone=FALSE} 0.1188119
   [33]
       {milk=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
   [34]
       {airborne=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1089109
                                            {backbone=FALSE} 0.1089109
   [35]
       {eggs=TRUE,airborne=FALSE}
   [36]
        {eggs=TRUE,domestic=FALSE}
                                             {backbone=FALSE} 0.1584158
##
   [37]
        {eggs=TRUE}
                                             {backbone=FALSE} 0.1683168
       {feathers=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
   [38]
                                            {backbone=FALSE} 0.1386139
   [39] {hair=FALSE,domestic=FALSE}
   [40] {feathers=FALSE,legs=TRUE}
                                             {backbone=FALSE} 0.1386139
##
   [41] {feathers=FALSE,domestic=FALSE} =>
                                             {backbone=FALSE} 0.1683168
  [42] {fins=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
   [43] {feathers=FALSE, aquatic=FALSE}
                                             {backbone=FALSE} 0.1188119
   [44] {aquatic=FALSE,domestic=FALSE}
##
                                             {backbone=FALSE} 0.1089109
   [45]
       {legs=TRUE,domestic=FALSE}
                                            {backbone=FALSE} 0.1287129
   [46]
       {aquatic=FALSE}
                                          => {backbone=FALSE} 0.1188119
##
        confidence lift
##
   [1]
        1.0000000
                   5.611111
##
   [2]
        0.9000000
                   5.050000
##
   [3]
        0.8500000
                   4.769444
##
   [4]
        0.8500000
                   4.769444
##
   [5]
        0.8125000
                   4.559028
##
   [6]
        0.8000000
                   4.488889
   [7]
##
        0.6956522
                   3.903382
   [8]
        0.6875000
                   3.857639
##
##
   [9]
        0.6800000
                   3.815556
   [10] 0.6666667
                   3.740741
  [11] 0.5483871
                   3.077061
   [12] 0.4722222
                   2.649691
   [13] 0.4615385
                   2.589744
   [14] 0.4500000
                   2.525000
   [15] 0.4500000
                   2.525000
   [16] 0.4358974
                   2.445869
   [17] 0.4000000
                   2.244444
  [18] 0.3953488
                   2.218346
  [19] 0.3829787
                   2.148936
   [20] 0.3793103
                   2.128352
   [21] 0.3695652
                   2.073671
   [22] 0.3684211
                   2.067251
   [23]
        0.3541667
                   1.987269
##
  [24] 0.3541667
                   1.987269
## [25] 0.3529412
                   1.980392
## [26] 0.3500000
                   1.963889
## [27] 0.3478261
                   1.951691
```

```
## [28] 0.3255814
                   1.826873
   [29] 0.3250000
                   1.823611
   [30] 0.3200000
                   1.795556
  [31] 0.3170732
                   1.779133
   [32] 0.3157895
                   1.771930
   [33] 0.3090909
                   1.734343
##
   [34] 0.3055556
                   1.714506
   [35] 0.2972973
                   1.668168
   [36] 0.2962963
                   1.662551
   [37] 0.2881356
                   1.616761
   [38] 0.2812500
                   1.578125
   [39] 0.2592593
                   1.454733
   [40] 0.2413793
                   1.354406
                   1.343505
  [41] 0.2394366
  [42] 0.2361111
                   1.324846
   [43]
       0.2352941
                   1.320261
   [44] 0.2075472
                   1.164570
   [45] 0.1969697
                   1.105219
   [46]
##
       0.1846154
                   1.035897
##
        lhs
                                              support
                                                        confidence lift
##
  [1]
        {type=fish}
                             {backbone=TRUE} 0.1287129 1.0000000 1.2168675
  [2]
        {fins=TRUE}
                             {backbone=TRUE} 0.1683168 1.0000000
##
  [3]
                             {backbone=TRUE} 0.1980198 1.0000000
##
        {type=bird}
                                                                   1.2168675
   [4]
##
        {feathers=TRUE}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                   1.2168675
##
  [5]
        {milk=TRUE}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                   1.2168675
        {type=mammal}
   [6]
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                   1.2168675
   [7]
                             {backbone=TRUE} 0.6039604 1.0000000
##
        {toothed=TRUE}
                                                                   1.2168675
##
   [8]
        {tail=TRUE}
                             {backbone=TRUE} 0.7326733 0.9866667
                                                                    1.2006426
##
  [9]
        {catsize=TRUE}
                          => {backbone=TRUE} 0.4257426 0.9772727
                                                                    1.1892114
  [10]
       {domestic=TRUE}
                             {backbone=TRUE} 0.1188119 0.9230769
                                                                    1.1232623
  [11]
        {breathes=TRUE}
                             {backbone=TRUE} 0.6831683 0.8625000
                                                                    1.0495482
##
   [12]
        {legs=FALSE}
                             {backbone=TRUE} 0.1881188 0.8260870
                                                                    1.0052383
  [13]
       {legs=TRUE}
                          => {backbone=TRUE} 0.6336634 0.8205128
                                                                    0.9984554
                          => {backbone=TRUE} 0.5247525 0.8153846
  [14] {aquatic=FALSE}
                                                                   0.9922150
   [15] {predator=FALSE}
                             {backbone=TRUE} 0.3564356 0.8000000
                         =>
                                                                    0.9734940
##
  [16] {feathers=FALSE} =>
                             {backbone=TRUE} 0.6237624 0.7777778
                                                                   0.9464525
  [17] {airborne=TRUE}
                            {backbone=TRUE} 0.1782178 0.7500000
                                                                    0.9126506
  [18] {eggs=TRUE}
                          => {backbone=TRUE} 0.4158416 0.7118644
                                                                    0.8662446
                          => {backbone=TRUE} 0.3960396 0.7017544
   [19] {catsize=FALSE}
                                                                    0.8539421
   [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                   0.8112450
   [21] {toothed=FALSE} => {backbone=TRUE} 0.2178218 0.5500000
                                                                   0.6692771
##
       lhs
                                      rhs
                                                        support
                                                                   confidence
##
  [1] {milk=FALSE,legs=TRUE}
                                   =>
                                      {backbone=FALSE} 0.1386139 0.3500000
                                   => {backbone=FALSE} 0.1287129 0.3250000
   [2] {eggs=TRUE,legs=TRUE}
   [3] {legs=TRUE,catsize=FALSE}
                                   => {backbone=FALSE} 0.1287129 0.3170732
   [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
##
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
       lift
  [1] 1.963889
   [2] 1.823611
##
   [3] 1.779133
##
  [4] 1.354406
## [5] 1.105219
##
       lhs
                                          rhs
                                                            support
```

```
## [1] {aguatic=FALSE,tail=FALSE}
                                      => {backbone=FALSE} 0.1089109
                                      => {backbone=FALSE} 0.1188119
## [2] {milk=FALSE,aquatic=FALSE}
  [3] {eggs=TRUE,aquatic=FALSE}
                                       => {backbone=FALSE} 0.1089109
  [4] {aquatic=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1188119
  [5] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
   [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
##
       confidence lift
## [1] 0.6875000 3.857639
   [2] 0.4000000
                  2.244444
  [3] 0.3793103
                  2.128352
  [4] 0.3529412
                  1.980392
  [5] 0.2352941
                  1.320261
##
   [6] 0.2075472 1.164570
##
       lhs
                                           rhs
                                                            support
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
  [2] {feathers=FALSE,milk=FALSE}
                                        => {backbone=FALSE} 0.1782178
  [3] {feathers=FALSE,eggs=TRUE}
                                        => {backbone=FALSE} 0.1683168
  [4] {feathers=FALSE, catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
## [5] {hair=FALSE,feathers=FALSE}
                                       => {backbone=FALSE} 0.1386139
## [6] {feathers=FALSE,fins=FALSE}
                                        => {backbone=FALSE} 0.1782178
## [7] {feathers=FALSE,legs=TRUE}
                                       => {backbone=FALSE} 0.1386139
## [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
  [9] {feathers=FALSE, aquatic=FALSE}
                                       => {backbone=FALSE} 0.1188119
       confidence lift
## [1] 0.9000000 5.050000
  [2] 0.4500000
                  2.525000
## [3] 0.4358974
                  2.445869
## [4] 0.3953488
                  2.218346
## [5] 0.3684211
                  2.067251
## [6] 0.2812500
                  1.578125
## [7] 0.2413793
                  1.354406
  [8] 0.2394366
                  1.343505
##
  [9] 0.2352941
                  1.320261
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
  [1] {eggs=TRUE,tail=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.8500000
  [2] {feathers=FALSE,eggs=TRUE} => {backbone=FALSE} 0.1683168 0.4358974
  [3] {eggs=TRUE,aquatic=FALSE}
                                  => {backbone=FALSE} 0.1089109 0.3793103
## [4] {eggs=TRUE,fins=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.3695652
## [5] {eggs=TRUE,catsize=FALSE}
                                  => {backbone=FALSE} 0.1584158 0.3478261
                                  => {backbone=FALSE} 0.1287129 0.3250000
  [6] {eggs=TRUE,legs=TRUE}
  [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
  [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
##
       lift
## [1] 4.769444
## [2] 2.445869
## [3] 2.128352
## [4] 2.073671
## [5] 1.951691
## [6] 1.823611
##
  [7]
      1.668168
  [8] 1.662551
##
##
        lhs
                                           rhs
                                                            support
## [1]
        {tail=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1584158
## [2]
        {toothed=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1683168
```

```
{feathers=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1683168
##
  [4]
        {milk=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
  [5]
        {fins=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
  [6]
        {aquatic=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1188119
##
##
   [7]
        {eggs=TRUE,catsize=FALSE}
                                           {backbone=FALSE} 0.1584158
        {domestic=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1584158
##
   [8]
   [9]
        {legs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1287129
##
  [10] {airborne=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1089109
##
        confidence lift
##
  [1]
        0.8000000
                   4.488889
   [2]
        0.5483871
                   3.077061
   [3]
##
        0.3953488
                   2.218346
##
   [4]
        0.3541667
                   1.987269
        0.3541667
##
   [5]
                   1.987269
  [6]
##
        0.3529412
                   1.980392
##
   [7]
        0.3478261
                   1.951691
##
   [8]
        0.3200000
                   1.795556
        0.3170732
   [9]
                   1.779133
##
   [10] 0.3055556
                   1.714506
##
       lhs
                                                            support
##
  [1] {toothed=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1683168
  [2] {feathers=FALSE, toothed=FALSE} =>
                                          {backbone=FALSE} 0.1782178
  [3] {airborne=FALSE, toothed=FALSE} => {backbone=FALSE} 0.1188119
   [4] {toothed=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
   [5] {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
   [6] {milk=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
##
       confidence lift
##
   [1] 1.0000000
                  5.611111
   [2] 0.9000000
                  5.050000
  [3] 0.6666667
                  3.740741
  [4] 0.5483871
                  3.077061
   [5] 0.4722222
                  2.649691
   [6] 0.4615385
                  2.589744
##
       "Número de reglas con consecuente negado"
##
        lhs
                                                         support
                                                                   confidence
##
  Г17
        {hair=TRUE,eggs=FALSE}
                                            {milk=TRUE} 0.3762376 1.0000000
  [2]
        {eggs=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3069307 1.0000000
  [3]
        {eggs=FALSE,predator=FALSE}
                                            {milk=TRUE} 0.1881188 1.0000000
##
   [4]
                                             {milk=TRUE} 0.3960396 1.0000000
##
        {eggs=FALSE, venomous=FALSE}
  [5]
##
        {hair=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2970297 1.0000000
  [6]
        {hair=TRUE, predator=TRUE}
                                            {milk=TRUE} 0.1980198 1.0000000
  [7]
        {hair=TRUE, toothed=TRUE}
                                            {milk=TRUE} 0.3762376 1.0000000
##
##
   [8]
        {hair=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 1.0000000
##
  [9]
        {hair=TRUE,airborne=FALSE}
                                            {milk=TRUE} 0.3663366 1.0000000
## [10] {hair=TRUE,backbone=TRUE}
                                         => {milk=TRUE} 0.3861386 1.0000000
                                            {milk=TRUE} 0.3960396 0.9756098
  [11]
        {eggs=FALSE,breathes=TRUE}
##
  [12] {eggs=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3960396 0.9756098
       {eggs=FALSE,legs=TRUE}
                                         => {milk=TRUE} 0.3663366 0.9736842
  [14] {hair=TRUE, venomous=FALSE}
                                         => {milk=TRUE} 0.3861386 0.9512195
  [15] {aquatic=FALSE, toothed=TRUE}
                                            {milk=TRUE} 0.3465347 0.9210526
  [16] {hair=TRUE,domestic=FALSE}
                                            {milk=TRUE} 0.3069307 0.9117647
## [17] {toothed=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3069307 0.8857143
## [18] {toothed=TRUE,legs=TRUE}
                                         => {milk=TRUE} 0.3663366 0.8809524
## [19] {toothed=TRUE,breathes=TRUE}
                                         => {milk=TRUE} 0.3960396 0.8510638
```

```
## [20] {feathers=FALSE,catsize=TRUE}
                                         => {milk=TRUE} 0.3168317 0.8421053
  [21] {aquatic=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.2574257 0.8387097
                                            {milk=TRUE} 0.3168317 0.8205128
  [22] {breathes=TRUE,catsize=TRUE}
  [23] {toothed=TRUE,fins=FALSE}
                                            {milk=TRUE} 0.3564356 0.8181818
##
   [24] {predator=FALSE,toothed=TRUE}
                                            {milk=TRUE} 0.1881188 0.7916667
  [25] {legs=TRUE,catsize=TRUE}
                                           {milk=TRUE} 0.2871287 0.7837838
##
  [26] {airborne=FALSE.catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7804878
  [27] {fins=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.2772277 0.7777778
   [28]
       {predator=FALSE, catsize=TRUE}
                                            {milk=TRUE} 0.1188119 0.7500000
   [29] {backbone=TRUE, catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
   [30] {venomous=FALSE, catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
   [31] {airborne=FALSE,aquatic=FALSE}
                                           {milk=TRUE} 0.3267327 0.7173913
   [32] {toothed=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.3960396 0.7017544
   [33] {airborne=FALSE,breathes=TRUE}
                                           {milk=TRUE} 0.3861386 0.6964286
                                           {milk=TRUE} 0.3465347 0.6862745
  [34] {feathers=FALSE,aquatic=FALSE}
   [35]
        {feathers=FALSE, breathes=TRUE}
                                            {milk=TRUE} 0.4059406 0.6833333
   [36]
       {airborne=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3564356 0.6666667
   [37] {aguatic=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.3465347 0.6603774
   [38] {toothed=TRUE}
                                           {milk=TRUE} 0.3960396 0.6557377
   [39] {feathers=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.6551724
##
  [40] {feathers=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.4059406 0.6507937
  [41] {feathers=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.3465347 0.6363636
  [42] {aquatic=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.2970297 0.6122449
  [43] {airborne=FALSE,predator=FALSE} =>
##
                                            {milk=TRUE} 0.1683168 0.6071429
  [44] {airborne=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 0.6000000
  [45] {backbone=TRUE, breathes=TRUE}
                                           {milk=TRUE} 0.4059406 0.5942029
   [46] {backbone=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5937500
  [47] {aquatic=FALSE,predator=TRUE}
                                           {milk=TRUE} 0.1584158 0.5925926
  [48] {aquatic=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3465347 0.5833333
  [49] {airborne=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3465347 0.5833333
   [50] {airborne=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
##
   [51]
       {legs=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
       {feathers=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.5781250
   [53] {aquatic=FALSE, venomous=FALSE}
                                           {milk=TRUE} 0.3465347 0.5737705
       {breathes=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3465347 0.5737705
   ſ541
##
   [55] {predator=TRUE,breathes=TRUE}
                                           {milk=TRUE} 0.2178218 0.5641026
   [56] {feathers=FALSE, venomous=FALSE} =>
                                            {milk=TRUE} 0.4059406 0.5616438
       {backbone=TRUE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.5606061
##
   [57]
       {feathers=FALSE,predator=FALSE}
##
   [58]
                                            {milk=TRUE} 0.1881188 0.5588235
##
   [59]
       {airborne=FALSE, venomous=FALSE}
                                           {milk=TRUE} 0.3861386 0.5492958
   [60] {aquatic=FALSE, breathes=TRUE}
                                           {milk=TRUE} 0.3465347 0.5468750
   [61] {breathes=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.4059406 0.5466667
##
   [62] {fins=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3168317 0.5423729
   [63] {feathers=FALSE,airborne=FALSE}
                                           {milk=TRUE} 0.3861386 0.5342466
  [64] {predator=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.1881188 0.5277778
   [65]
        {breathes=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5205479
##
   [66]
        {backbone=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.4059406 0.5189873
       {predator=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.1683168 0.5151515
   [68] {venomous=FALSE,legs=TRUE}
                                         => {milk=TRUE} 0.3762376 0.5135135
   [69] {feathers=FALSE}
                                           {milk=TRUE} 0.4059406 0.5061728
##
  [70]
       {venomous=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.4929577
## [71] {venomous=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.4805195
## [72] {predator=FALSE, venomous=FALSE} =>
                                           {milk=TRUE} 0.1881188 0.4418605
## [73] {predator=TRUE}
                                           {milk=TRUE} 0.2178218 0.3928571
```

## lift ## [1] 2.463415 [2] 2.463415 [3] 2.463415 ## ## [4] 2.463415 ## [5] 2.463415 [6] 2.463415 ## [7] 2.463415 ## [8] 2.463415 ## [9] 2.463415 ## [10] 2.463415 ## [11] 2.403331 ## [12] 2.403331 ## [13] 2.398588 ## [14] 2.343248 ## [15] 2.268935 ## [16] 2.246055 ## [17] 2.181882 ## [18] 2.170151 ## [19] 2.096523 ## [20] 2.074454 ## [21] 2.066090 ## [22] 2.021263 ## [23] 2.015521 ## [24] 1.950203 ## [25] 1.930784 ## [26] 1.922665 ## [27] 1.915989 ## [28] 1.847561 ## [29] 1.833239 ## [30] 1.833239 ## [31] 1.767232 ## [32] 1.728712 ## [33] 1.715592 ## [34] 1.690579 ## [35] 1.683333 ## [36] 1.642276 ## [37] 1.626783 ## [38] 1.615354 ## [39] 1.613961 ## [40] 1.603175 ## [41] 1.567627 ## [42] 1.508213 ## [43] 1.495645 ## [44] 1.478049

## [45] 1.463768 ## [46] 1.462652 ## [47] 1.459801 ## [48] 1.436992 ## [50] 1.426187 ## [51] 1.426187 ## [52] 1.424162 ## [53] 1.413435

```
## [54] 1.413435
   [55] 1.389619
  [56] 1.383562
  [57] 1.381005
   [58] 1.376614
##
  [59] 1.353143
  [60] 1.347180
  [61] 1.346667
   [62] 1.336089
  [63] 1.316071
  [64] 1.300136
  [65] 1.282325
   [66] 1.278481
  [67] 1.269032
  [68] 1.264997
   [69] 1.246914
  [70] 1.214359
  [71] 1.183719
  [72] 1.088486
##
   [73] 0.967770
##
        lhs
                             rhs
                                          support
                                                     confidence lift
## [1]
                          => {milk=FALSE} 0.1287129 1.0000000
        {type=fish}
  [2]
        {backbone=FALSE} => {milk=FALSE} 0.1782178 1.0000000
##
                                                                1.6833333
                          => {milk=FALSE} 0.1980198 1.0000000
##
   [3]
        {type=bird}
                                                                1.6833333
##
  [4]
        {feathers=TRUE}
                         => {milk=FALSE} 0.1980198 1.0000000
                                                                1.6833333
  [5]
        {breathes=FALSE} => {milk=FALSE} 0.2079208 1.0000000
                                                                1.6833333
##
  [6]
                          => {milk=FALSE} 0.5742574 0.9830508
        {eggs=TRUE}
                                                                1.6548023
   [7]
        {hair=FALSE}
                          => {milk=FALSE} 0.5544554 0.9655172
                                                                1.6252874
##
  [8]
        {airborne=TRUE}
                         => {milk=FALSE} 0.2178218 0.9166667
                                                                1.5430556
  [9]
        {legs=FALSE}
                          => {milk=FALSE} 0.1980198 0.8695652
                                                                1.4637681
## [10] {aquatic=TRUE}
                          => {milk=FALSE} 0.2970297 0.8333333
                                                                1.4027778
  [11]
       {tail=FALSE}
                             {milk=FALSE} 0.1980198 0.7692308
                                                                1.2948718
  [12] {fins=TRUE}
                          => {milk=FALSE} 0.1287129 0.7647059
                                                                1.2872549
                         => {milk=FALSE} 0.3366337 0.6071429
                                                                1.0220238
  [13] {predator=TRUE}
   [14] {fins=FALSE}
                          => {milk=FALSE} 0.4653465 0.5595238
                                                                0.9418651
                          => {milk=FALSE} 0.3960396 0.5333333
##
  [15] {tail=TRUE}
                                                                0.8977778
  [16] {backbone=TRUE}
                         => {milk=FALSE} 0.4158416 0.5060241
                                                                0.8518072
  [17] {aquatic=FALSE}
                         => {milk=FALSE} 0.2970297 0.4615385
##
                                                                0.7769231
  [18] {toothed=TRUE}
                          => {milk=FALSE} 0.2079208 0.3442623
##
                                                                0.5795082
##
       lhs
                                         rhs
                                                      support
                                                                confidence
  [1] {hair=TRUE,predator=TRUE}
                                      => {milk=TRUE} 0.1980198 1.0000000
   [2] {aquatic=FALSE,predator=TRUE} => {milk=TRUE} 0.1584158 0.5925926
   [3] {predator=TRUE,breathes=TRUE} => {milk=TRUE} 0.2178218 0.5641026
##
       lift
  [1] 2.463415
   [2] 1.459801
##
   [3] 1.389619
##
       lhs
                                       rhs
                                                    support
                                                              confidence
  [1] {toothed=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3564356 0.8181818
   [2] {fins=FALSE,catsize=TRUE}
                                    => {milk=TRUE} 0.2772277 0.7777778
   [3] {airborne=FALSE,fins=FALSE} => {milk=TRUE} 0.3465347 0.5833333
## [4] {feathers=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5781250
## [5] {backbone=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3663366 0.5606061
## [6] {fins=FALSE,tail=TRUE}
                                    => {milk=TRUE} 0.3168317 0.5423729
```

```
## [7] {venomous=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.4805195
##
       lift.
## [1] 2.015521
  [2] 1.915989
  [3] 1.436992
  [4] 1.424162
##
  [5] 1.381005
##
  [6] 1.336089
##
  [7] 1.183719
##
       lhs
                                      rhs
                                                   support
                                                             confidence
## [1] {hair=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 1.0000000
##
  [2] {feathers=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.6363636
  [3] {aquatic=FALSE,tail=TRUE}
                                  => {milk=TRUE} 0.2970297 0.6122449
## [4] {airborne=FALSE,tail=TRUE} => {milk=TRUE} 0.3267327 0.5789474
## [5] {legs=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 0.5789474
  [6] {breathes=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3465347 0.5737705
  [7] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
  [8] {predator=FALSE,tail=TRUE} => {milk=TRUE} 0.1683168 0.5151515
   [9] {venomous=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.4929577
##
##
       lift.
## [1] 2.463415
## [2] 1.567627
## [3] 1.508213
##
  [4] 1.426187
## [5] 1.426187
  [6] 1.413435
  [7] 1.336089
##
##
   [8] 1.269032
  [9] 1.214359
##
##
        lhs
                                           rhs
                                                        support
                                                                  confidence
## [1]
        {hair=TRUE,backbone=TRUE}
                                        => {milk=TRUE} 0.3861386 1.0000000
##
   [2]
        {eggs=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3960396 0.9756098
##
  [3]
        {backbone=TRUE, catsize=TRUE}
                                        => {milk=TRUE} 0.3168317 0.7441860
  [4]
##
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
   [5]
        {feathers=FALSE,backbone=TRUE} => {milk=TRUE} 0.4059406 0.6507937
##
##
  [6]
        {airborne=FALSE,backbone=TRUE} => {milk=TRUE} 0.3861386 0.6000000
  [7]
        {backbone=TRUE,breathes=TRUE}
                                        => {milk=TRUE} 0.4059406 0.5942029
  [8]
        {backbone=TRUE,legs=TRUE}
                                        => {milk=TRUE} 0.3762376 0.5937500
##
  [9]
        {backbone=TRUE,fins=FALSE}
                                        => {milk=TRUE} 0.3663366 0.5606061
##
  [10] {predator=FALSE,backbone=TRUE} => {milk=TRUE} 0.1881188 0.5277778
##
   [11] {backbone=TRUE,venomous=FALSE} => {milk=TRUE} 0.4059406 0.5189873
##
        lift
## [1]
        2.463415
##
  [2]
        2.403331
  [3]
##
        1.833239
  [4]
##
        1.626783
##
   [5]
        1.603175
##
   [6]
        1.478049
##
  [7]
        1.463768
##
   [8]
        1.462652
##
  [9]
        1.381005
## [10] 1.300136
## [11] 1.278481
##
        lhs
                                                                  confidence
                                           rhs
                                                        support
```

```
{aquatic=FALSE,toothed=TRUE}
                                        => {milk=TRUE} 0.3465347 0.9210526
##
  [2]
        {aquatic=FALSE, catsize=TRUE}
                                        => {milk=TRUE} 0.2574257 0.8387097
  [3]
        {airborne=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3267327 0.7173913
  [4]
        {feathers=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3465347 0.6862745
##
##
   [5]
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
##
   [6]
        {aquatic=FALSE,tail=TRUE}
                                        => {milk=TRUE} 0.2970297 0.6122449
  [7]
        {aquatic=FALSE,predator=TRUE}
                                        => {milk=TRUE} 0.1584158 0.5925926
##
  [8]
        {aquatic=FALSE,legs=TRUE}
                                        => {milk=TRUE} 0.3465347 0.5833333
##
   [9]
        {aquatic=FALSE, venomous=FALSE} => {milk=TRUE} 0.3465347 0.5737705
##
   [10] {aquatic=FALSE,breathes=TRUE} => {milk=TRUE} 0.3465347 0.5468750
##
        lift
        2.268935
##
   [1]
##
   [2]
        2.066090
##
   [3]
        1.767232
  [4]
##
        1.690579
##
   [5]
        1.626783
##
   [6]
        1.508213
   [7]
        1.459801
   [8]
##
        1.436992
##
   [9]
        1.413435
##
   [10] 1.347180
##
       lhs
                                                                confidence
                                                      support
  [1] {hair=TRUE,toothed=TRUE}
                                      => {milk=TRUE} 0.3762376 1.0000000
##
   [2] {aquatic=FALSE,toothed=TRUE}
                                      => {milk=TRUE} 0.3465347 0.9210526
  [3] {toothed=TRUE,catsize=TRUE}
                                      => {milk=TRUE} 0.3069307 0.8857143
  [4] {toothed=TRUE,legs=TRUE}
                                      => {milk=TRUE} 0.3663366 0.8809524
  [5] {toothed=TRUE,breathes=TRUE}
                                      => {milk=TRUE} 0.3960396 0.8510638
   [6] {toothed=TRUE,fins=FALSE}
                                      => {milk=TRUE} 0.3564356 0.8181818
  [7] {predator=FALSE,toothed=TRUE} => {milk=TRUE} 0.1881188 0.7916667
   [8] {toothed=TRUE, venomous=FALSE} => {milk=TRUE} 0.3960396 0.7017544
##
       lift
##
  [1] 2.463415
   [2] 2.268935
  [3] 2.181882
   [4] 2.170151
##
  [5] 2.096523
  [6] 2.015521
  [7] 1.950203
##
   [8]
       1.728712
##
  [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                             support
        {aquatic=TRUE,catsize=TRUE}
##
  [1]
                                            {predator=TRUE} 0.1188119
##
   [2]
        {breathes=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.1683168
##
  [3]
        {aquatic=TRUE,fins=FALSE}
                                         => {predator=TRUE} 0.1584158
## [4]
        {airborne=FALSE,aquatic=TRUE}
                                         => {predator=TRUE} 0.2574257
## [5]
        {aquatic=TRUE,legs=TRUE}
                                            {predator=TRUE} 0.1485149
##
  [6]
        {feathers=FALSE, aquatic=TRUE}
                                            {predator=TRUE} 0.2475248
##
  [7]
        {fins=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.1287129
        {aquatic=TRUE,breathes=TRUE}
  [8]
                                            {predator=TRUE} 0.1287129
  [9]
        {breathes=FALSE}
                                            {predator=TRUE} 0.1683168
##
  [10]
       {aquatic=TRUE}
                                            {predator=TRUE} 0.2871287
## [11] {backbone=TRUE,legs=FALSE}
                                            {predator=TRUE} 0.1485149
## [12] {hair=FALSE,toothed=TRUE}
                                         => {predator=TRUE} 0.1782178
## [13] {legs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.1683168
```

```
## [14] {fins=TRUE}
                                         => {predator=TRUE} 0.1287129
                                            {predator=TRUE} 0.1584158
  [15] {milk=FALSE,toothed=TRUE}
  [16] {eggs=TRUE,toothed=TRUE}
                                            {predator=TRUE} 0.1485149
  [17] {hair=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2871287
  [18] {hair=FALSE, feathers=FALSE}
                                            {predator=TRUE} 0.2673267
  [19] {milk=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2673267
  [20] {eggs=TRUE,airborne=FALSE}
                                            {predator=TRUE} 0.2574257
  [21] {airborne=FALSE,domestic=FALSE} =>
                                            {predator=TRUE} 0.4653465
   [22]
       {domestic=FALSE,catsize=TRUE}
                                            {predator=TRUE} 0.2574257
   [23]
       {toothed=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.3465347
   [24] {airborne=FALSE, toothed=FALSE}
                                            {predator=TRUE} 0.1188119
   [25] {hair=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.3564356
   [26] {catsize=TRUE}
                                            {predator=TRUE} 0.2772277
       {feathers=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.4455446
  [28] {backbone=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4455446
        {tail=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4059406
   [30]
       {feathers=FALSE,milk=FALSE}
                                            {predator=TRUE} 0.2475248
   [31] {eggs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.2079208
   [32] {feathers=FALSE,eggs=TRUE}
                                            {predator=TRUE} 0.2376238
   [33] {feathers=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.3762376
##
  [34] {milk=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.2376238
       {feathers=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.3267327
   [36] {eggs=TRUE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
       {milk=FALSE,backbone=TRUE}
   [37]
                                            {predator=TRUE} 0.2475248
       {eggs=TRUE,tail=TRUE}
   [38]
                                            {predator=TRUE} 0.2277228
   [39] {backbone=TRUE}
                                            {predator=TRUE} 0.4653465
   [40] {eggs=FALSE}
                                            {predator=TRUE} 0.2277228
   [41] {venomous=FALSE,tail=FALSE}
                                            {predator=TRUE} 0.1188119
  [42]
       {legs=TRUE}
                                            {predator=TRUE} 0.3861386
  [43] {hair=TRUE}
                                            {predator=TRUE} 0.1980198
##
   [44] {aquatic=FALSE}
                                            {predator=TRUE} 0.2673267
##
        confidence lift
##
   [1]
        0.9230769
                   1.6648352
   [2]
##
        0.8500000
                   1.5330357
   [3]
        0.8421053
                   1.5187970
   [4]
##
        0.8387097
                   1.5126728
   [5]
        0.8333333
                   1.5029762
  [6]
##
        0.8333333
                   1.5029762
   [7]
        0.8125000
                   1.4654018
##
  [8]
        0.8125000
                   1.4654018
  [9]
        0.8095238
                   1.4600340
   [10] 0.8055556
                   1.4528770
   [11] 0.7894737
                   1.4238722
  [12] 0.7826087
                   1.4114907
  [13] 0.7727273
                   1.3936688
  [14] 0.7647059
                   1.3792017
   [15] 0.7619048
                   1.3741497
   [16] 0.7500000
                   1.3526786
   [17] 0.7250000
                   1.3075893
   [18]
       0.7105263
                   1.2814850
  [19] 0.7105263
                   1.2814850
## [20] 0.7027027
                   1.2673745
## [21] 0.6911765
                   1.2465861
## [22] 0.6842105
                   1.2340226
```

```
## [23] 0.6730769
                   1.2139423
  [24] 0.6666667
                   1.2023810
                   1.2023810
  [25] 0.6666667
  [26] 0.6363636
                   1.1477273
  [27] 0.6338028
                   1.1431087
  [28] 0.6338028
                   1.1431087
  [29] 0.6307692
                   1.1376374
## [30] 0.6250000
                   1.1272321
  [31] 0.6176471
                   1.1139706
  [32] 0.6153846
                   1.1098901
  [33] 0.6031746
                   1.0878685
  [34] 0.6000000
                   1.0821429
  [35] 0.6000000
                   1.0821429
## [36] 0.5952381
                   1.0735544
## [37] 0.5952381
                   1.0735544
  [38] 0.5897436
                   1.0636447
                   1.0212995
  [39] 0.5662651
  [40] 0.5476190
                   0.9876701
                   0.9837662
  [41] 0.5454545
  [42] 0.5000000
                   0.9017857
  [43] 0.4651163
                   0.8388704
  [44] 0.4153846
                   0.7491758
##
        lhs
                                                         confidence lift
                                              support
                         => {predator=FALSE} 0.1089109 0.8461538
## [1]
        {domestic=TRUE}
                                                                    1.8991453
  [2]
        {airborne=TRUE}
                          => {predator=FALSE} 0.1683168 0.7083333
                                                                    1.5898148
  [3]
        {type=bird}
                          => {predator=FALSE} 0.1089109 0.5500000
  [4]
                          => {predator=FALSE} 0.1089109 0.5500000
##
        {feathers=TRUE}
                                                                    1.2344444
  [5]
        {toothed=FALSE}
                          => {predator=FALSE} 0.2079208 0.5250000
                                                                    1.1783333
## [6]
        {catsize=FALSE}
                         => {predator=FALSE} 0.2871287 0.5087719
                                                                    1.1419103
## [7]
        {milk=TRUE}
                          => {predator=FALSE} 0.1881188 0.4634146
                                                                    1.0401084
## [8]
        {type=mammal}
                          => {predator=FALSE} 0.1881188 0.4634146
                                                                    1.0401084
##
  [9]
        {tail=FALSE}
                          => {predator=FALSE} 0.1188119 0.4615385
                                                                    1.0358974
  [10] {eggs=FALSE}
                          => {predator=FALSE} 0.1881188 0.4523810
                                                                    1.0153439
## [11] {eggs=TRUE}
                          => {predator=FALSE} 0.2574257 0.4406780
                                                                    0.9890772
  [12] {milk=FALSE}
                          => {predator=FALSE} 0.2574257 0.4333333
                                                                    0.9725926
  [13] {domestic=FALSE}
                         => {predator=FALSE} 0.3366337 0.3863636
                                                                    0.8671717
  [14] {hair=FALSE}
                          => {predator=FALSE} 0.2178218 0.3793103
##
  [15] {catsize=TRUE}
                          => {predator=FALSE} 0.1584158 0.3636364
                                                                    0.8161616
##
                                                           support
                                                                     confidence
   [1] {airborne=FALSE,toothed=FALSE} => {predator=TRUE} 0.1188119 0.6666667
##
       lift
##
   [1] 1.202381
                                                        support
                                                                  confidence
##
       lhs
                                       rhs
   [1] {venomous=FALSE,tail=FALSE} => {predator=TRUE} 0.1188119 0.5454545
##
##
       lift
  [1] 0.9837662
##
##
                                       rhs
                                                        support
                                                                  confidence
##
   [1] {eggs=FALSE,domestic=FALSE} => {predator=TRUE} 0.2079208 0.6176471
##
       lift
##
   [1] 1.113971
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {predator=TRUE} 0.1485149 0.7500000
## [2] {eggs=TRUE,airborne=FALSE} => {predator=TRUE} 0.2574257 0.7027027
## [3] {feathers=FALSE,eggs=TRUE} => {predator=TRUE} 0.2376238 0.6153846
```

```
## [4] {eggs=TRUE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
##
   [5] {eggs=TRUE,tail=TRUE}
                                   => {predator=TRUE} 0.2277228 0.5897436
       lift
##
  [1] 1.352679
##
##
   [2] 1.267375
  [3] 1.109890
##
  [4] 1.073554
##
  [5] 1.063645
##
       lhs
                                                                  confidence
                                       rhs
                                                        support
##
  [1] {milk=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1584158 0.7619048
  [2] {milk=FALSE,airborne=FALSE} => {predator=TRUE} 0.2673267 0.7105263
   [3] {feathers=FALSE,milk=FALSE} => {predator=TRUE} 0.2475248 0.6250000
   [4] {milk=FALSE,tail=TRUE}
                                    => {predator=TRUE} 0.2376238 0.6000000
   [5] {milk=FALSE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
##
##
       lift
##
   [1] 1.374150
##
   [2] 1.281485
  [3] 1.127232
  [4] 1.082143
##
   [5] 1.073554
##
        lhs
                                            rhs
                                                             support
        {breathes=FALSE,domestic=FALSE} =>
##
  [1]
                                            {predator=TRUE} 0.1683168
  [2]
        {fins=TRUE,domestic=FALSE}
##
                                         => {predator=TRUE} 0.1287129
        {legs=FALSE,domestic=FALSE}
##
   [3]
                                         => {predator=TRUE} 0.1683168
        {airborne=FALSE,domestic=FALSE} => {predator=TRUE} 0.4653465
##
  [4]
  [5]
        {domestic=FALSE, catsize=TRUE}
                                         => {predator=TRUE} 0.2574257
   [6]
        {toothed=TRUE,domestic=FALSE}
##
                                         => {predator=TRUE} 0.3465347
##
   [7]
        {hair=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.3564356
##
  [8]
        {feathers=FALSE,domestic=FALSE} => {predator=TRUE} 0.4455446
  [9]
        {backbone=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4455446
   [10] {tail=TRUE,domestic=FALSE}
                                         => {predator=TRUE} 0.4059406
##
   [11] {eggs=FALSE,domestic=FALSE}
                                         => {predator=TRUE} 0.2079208
##
        confidence lift
##
  [1]
        0.8500000
                   1.533036
   [2]
        0.8125000
                   1.465402
##
##
   [3]
        0.7727273
                   1.393669
  [4]
        0.6911765
                   1.246586
  [5]
        0.6842105
                   1.234023
##
##
   [6]
        0.6730769
                   1.213942
##
  [7]
        0.6666667
                   1.202381
  [8]
        0.6338028
                   1.143109
   [9]
        0.6338028
                   1.143109
##
   [10] 0.6307692
                   1.137637
   [11] 0.6176471
##
                   1.113971
##
       lhs
                                       rhs
                                                        support
                                                                  confidence
  [1] {hair=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1782178 0.7826087
##
   [2] {hair=FALSE,airborne=FALSE} => {predator=TRUE} 0.2871287 0.7250000
   [3] {hair=FALSE,feathers=FALSE} => {predator=TRUE} 0.2673267 0.7105263
##
   [4] {hair=FALSE,domestic=FALSE} => {predator=TRUE} 0.3564356 0.6666667
##
       lift
## [1] 1.411491
## [2] 1.307589
## [3] 1.281485
## [4] 1.202381
```

```
##
                                         rhs
                                                          support
                                                                    confidence
##
   [1] {aquatic=TRUE, catsize=TRUE}
                                      => {predator=TRUE} 0.1188119 0.9230769
   [2] {domestic=FALSE, catsize=TRUE} => {predator=TRUE} 0.2574257 0.6842105
##
       lift.
##
   [1] 1.664835
##
   [2] 1.234023
##
   [1] "Número de reglas con consecuente negado"
##
                             rhs
                                               support
                                                         confidence lift
##
   Γ17
        {milk=TRUE}
                          => {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
##
   [2]
        {type=mammal}
                            {venomous=FALSE} 0.4059406 1.0000000
                                                                    1.0860215
   [3]
        {catsize=TRUE}
                          => {venomous=FALSE} 0.4257426 0.9772727
                                                                    1.0613392
   [4]
##
        {predator=FALSE}
                             {venomous=FALSE} 0.4257426 0.9555556
                                                                    1.0377539
##
   [5]
        {hair=TRUE}
                             {venomous=FALSE} 0.4059406 0.9534884
                                                                    1.0355089
                             {venomous=FALSE} 0.3960396 0.9523810
##
   [6]
        {eggs=FALSE}
                                                                    1.0343062
  [7]
##
        {backbone=TRUE}
                             {venomous=FALSE} 0.7821782 0.9518072
                                                                    1.0336831
##
   [8]
        {legs=TRUE}
                             {venomous=FALSE} 0.7326733 0.9487179
                                                                    1.0303281
##
   [9]
                             {venomous=FALSE} 0.7029703 0.9466667
        {tail=TRUE}
                                                                    1.0281004
   [10] {fins=TRUE}
                          => {venomous=FALSE} 0.1584158 0.9411765
                                                                    1.0221379
                         => {venomous=FALSE} 0.6039604 0.9384615
   [11] {aquatic=FALSE}
                                                                    1.0191894
   [12] {breathes=TRUE}
                             {venomous=FALSE} 0.7425743 0.9375000
                                                                    1.0181452
##
  [13] {toothed=TRUE}
                             {venomous=FALSE} 0.5643564 0.9344262
                                                                    1.0148070
  [14] {domestic=TRUE}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
  [15] {type=fish}
                             {venomous=FALSE} 0.1188119 0.9230769
                                                                    1.0024814
   [16] {airborne=FALSE}
                             {venomous=FALSE} 0.7029703 0.9220779
                                                                    1.0013965
   [17] {domestic=FALSE}
                             {venomous=FALSE} 0.8019802 0.9204545
                                                                    0.9996334
  [18] {feathers=FALSE}
                         => {venomous=FALSE} 0.7227723 0.9012346
                                                                    0.9787601
   [19] {toothed=FALSE}
                         => {venomous=FALSE} 0.3564356 0.9000000
                                                                    0.9774194
##
  [20] {eggs=TRUE}
                          => {venomous=FALSE} 0.5247525 0.8983051
                                                                    0.9755786
  [21] {hair=FALSE}
                          => {venomous=FALSE} 0.5148515 0.8965517
                                                                    0.9736745
                         => {venomous=FALSE} 0.4950495 0.8928571
  [22] {predator=TRUE}
                                                                    0.9696621
   [23]
        {catsize=FALSE}
                             {venomous=FALSE} 0.4950495 0.8771930
                                                                    0.9526504
##
   [24]
       {milk=FALSE}
                             {venomous=FALSE} 0.5148515 0.8666667
                                                                    0.9412186
   [25] {breathes=FALSE}
                         => {venomous=FALSE} 0.1782178 0.8571429
                                                                    0.9308756
   [26] {legs=FALSE}
                          => {venomous=FALSE} 0.1881188 0.8260870
                                                                    0.8971482
   [27] {backbone=FALSE} => {venomous=FALSE} 0.1386139 0.7777778
                                                                    0.8446834
##
       "Número de reglas con consecuente negado"
##
        lhs
                                           rhs
                                                             support
##
  [1]
        {domestic=TRUE}
                                        => {predator=FALSE} 0.1089109
   [2]
        {hair=TRUE,catsize=FALSE}
                                        => {predator=FALSE} 0.1089109
   [3]
##
        {airborne=TRUE, aquatic=FALSE}
                                        => {predator=FALSE} 0.1485149
  [4]
        {airborne=TRUE}
                                        => {predator=FALSE} 0.1683168
##
   [5]
        {aquatic=FALSE, toothed=FALSE}
                                        => {predator=FALSE} 0.1881188
##
   [6]
        {aquatic=FALSE,tail=FALSE}
                                        => {predator=FALSE} 0.1089109
   [7]
##
        {aquatic=FALSE,catsize=FALSE}
                                        => {predator=FALSE} 0.2277228
##
  [8]
        {eggs=TRUE,aquatic=FALSE}
                                        => {predator=FALSE} 0.1881188
##
  [9]
        {toothed=FALSE,breathes=TRUE}
                                           {predator=FALSE} 0.2079208
##
  [10] {milk=FALSE,aquatic=FALSE}
                                           {predator=FALSE} 0.1881188
  [11] {breathes=TRUE,tail=FALSE}
                                           {predator=FALSE} 0.1188119
  [12] {breathes=TRUE,catsize=FALSE}
                                           {predator=FALSE} 0.2475248
   [13] {aquatic=FALSE, venomous=FALSE}
                                           {predator=FALSE} 0.3564356
  [14] {eggs=TRUE,breathes=TRUE}
                                        => {predator=FALSE} 0.2178218
## [15] {milk=FALSE,breathes=TRUE}
                                        => {predator=FALSE} 0.2178218
## [16] {legs=TRUE,catsize=FALSE}
                                        => {predator=FALSE} 0.2277228
## [17] {type=bird}
                                        => {predator=FALSE} 0.1089109
```

```
## [18] {feathers=TRUE}
                                        => {predator=FALSE} 0.1089109
   [19] {toothed=FALSE,backbone=TRUE} => {predator=FALSE} 0.1188119
   [20] {venomous=FALSE, catsize=FALSE} => {predator=FALSE} 0.2673267
   [21] {toothed=FALSE, venomous=FALSE} => {predator=FALSE} 0.1881188
   [22] {toothed=FALSE}
                                        => {predator=FALSE} 0.2079208
  [23] {fins=FALSE,catsize=FALSE}
                                        => {predator=FALSE} 0.2475248
  [24] {breathes=TRUE, venomous=FALSE} => {predator=FALSE} 0.3861386
  [25] {catsize=FALSE}
                                        => {predator=FALSE} 0.2871287
   [26] {legs=TRUE,tail=TRUE}
                                        => {predator=FALSE} 0.2871287
   [27] {venomous=FALSE,fins=FALSE}
                                        => {predator=FALSE} 0.3861386
   [28] {fins=FALSE,tail=TRUE}
                                        => {predator=FALSE} 0.2871287
   [29] {milk=TRUE}
                                        => {predator=FALSE} 0.1881188
   [30] {type=mammal}
                                        => {predator=FALSE} 0.1881188
                                        => {predator=FALSE} 0.1188119
   [31] {tail=FALSE}
                                        => {predator=FALSE} 0.1881188
   [32] {eggs=FALSE}
   [33]
       {eggs=TRUE}
                                           {predator=FALSE} 0.2574257
   [34]
       {milk=FALSE}
                                        => {predator=FALSE} 0.2574257
   [35]
       {domestic=FALSE}
                                        => {predator=FALSE} 0.3366337
   [36] {hair=FALSE}
                                        => {predator=FALSE} 0.2178218
   [37] {catsize=TRUE}
                                        => {predator=FALSE} 0.1584158
##
        confidence lift
        0.8461538
##
  [1]
                   1.8991453
   [2]
##
        0.8461538
                   1.8991453
   [3]
        0.7894737
                   1.7719298
##
   [4]
        0.7083333
                   1.5898148
   [5]
        0.7037037
                   1.5794239
   [6]
##
        0.6875000
                   1.5430556
##
   [7]
        0.6764706
                   1.5183007
   [8]
##
        0.6551724
                   1.4704981
   [9]
        0.6363636
                   1.4282828
   [10] 0.6333333
                   1.4214815
   [11] 0.6315789
                   1.4175439
   [12] 0.6097561
                   1.3685637
   [13] 0.5901639
                   1.3245902
   [14] 0.5641026
                   1.2660969
  [15] 0.5641026
                   1.2660969
  [16] 0.5609756
                   1.2590786
  [17] 0.5500000
                   1.2344444
   [18] 0.5500000
                   1.2344444
  [19] 0.5454545
                   1.2242424
   [20] 0.5400000
                   1.2120000
   [21] 0.5277778
                   1.1845679
   [22] 0.5250000
                   1.1783333
  [23] 0.5208333
                   1.1689815
  [24] 0.5200000
                   1.1671111
  [25] 0.5087719
                   1.1419103
                   1.1419103
   [26] 0.5087719
   [27] 0.5064935
                   1.1367965
   [28] 0.4915254
                   1.1032015
   [29] 0.4634146
                   1.0401084
  [30] 0.4634146
                   1.0401084
## [31] 0.4615385
                   1.0358974
## [32] 0.4523810
                   1.0153439
## [33] 0.4406780
                   0.9890772
```

```
## [34] 0.4333333 0.9725926
  [35] 0.3863636
                   0.8671717
  [36] 0.3793103
                   0.8513410
  [37] 0.3636364
                   0.8161616
##
                                            support
                                                      confidence lift
## [1] {breathes=FALSE} => {predator=TRUE} 0.1683168 0.8095238
                                                                  1.4600340
  [2] {aquatic=TRUE}
                         => {predator=TRUE} 0.2871287 0.8055556
                                                                  1.4528770
## [3] {fins=TRUE}
                         => {predator=TRUE} 0.1287129 0.7647059
                                                                  1.3792017
## [4] {catsize=TRUE}
                         => {predator=TRUE} 0.2772277 0.6363636
                                                                  1.1477273
  [5] {backbone=TRUE}
                        => {predator=TRUE} 0.4653465 0.5662651
                                                                  1.0212995
  [6] {eggs=FALSE}
                        => {predator=TRUE} 0.2277228 0.5476190
                                                                  0.9876701
  [7] {legs=TRUE}
                        => {predator=TRUE} 0.3861386 0.5000000
                                                                  0.9017857
##
  [8] {hair=TRUE}
                        => {predator=TRUE} 0.1980198 0.4651163
                                                                  0.8388704
##
   [9] {aquatic=FALSE}
                        => {predator=TRUE} 0.2673267 0.4153846
                                                                  0.7491758
##
                                         rhs
                                                                     confidence
                                                           support
##
   [1] {toothed=FALSE,backbone=TRUE} => {predator=FALSE} 0.1188119 0.5454545
##
       lift
##
   [1] 1.224242
##
       lhs
                                     rhs
                                                      support
                                                                 confidence
   [1] {legs=TRUE,catsize=FALSE} => {predator=FALSE} 0.2277228 0.5609756
##
   [2] {legs=TRUE,tail=TRUE}
                                  => {predator=FALSE} 0.2871287 0.5087719
##
       lift.
  [1] 1.259079
##
##
   [2] 1.141910
##
       lhs
                                     rhs
                                                      support
                                                                 confidence
##
   [1] {hair=TRUE,catsize=FALSE} => {predator=FALSE} 0.1089109 0.8461538
##
       lift
##
   [1] 1.899145
##
       lhs
                                          rhs
                                                            support
  [1] {airborne=TRUE, aquatic=FALSE}
                                       => {predator=FALSE} 0.1485149
   [2] {aquatic=FALSE,toothed=FALSE}
                                       => {predator=FALSE} 0.1881188
  [3] {aquatic=FALSE,tail=FALSE}
                                       => {predator=FALSE} 0.1089109
  [4] {aquatic=FALSE, catsize=FALSE}
                                       => {predator=FALSE} 0.2277228
  [5] {eggs=TRUE,aquatic=FALSE}
                                       => {predator=FALSE} 0.1881188
   [6] {milk=FALSE,aquatic=FALSE}
                                       => {predator=FALSE} 0.1881188
   [7] {aquatic=FALSE, venomous=FALSE} => {predator=FALSE} 0.3564356
##
##
       confidence lift
## [1] 0.7894737 1.771930
  [2] 0.7037037
                  1.579424
  [3] 0.6875000
                  1.543056
  [4] 0.6764706
                  1.518301
  [5] 0.6551724
                  1.470498
   [6] 0.6333333
                  1.421481
  [7] 0.5901639 1.324590
##
  [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                              support
## [1]
        {type=fish}
                                         => {breathes=FALSE} 0.1287129
  [2]
        {eggs=TRUE,fins=TRUE}
                                           {breathes=FALSE} 0.1287129
  [3]
        {milk=FALSE,fins=TRUE}
                                         => {breathes=FALSE} 0.1287129
##
  [4]
        {hair=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
##
  [5]
        {aquatic=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
## [6]
        {milk=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
## [7]
        {eggs=TRUE,legs=FALSE}
                                         => {breathes=FALSE} 0.1485149
## [8]
        {legs=FALSE,catsize=FALSE}
                                           {breathes=FALSE} 0.1188119
```

```
{hair=FALSE,legs=FALSE}
                                         => {breathes=FALSE} 0.1584158
                                            {breathes=FALSE} 0.1188119
   [10] {predator=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1980198
  [11] {milk=FALSE,aquatic=TRUE}
   [12] {feathers=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
##
   [13] {milk=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
  [14] {aquatic=TRUE, catsize=FALSE}
##
                                            {breathes=FALSE} 0.1485149
  [15] {eggs=TRUE,toothed=TRUE}
                                            {breathes=FALSE} 0.1287129
   [16] {airborne=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
##
   Γ17]
       {eggs=TRUE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1881188
   [18]
       {hair=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [19] {aquatic=TRUE, toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
   [20] {hair=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
   [21]
       {hair=FALSE,feathers=FALSE}
                                            {breathes=FALSE} 0.2079208
        {milk=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
  [22]
       {eggs=TRUE,airborne=FALSE}
                                            {breathes=FALSE} 0.1980198
  [23]
   [24]
        {hair=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
   [25]
        {feathers=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
       {feathers=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
                                            {breathes=FALSE} 0.1683168
   [27] {milk=FALSE,predator=TRUE}
   [28]
       {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
##
  [29]
       {hair=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
  [30] {airborne=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [31] {predator=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
       {hair=FALSE.milk=FALSE}
   [32]
                                            {breathes=FALSE} 0.2079208
   [33]
       {feathers=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [34] {hair=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
   [35] {hair=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
##
   [36] {hair=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
       {milk=FALSE,domestic=FALSE}
   [37]
                                            {breathes=FALSE} 0.1980198
       {feathers=FALSE, predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [38]
        {eggs=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1881188
##
   [40]
        {airborne=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
       {domestic=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
   [42] {airborne=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
                                         =>
        {feathers=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
   [44] {feathers=FALSE,domestic=FALSE}
##
                                            {breathes=FALSE} 0.1980198
   [45] {toothed=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1287129
##
   [46] {tail=TRUE}
                                         => {breathes=FALSE} 0.1386139
##
        confidence lift
                   4.8095238
##
   [1]
        1.0000000
   [2]
        1.0000000
                   4.8095238
   [3]
##
        1.0000000
                   4.8095238
##
   [4]
        0.8666667
                   4.1682540
##
   [5]
        0.8333333
                   4.0079365
##
  [6]
        0.8000000
                   3.8476190
   [7]
##
        0.7894737
                   3.7969925
##
   [8]
        0.7500000
                   3.6071429
##
   [9]
        0.7272727
                   3.4978355
   [10]
       0.7058824
                   3.3949580
   [11]
        0.6666667
                   3.2063492
##
   [12]
        0.6666667
                   3.2063492
## [13] 0.6666667
                   3.2063492
## [14] 0.6521739
                   3.1366460
## [15] 0.6500000
                   3.1261905
```

```
## [16] 0.6451613
                   3.1029186
   [17] 0.6333333
                   3.0460317
   [18] 0.6250000
                    3.0059524
   [19] 0.6086957
                    2.9275362
   [20] 0.6086957
                    2.9275362
##
   [21] 0.5526316
                    2.6578947
   [22] 0.5526316
                    2.6578947
   [23] 0.5405405
                    2.5997426
   [24] 0.5250000
                    2.5250000
   [25] 0.5250000
                    2.5250000
   [26] 0.5128205
                    2.4664225
   [27] 0.5000000
                    2.4047619
##
   [28] 0.4848485
                    2.3318903
   [29] 0.4722222
                    2.2711640
   [30] 0.444444
                    2.1375661
   [31] 0.4285714
                    2.0612245
##
   [32] 0.3750000
                    1.8035714
                    1.7895903
   [33] 0.3720930
   [34] 0.3703704
                    1.7813051
   [35] 0.3703704
                    1.7813051
##
   [36] 0.3636364
                    1.7489177
   [37] 0.3636364
                    1.7489177
##
   [38] 0.3617021
                    1.7396150
##
   [39] 0.3518519
                    1.6922399
   [40] 0.3469388
                    1.6686103
   [41] 0.3000000
                    1.4428571
   [42] 0.2941176
                    1.4145658
##
   [43] 0.2876712
                    1.3835616
##
   [44] 0.2816901
                    1.3547954
   [45] 0.2500000
                    1.2023810
##
   [46] 0.1866667
                   0.8977778
##
        lhs
                                                        confidence lift
                             rhs
                                              support
##
   [1]
        {type=bird}
                          => {breathes=TRUE} 0.1980198 1.0000000
                                                                    1.2625000
   [2]
##
                          => {breathes=TRUE} 0.1980198 1.0000000
                                                                    1.2625000
        {feathers=TRUE}
##
   [3]
        {airborne=TRUE}
                             {breathes=TRUE} 0.2376238 1.0000000
                                                                    1.2625000
##
   [4]
        {milk=TRUE}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                    1.2625000
##
   [5]
        {type=mammal}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                    1.2625000
   [6]
        {hair=TRUE}
                             {breathes=TRUE} 0.4257426 1.0000000
##
                                                                    1.2625000
   [7]
                             {breathes=TRUE} 0.6336634 0.9846154
##
        {aquatic=FALSE}
                                                                    1.2430769
                             {breathes=TRUE} 0.4059406 0.9761905
##
   [8]
        {eggs=FALSE}
                                                                    1.2324405
   [9]
        {legs=TRUE}
                             {breathes=TRUE} 0.7227723 0.9358974
                                                                    1.1815705
                             {breathes=TRUE} 0.1188119 0.9230769
   [10]
       {domestic=TRUE}
                                                                    1.1653846
   [11]
       {predator=FALSE}
                             {breathes=TRUE} 0.4059406 0.9111111
                                                                    1.1502778
                             {breathes=TRUE} 0.3861386 0.8863636
   [12]
       {catsize=TRUE}
                                                                    1.1190341
   [13] {toothed=FALSE}
                             {breathes=TRUE} 0.3267327 0.8250000
                                                                    1.0415625
                             {breathes=TRUE} 0.6039604 0.8133333
   [14]
        {tail=TRUE}
                                                                    1.0268333
   [15]
        {domestic=FALSE}
                             {breathes=TRUE} 0.6732673 0.7727273
                                                                    0.9755682
   [16]
       {tail=FALSE}
                             {breathes=TRUE} 0.1881188 0.7307692
                                                                    0.9225962
   [17]
       {airborne=FALSE} =>
                             {breathes=TRUE} 0.5544554 0.7272727
                                                                    0.9181818
   [18]
        {catsize=FALSE}
                             {breathes=TRUE} 0.4059406 0.7192982
                                                                    0.9081140
                          =>
                             {breathes=TRUE} 0.3861386 0.6964286
##
   [19]
        {predator=TRUE}
                                                                    0.8792411
  [20] {eggs=TRUE}
                             {breathes=TRUE} 0.3861386 0.6610169
                                                                    0.8345339
## [21] {milk=FALSE}
                          => {breathes=TRUE} 0.3861386 0.6500000
                                                                    0.8206250
## [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
                                                                    0.7715278
```

```
##
                                           rhs
                                                            support
## [1] {hair=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
  [2] {milk=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
  [3] {eggs=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1881188
  [4] {domestic=FALSE, catsize=FALSE}
                                        => {breathes=FALSE} 0.1485149
  [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
  [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
  [7] {toothed=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1287129
##
       confidence lift
## [1] 0.3703704 1.781305
## [2] 0.3636364
                 1.748918
## [3] 0.3518519
                  1.692240
## [4] 0.3000000
                  1.442857
## [5] 0.2941176
                  1.414566
## [6] 0.2816901
                  1.354795
## [7] 0.2500000
                  1.202381
##
       lhs
                                           rhs
                                                            support
## [1] {airborne=FALSE,aquatic=TRUE}
                                        => {breathes=FALSE} 0.1980198
  [2] {milk=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
## [3] {eggs=TRUE,airborne=FALSE}
                                        => {breathes=FALSE} 0.1980198
## [4] {hair=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
## [5] {airborne=FALSE,catsize=FALSE}
                                        => {breathes=FALSE} 0.1584158
  [6] {airborne=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
  [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
##
  [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
       confidence lift
## [1] 0.6451613 3.102919
## [2] 0.5526316
                  2.657895
## [3] 0.5405405
                  2.599743
## [4] 0.5250000
                  2.525000
## [5] 0.4444444
                  2.137566
  [6] 0.3469388
                  1.668610
## [7] 0.2941176
                  1.414566
##
  [8] 0.2876712 1.383562
##
       lhs
                                                           support
## [1] {legs=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [2] {aquatic=TRUE, catsize=FALSE}
                                      => {breathes=FALSE} 0.1485149
## [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
## [4] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [5] {feathers=FALSE, catsize=FALSE} => {breathes=FALSE} 0.1584158
  [6] {hair=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1584158
  [7] {domestic=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1485149
##
       confidence lift
## [1] 0.7500000 3.607143
## [2] 0.6521739
                  3.136646
                  2.137566
## [3] 0.444444
## [4] 0.4285714
                  2.061224
## [5] 0.3720930
                  1.789590
## [6] 0.3636364
                  1.748918
## [7] 0.3000000
                  1.442857
##
       lhs
                                          rhs
                                                           support
## [1] {predator=TRUE,legs=FALSE}
                                       => {breathes=FALSE} 0.1188119
## [2] {milk=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
## [3] {eggs=TRUE,predator=TRUE}
                                       => {breathes=FALSE} 0.1584158
```

```
## [4] {hair=FALSE,predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
## [5] {predator=TRUE,catsize=FALSE} => {breathes=FALSE} 0.1188119
  [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
       confidence lift
## [1] 0.7058824 3.394958
## [2] 0.5000000 2.404762
## [3] 0.4848485
                  2.331890
## [4] 0.4722222
                  2.271164
  [5] 0.4285714
                  2.061224
  [6] 0.3617021
                 1.739615
##
  [7] 0.3469388
                  1.668610
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
## [1] {eggs=TRUE,fins=TRUE}
                                  => {breathes=FALSE} 0.1287129 1.0000000
                                  => {breathes=FALSE} 0.1485149 0.7894737
## [2] {eggs=TRUE,legs=FALSE}
## [3] {eggs=TRUE,toothed=TRUE}
                                  => {breathes=FALSE} 0.1287129 0.6500000
## [4] {eggs=TRUE,aquatic=TRUE}
                                  => {breathes=FALSE} 0.1881188 0.6333333
## [5] {eggs=TRUE,airborne=FALSE} => {breathes=FALSE} 0.1980198 0.5405405
## [6] {feathers=FALSE,eggs=TRUE} => {breathes=FALSE} 0.1980198 0.5128205
  [7] {eggs=TRUE,predator=TRUE}
                                  => {breathes=FALSE} 0.1584158 0.4848485
## [8] {hair=FALSE,eggs=TRUE}
                                  => {breathes=FALSE} 0.1980198 0.3703704
  [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
       lift.
## [1] 4.809524
## [2] 3.796992
## [3] 3.126190
## [4] 3.046032
## [5] 2.599743
## [6] 2.466422
## [7] 2.331890
## [8] 1.781305
##
  [9] 1.692240
##
       lhs
                                                        support
                                                                  confidence
## [1] {milk=FALSE,fins=TRUE}
                                   => {breathes=FALSE} 0.1287129 1.0000000
  [2] {milk=FALSE,legs=FALSE}
                                   => {breathes=FALSE} 0.1584158 0.8000000
## [3] {milk=FALSE,aquatic=TRUE}
                                   => {breathes=FALSE} 0.1980198 0.6666667
## [4] {milk=FALSE, toothed=TRUE}
                                   => {breathes=FALSE} 0.1386139 0.6666667
## [5] {milk=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208 0.5526316
## [6] {feathers=FALSE,milk=FALSE} => {breathes=FALSE} 0.2079208 0.5250000
  [7] {milk=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168 0.5000000
  [8] {hair=FALSE,milk=FALSE}
                                   => {breathes=FALSE} 0.2079208 0.3750000
  [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
##
       lift
## [1] 4.809524
## [2] 3.847619
## [3] 3.206349
## [4] 3.206349
## [5] 2.657895
## [6] 2.525000
## [7] 2.404762
## [8] 1.803571
## [9] 1.748918
## [1] "Número de reglas con consecuente negado"
##
                                                            support
        lhs
```

```
[1]
        {type=bird}
                                         => {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1980198
##
   [2]
        {toothed=FALSE,backbone=TRUE}
##
   [3]
        {hair=FALSE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
   [4]
                                            {feathers=TRUE} 0.1584158
##
        {airborne=TRUE, tail=TRUE}
##
   [5]
        {airborne=TRUE,backbone=TRUE}
                                            {feathers=TRUE} 0.1584158
##
   [6]
        {toothed=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
   [7]
        {airborne=TRUE, toothed=FALSE}
                                            {feathers=TRUE} 0.1584158
##
   [8]
        {eggs=TRUE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
##
   [9]
        {milk=FALSE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
   [10] {airborne=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1584158
   [11] {toothed=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
   [12] {hair=FALSE,toothed=FALSE}
                                           {feathers=TRUE} 0.1980198
   [13] {toothed=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
  [14] {toothed=FALSE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
  [15] {hair=FALSE,legs=TRUE}
   [16] {hair=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
       {hair=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   [17]
   [18] {predator=FALSE, toothed=FALSE}
                                           {feathers=TRUE} 0.1089109
                                           {feathers=TRUE} 0.1386139
   [19] {aquatic=FALSE, toothed=FALSE}
   [20] {eggs=TRUE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
##
  [21] {milk=FALSE,toothed=FALSE}
                                           {feathers=TRUE} 0.1980198
  [22] {eggs=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
  [23] {eggs=TRUE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1980198
##
   [24] {milk=FALSE,breathes=TRUE}
   [25] {hair=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [26] {eggs=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1980198
   [27] {milk=FALSE,tail=TRUE}
##
   [28] {milk=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
  [29] {eggs=TRUE,aquatic=FALSE}
                                           {feathers=TRUE} 0.1386139
  [30] {hair=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
        {eggs=TRUE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [32]
       {milk=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [33] {milk=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   [34] {hair=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [35]
        {hair=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [36]
       {eggs=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
       {milk=FALSE,fins=FALSE}
                                           {feathers=TRUE} 0.1980198
   [38] {eggs=TRUE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
       {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [39]
##
   [40] {hair=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
  [41] {milk=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [42] {tail=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
  [43] {eggs=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
  [44] {hair=FALSE,eggs=TRUE}
  [45] {hair=FALSE,milk=FALSE}
                                         => {feathers=TRUE} 0.1980198
       {legs=TRUE,tail=TRUE}
   [46]
                                           {feathers=TRUE} 0.1980198
##
   [47]
       {backbone=TRUE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
  [48]
       {hair=FALSE}
                                           {feathers=TRUE} 0.1980198
   [49] {eggs=TRUE,milk=FALSE}
                                           {feathers=TRUE} 0.1980198
   [50] {legs=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
##
   [51]
       {breathes=TRUE, catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
  [52] {fins=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
  [53] {predator=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1089109
## [54] {breathes=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
```

```
[55] {backbone=TRUE,legs=TRUE}
                                          => {feathers=TRUE} 0.1980198
##
       {predator=FALSE,backbone=TRUE}
                                             {feathers=TRUE} 0.1089109
   [56]
                                             {feathers=TRUE} 0.1980198
       {backbone=TRUE,fins=FALSE}
       {fins=FALSE,catsize=FALSE}
                                             {feathers=TRUE} 0.1386139
   [58]
##
   [59]
        {backbone=TRUE,breathes=TRUE}
                                             {feathers=TRUE} 0.1980198
##
   [60]
        {aquatic=FALSE,tail=TRUE}
                                             {feathers=TRUE} 0.1386139
   [61]
        {predator=FALSE,legs=TRUE}
                                             {feathers=TRUE} 0.1089109
   [62]
        {venomous=FALSE,tail=TRUE}
                                             {feathers=TRUE} 0.1980198
##
   [63]
        {venomous=FALSE, catsize=FALSE}
                                             {feathers=TRUE} 0.1386139
   [64]
        {breathes=TRUE,legs=TRUE}
                                             {feathers=TRUE} 0.1980198
   [65]
        {backbone=TRUE,tail=TRUE}
                                             {feathers=TRUE} 0.1980198
   [66]
        {venomous=FALSE,legs=TRUE}
                                             {feathers=TRUE} 0.1980198
##
   [67]
        {predator=FALSE, breathes=TRUE}
                                             {feathers=TRUE} 0.1089109
        {predator=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1089109
       {breathes=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [69]
        {aquatic=FALSE, backbone=TRUE}
                                             {feathers=TRUE} 0.1386139
   [71]
       {breathes=TRUE,fins=FALSE}
                                             {feathers=TRUE} 0.1980198
   [72] {fins=FALSE,legs=TRUE}
                                             {feathers=TRUE} 0.1980198
   [73] {venomous=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [74] {legs=TRUE,domestic=FALSE}
                                             {feathers=TRUE} 0.1683168
##
   [75]
       {predator=FALSE, venomous=FALSE}
                                         =>
                                             {feathers=TRUE} 0.1089109
       {backbone=TRUE, venomous=FALSE}
                                             {feathers=TRUE} 0.1980198
        {aquatic=FALSE, venomous=FALSE}
                                             {feathers=TRUE} 0.1386139
   [77]
                                             {feathers=TRUE} 0.1386139
##
   [78]
        {aquatic=FALSE}
##
   [79]
        {venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [80]
        {domestic=FALSE}
                                          => {feathers=TRUE} 0.1683168
##
        confidence lift
##
   [1]
        1.0000000
                   5.0500000
##
   [2]
        0.9090909
                    4.5909091
##
   [3]
        0.888889
                    4.4888889
##
   [4]
        0.8888889
                    4.4888889
##
   [5]
        0.888889
                    4.4888889
##
   [6]
        0.8695652
                    4.3913043
   [7]
##
        0.7272727
                    3.6727273
   [8]
        0.7272727
##
                    3.6727273
##
   [9]
        0.7272727
                    3.6727273
   [10] 0.7272727
                    3.6727273
   [11] 0.6060606
##
                    3.0606061
   [12] 0.5714286
                    2.8857143
##
   [13] 0.5555556
                    2.8055556
   [14] 0.555556
                    2.8055556
   [15] 0.5555556
                    2.8055556
   [16] 0.5405405
                    2.7297297
##
   [17] 0.5384615
                    2.7192308
   [18] 0.5238095
                    2.6452381
   [19] 0.5185185
                    2.6185185
##
   [20] 0.5128205
                    2.5897436
   [21] 0.5128205
                    2.5897436
   [22] 0.5128205
                    2.5897436
   [23]
        0.5128205
                    2.5897436
##
   [24] 0.5128205
                    2.5897436
  [25] 0.5000000
                    2.5250000
## [26] 0.5000000
                   2.5250000
## [27] 0.5000000
                   2.5250000
```

```
## [28] 0.5000000 2.5250000
   [29] 0.4827586
                   2.4379310
   [30] 0.4761905
                   2.4047619
  [31] 0.4761905
                   2.4047619
  [32] 0.4761905
                   2.4047619
  [33] 0.4666667
                   2.3566667
  [34] 0.4651163
                   2.3488372
## [35] 0.4545455
                   2.2954545
   [36] 0.4347826
                   2.1956522
   [37] 0.4255319
                   2.1489362
  [38] 0.4230769
                   2.1365385
   [39] 0.4230769
                   2.1365385
  [40] 0.3846154
                   1.9423077
## [41] 0.3846154
                   1.9423077
## [42] 0.3783784
                   1.9108108
  [43] 0.3773585
                   1.9056604
  [44] 0.3703704
                   1.8703704
  [45] 0.3571429
                   1.8035714
  [46] 0.3508772
                   1.7719298
## [47] 0.3500000
                   1.7675000
## [48] 0.3448276
                   1.7413793
## [49] 0.3448276
                   1.7413793
## [50] 0.3414634
                   1.7243902
  [51] 0.3414634
                   1.7243902
  [52] 0.3389831
                   1.7118644
  [53] 0.3333333
                   1.6833333
  [54] 0.3278689
                   1.6557377
## [55] 0.3125000
                   1.5781250
## [56] 0.3055556
                   1.5430556
## [57] 0.3030303
                   1.5303030
   [58] 0.2916667
                   1.4729167
##
   [59] 0.2898551
                   1.4637681
   [60] 0.2857143
                   1.4428571
   [61] 0.2820513
                   1.4243590
   [62] 0.2816901
                   1.4225352
  [63] 0.2800000
##
                   1.4140000
  [64] 0.2739726
                   1.3835616
  [65] 0.2702703
                   1.3648649
   [66] 0.2702703
                   1.3648649
   [67] 0.2682927
                   1.3548780
   [68] 0.2682927
                   1.3548780
   [69] 0.2666667
                   1.3466667
   [70] 0.2641509
                   1.3339623
  [71] 0.2631579
                   1.3289474
## [72] 0.2597403
                   1.3116883
## [73] 0.2597403
                   1.3116883
                   1.3007576
  [74] 0.2575758
  [75] 0.2558140
                   1.2918605
   [76] 0.2531646
                   1.2784810
   [77] 0.2295082
                   1.1590164
## [78] 0.2153846
                   1.0876923
## [79] 0.2150538
                   1.0860215
## [80] 0.1931818
                   0.9755682
##
        lhs
                                               support
                                                         confidence lift
                             rhs
```

```
[1]
        {type=fish}
                          => {feathers=FALSE} 0.1287129 1.0000000
                                                                    1.2469136
##
   [2]
                          => {feathers=FALSE} 0.1683168 1.0000000
        {fins=TRUE}
                                                                    1.2469136
##
  [3]
        {backbone=FALSE} => {feathers=FALSE} 0.1782178 1.0000000
                                                                    1.2469136
  [4]
        {breathes=FALSE} => {feathers=FALSE} 0.2079208 1.0000000
##
                                                                    1.2469136
##
   [5]
        {legs=FALSE}
                             {feathers=FALSE} 0.2277228 1.0000000
                                                                    1.2469136
##
   [6]
        {tail=FALSE}
                          => {feathers=FALSE} 0.2574257 1.0000000
                                                                    1.2469136
##
  [7]
        {eggs=FALSE}
                          => {feathers=FALSE} 0.4158416 1.0000000
                                                                    1.2469136
##
  [8]
        {hair=TRUE}
                          => {feathers=FALSE} 0.4257426 1.0000000
                                                                    1.2469136
##
  [9]
        {airborne=FALSE}
                             {feathers=FALSE} 0.7227723 0.9480519
                                                                    1.1821388
  [10] {catsize=TRUE}
                          => {feathers=FALSE} 0.3762376 0.8636364
                                                                    1.0768799
  [11] {predator=TRUE}
                          => {feathers=FALSE} 0.4653465 0.8392857
                                                                    1.0465168
   [12]
       {aquatic=TRUE}
                          => {feathers=FALSE} 0.2970297 0.8333333
                                                                    1.0390947
  [13] {aquatic=FALSE}
                          => {feathers=FALSE} 0.5049505 0.7846154
##
                                                                    0.9783476
  [14] {predator=FALSE}
                         => {feathers=FALSE} 0.3366337 0.7555556
                                                                    0.9421125
  [15] {catsize=FALSE}
                          => {feathers=FALSE} 0.4257426 0.7543860
                                                                    0.9406541
   [16]
        {breathes=TRUE}
                             {feathers=FALSE} 0.5940594 0.7500000
                                                                    0.9351852
                          => {feathers=FALSE} 0.5742574 0.7435897
   [17] {legs=TRUE}
                                                                    0.9271921
                          => {feathers=FALSE} 0.3960396 0.6666667
   [18] {milk=FALSE}
                                                                    0.8312757
                          => {feathers=FALSE} 0.3861386 0.6610169
   [19] {eggs=TRUE}
                                                                    0.8242310
   [20] {hair=FALSE}
                          => {feathers=FALSE} 0.3762376 0.6551724
                                                                    0.8169434
##
   [21] {toothed=FALSE}
                          => {feathers=FALSE} 0.1980198 0.5000000
                                                                    0.6234568
##
                                                           support
                                                                     confidence
##
  [1] {hair=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5384615
##
   [2] {aquatic=FALSE,toothed=FALSE}
                                          {feathers=TRUE} 0.1386139 0.5185185
   [3] {eggs=TRUE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4827586
   [4] {milk=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
   [5] {aquatic=FALSE,tail=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2857143
   [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
   [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
##
       lift
##
  [1] 2.719231
   [2] 2.618519
   [3] 2.437931
   [4] 2.356667
   [5] 1.442857
##
   [6] 1.333962
##
   [7] 1.159016
##
        lhs
                                            rhs
                                                             support
        {predator=FALSE, toothed=FALSE}
##
   [1]
                                            {feathers=TRUE} 0.1089109
##
   [2]
        {hair=FALSE, predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [3]
        {eggs=TRUE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [4]
        {milk=FALSE, predator=FALSE}
##
                                            {feathers=TRUE} 0.1089109
##
   [5]
        {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
   [6]
        {predator=FALSE,backbone=TRUE}
##
                                            {feathers=TRUE} 0.1089109
##
  [7]
        {predator=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1089109
   [8]
                                            {feathers=TRUE} 0.1089109
##
        {predator=FALSE,breathes=TRUE}
##
   [9]
        {predator=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [10]
       {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
        confidence lift
##
   [1]
        0.5238095
                   2.645238
   [2]
##
        0.5000000
                   2.525000
##
  [3]
        0.4230769
                   2.136538
##
  ۲4٦
        0.4230769
                   2.136538
## [5]
        0.3333333
                   1.683333
```

```
[6]
        0.3055556
                   1.543056
##
   [7]
        0.2820513
                    1.424359
   [8]
        0.2682927
                    1.354878
   [9]
##
        0.2682927
                    1.354878
##
   [10] 0.2558140
                   1.291860
##
       lhs
                                           rhs
                                                            support
                                                                      confidence
  [1] {tail=TRUE,catsize=FALSE}
                                          {feathers=TRUE} 0.1386139 0.3783784
   [2] {backbone=TRUE, catsize=FALSE}
                                           {feathers=TRUE} 0.1386139 0.3500000
   [3] {legs=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139 0.3414634
   [4] {breathes=TRUE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.3414634
   [5] {fins=FALSE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.2916667
   [6] {venomous=FALSE,catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
##
       lift
   [1] 1.910811
##
   [2] 1.767500
##
   [3] 1.724390
##
   [4] 1.724390
   [5] 1.472917
##
   [6] 1.414000
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
        {hair=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [2]
   [3]
##
        {eggs=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [4]
        {milk=FALSE, breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [5]
        {breathes=TRUE,catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
   [6]
        {breathes=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [7]
        {backbone=TRUE, breathes=TRUE}
##
                                         => {feathers=TRUE} 0.1980198
##
   [8]
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [9]
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
   [10] {breathes=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198
##
   [11] {breathes=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
        confidence lift
##
   [1]
        0.6060606
                   3.060606
   [2]
##
        0.5405405
                   2.729730
   [3]
        0.5128205
                    2.589744
##
##
   [4]
        0.5128205
                   2.589744
   [5]
        0.3414634
                   1.724390
   [6]
        0.3278689
##
                   1.655738
##
   [7]
        0.2898551
                    1.463768
##
   [8]
        0.2739726
                    1.383562
   [9]
        0.2682927
                    1.354878
   [10] 0.2666667
                    1.346667
##
   [11]
       0.2631579
                   1.328947
##
        lhs
                                        rhs
                                                         support
                                                                   confidence
##
  [1]
        {toothed=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5555556
   [2]
                                     => {feathers=TRUE} 0.1980198 0.5555556
##
        {hair=FALSE,legs=TRUE}
        {eggs=TRUE,legs=TRUE}
##
   [3]
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [4]
        {milk=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
        {legs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3508772
##
   [6]
        {legs=TRUE,catsize=FALSE}
                                    => {feathers=TRUE} 0.1386139 0.3414634
##
   [7]
        {backbone=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3125000
   [8]
        {predator=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1089109 0.2820513
        {breathes=TRUE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.2739726
  [9]
## [10] {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
```

```
## [11] {fins=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.2597403
   [12] {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
##
##
        lift
##
  [1]
        2.805556
##
   [2]
        2.805556
   [3]
##
        2.525000
   [4]
        2.525000
##
   [5]
        1.771930
##
   [6]
        1.724390
##
   [7]
        1.578125
   [8]
        1.424359
   [9]
##
        1.383562
##
   [10]
       1.364865
##
   [11] 1.311688
##
   [12] 1.300758
##
        lhs
                                                         support
                                                                    confidence
##
                                     => {feathers=TRUE} 0.1584158 0.7272727
   [1]
        {milk=FALSE,airborne=TRUE}
        {milk=FALSE,toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
                                      => {feathers=TRUE} 0.1980198 0.5128205
   [3]
        {milk=FALSE,breathes=TRUE}
   [4]
        {milk=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
        {milk=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
                                      => {feathers=TRUE} 0.1980198 0.4761905
   [6]
        {milk=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1386139 0.4666667
   [7]
        {milk=FALSE, aquatic=FALSE}
##
                                        {feathers=TRUE} 0.1980198 0.4255319
##
   [8]
        {milk=FALSE,fins=FALSE}
##
   [9]
        {milk=FALSE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
   [10] {milk=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
   [11] {hair=FALSE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3571429
                                     => {feathers=TRUE} 0.1980198 0.3448276
##
   [12]
        {eggs=TRUE,milk=FALSE}
##
        lift
##
   [1]
        3.672727
##
   [2]
        2.589744
##
   [3]
        2.589744
##
   [4]
        2.525000
   [5]
##
        2.525000
   [6]
        2.404762
##
##
   [7]
        2.356667
   [8]
        2.148936
  [9]
        2.136538
##
   [10] 1.942308
##
  [11] 1.803571
   [12] 1.741379
##
        lhs
                                                        support
                                                                   confidence
##
   [1]
        {eggs=TRUE,airborne=TRUE}
                                       {feathers=TRUE} 0.1584158 0.7272727
##
   [2]
                                    => {feathers=TRUE} 0.1980198 0.5128205
        {eggs=TRUE,toothed=FALSE}
##
   [3]
        {eggs=TRUE,tail=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
   [4]
                                    => {feathers=TRUE} 0.1980198 0.5128205
##
        {eggs=TRUE,breathes=TRUE}
##
   [5]
        {eggs=TRUE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5000000
##
   [6]
        {eggs=TRUE,aquatic=FALSE}
                                       {feathers=TRUE} 0.1386139 0.4827586
   [7]
        {eggs=TRUE,backbone=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.4761905
##
   [8]
        {eggs=TRUE,fins=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.4347826
                                       {feathers=TRUE} 0.1089109 0.4230769
##
   [9]
        {eggs=TRUE,predator=FALSE} =>
## [10] {eggs=TRUE, venomous=FALSE} =>
                                       {feathers=TRUE} 0.1980198 0.3773585
## [11] {hair=FALSE,eggs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.3703704
## [12] {eggs=TRUE,milk=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.3448276
```

```
##
        lift
##
   [1]
        3.672727
        2.589744
   [2]
   [3]
        2.589744
##
##
   [4]
        2.589744
##
   [5]
        2.525000
##
   [6]
        2.437931
##
   [7]
        2.404762
##
   [8]
        2.195652
##
   [9]
        2.136538
   [10] 1.905660
##
   [11] 1.870370
##
   [12]
       1.741379
##
        lhs
                                         rhs
                                                          support
                                                                     confidence
##
  [1]
                                      => {feathers=TRUE} 0.1584158 0.8888889
        {hair=FALSE,airborne=TRUE}
##
   [2]
        {hair=FALSE,toothed=FALSE}
                                         {feathers=TRUE} 0.1980198 0.5714286
   [3]
##
                                      => {feathers=TRUE} 0.1980198 0.5555556
        {hair=FALSE,legs=TRUE}
##
   [4]
        {hair=FALSE,breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5405405
##
   [5]
        {hair=FALSE,aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.5384615
##
   [6]
        {hair=FALSE, predator=FALSE}
                                         {feathers=TRUE} 0.1089109 0.5000000
##
   [7]
        {hair=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
                                      => {feathers=TRUE} 0.1980198 0.4651163
##
   [8]
        {hair=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4545455
##
   [9]
        {hair=FALSE,backbone=TRUE}
                                         {feathers=TRUE} 0.1980198 0.3846154
##
   [10] {hair=FALSE, venomous=FALSE}
                                      =>
   [11] {hair=FALSE,eggs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.3703704
##
   [12] {hair=FALSE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3571429
##
        lift
##
   [1]
        4.488889
##
   [2]
        2.885714
##
   [3]
        2.805556
##
   [4]
        2.729730
##
   [5]
        2.719231
##
   [6]
        2.525000
   [7]
        2.404762
##
   [8]
        2.348837
##
##
   [9]
        2.295455
   [10] 1.942308
   [11] 1.870370
##
   [12] 1.803571
##
##
        lhs
                                             rhs
                                                              support
##
   [1]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [2]
        {toothed=FALSE,tail=TRUE}
##
                                         => {feathers=TRUE} 0.1980198
##
   [3]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
##
   [4]
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [5]
        {hair=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [6]
##
        {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [7]
        {toothed=FALSE, venomous=FALSE} =>
                                            {feathers=TRUE} 0.1980198
##
   [8]
        {predator=FALSE,toothed=FALSE} => {feathers=TRUE} 0.1089109
   [9]
        {aquatic=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1386139
        {eggs=TRUE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
   [10]
                                         => {feathers=TRUE} 0.1980198
##
        {milk=FALSE,toothed=FALSE}
##
        confidence lift
##
  [1]
        0.9090909 4.590909
## [2]
        0.8695652 4.391304
```

```
[3]
        0.7272727
                   3.672727
##
   [4]
                   3.060606
        0.6060606
   [5]
        0.5714286
                   2.885714
   [6]
##
        0.555556
                   2.805556
##
   [7]
        0.555556
                   2.805556
##
   [8]
        0.5238095
                   2.645238
   [9]
        0.5185185
                   2.618519
##
   [10] 0.5128205
                   2.589744
   [11] 0.5128205
                   2.589744
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                             support
##
   [1]
        {catsize=FALSE,type=bird}
                                            {airborne=TRUE} 0.1287129
##
   [2]
        {feathers=TRUE, catsize=FALSE}
                                            {airborne=TRUE} 0.1287129
   [3]
        {type=bird}
                                            {airborne=TRUE} 0.1584158
##
##
  [4]
                                            {airborne=TRUE} 0.1584158
        {feathers=TRUE}
##
   [5]
        {toothed=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
   [6]
##
        {predator=FALSE, toothed=FALSE}
                                            {airborne=TRUE} 0.1485149
##
   [7]
        {toothed=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
   [8]
##
        {toothed=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
##
   [9]
        {aquatic=FALSE, toothed=FALSE}
                                            {airborne=TRUE} 0.1683168
##
  [10] {toothed=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
                                            {airborne=TRUE} 0.2178218
  [11] {toothed=FALSE,legs=TRUE}
  [12] {eggs=TRUE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
                                            {airborne=TRUE} 0.1485149
##
   [13] {eggs=TRUE,predator=FALSE}
   [14] {milk=FALSE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
   [15] {milk=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
   [16] {eggs=TRUE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
   [17] {milk=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
  [18] {toothed=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [19] {toothed=FALSE}
                                            {airborne=TRUE} 0.2178218
   [20] {eggs=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
   [21] {milk=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
   [22] {predator=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
   [23] {legs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
        {breathes=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
##
   [25] {hair=FALSE,predator=FALSE}
                                            {airborne=TRUE} 0.1089109
   [26] {aquatic=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1683168
                                            {airborne=TRUE} 0.1287129
  [27] {hair=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1782178
   [28]
       {hair=FALSE,legs=TRUE}
##
   [29]
       {hair=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1782178
   [30] {eggs=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2178218
   [31] {milk=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.2178218
   [32] {fins=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
  [33] {predator=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1683168
  [34] {hair=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1782178
   [35]
        {predator=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1683168
##
   [36]
       {predator=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1683168
       {eggs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
                                            {airborne=TRUE} 0.1584158
   [38] {eggs=TRUE,tail=TRUE}
   [39] {tail=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
##
  [40] {milk=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
## [41] {milk=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
## [42] {milk=FALSE, venomous=FALSE}
                                         => {airborne=TRUE} 0.1980198
## [43] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
```

```
## [44] {hair=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1584158
                                            {airborne=TRUE} 0.1584158
   [45] {eggs=TRUE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
   [46] {milk=FALSE,backbone=TRUE}
  [47] {venomous=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
   [48] {eggs=TRUE, venomous=FALSE}
                                             {airborne=TRUE} 0.1980198
  [49] {backbone=TRUE, catsize=FALSE}
##
                                            {airborne=TRUE} 0.1485149
   [50] {hair=FALSE, venomous=FALSE}
                                             {airborne=TRUE} 0.1782178
   [51]
       {breathes=TRUE,legs=TRUE}
                                             {airborne=TRUE} 0.2376238
##
   [52]
       {aquatic=FALSE,legs=TRUE}
                                             {airborne=TRUE} 0.1881188
   [53]
       {legs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1782178
   [54] {breathes=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2376238
   [55] {fins=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2376238
##
   [56]
       {fins=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1782178
       {aquatic=FALSE}
                                         => {airborne=TRUE} 0.1881188
   [58] {venomous=FALSE}
                                         => {airborne=TRUE} 0.2178218
##
##
        confidence lift
##
                   3.9077381
   [1]
        0.9285714
   [2]
        0.9285714
                   3.9077381
   [3]
##
        0.8000000
                   3.3666667
##
   [4]
        0.8000000
                   3.3666667
##
   [5]
        0.7272727
                   3.0606061
   [6]
        0.7142857
                   3.0059524
   [7]
##
        0.6956522
                   2.9275362
##
   [8]
        0.6666667
                   2.8055556
##
   [9]
        0.6296296
                   2.6496914
   [10] 0.6129032
                   2.5793011
   [11] 0.6111111
                   2.5717593
   [12] 0.5862069
                   2.4669540
   [13] 0.5769231
                   2.4278846
  [14] 0.5769231
                   2.4278846
   [15] 0.5666667
                   2.3847222
   [16] 0.5641026
                   2.3739316
   [17] 0.5641026
                   2.3739316
   [18] 0.5555556
                   2.3379630
       0.5500000
   [19]
                   2.3145833
##
   [20] 0.5500000
                   2.3145833
  [21] 0.5500000
                   2.3145833
  [22] 0.5172414
                   2.1767241
   [23] 0.5121951
                   2.1554878
   [24] 0.5121951
                   2.1554878
   [25] 0.5000000
                   2.1041667
   [26] 0.5000000
                   2.1041667
   [27] 0.5000000
                   2.1041667
   [28] 0.5000000
                   2.1041667
  [29] 0.4864865
                   2.0472973
   [30] 0.4782609
                   2.0126812
                   1.9698582
##
   [31] 0.4680851
   [32] 0.4375000
                   1.8411458
   [33] 0.4358974
                   1.8344017
   [34]
        0.4186047
                   1.7616279
                   1.7449187
##
   [35]
       0.4146341
## [36] 0.4146341
                   1.7449187
## [37] 0.4130435
                   1.7382246
## [38] 0.4102564
                   1.7264957
```

```
## [39] 0.4054054
                   1.7060811
  [40] 0.4000000
                   1.6833333
  [41] 0.3958333
                   1.6657986
  [42] 0.3846154
                   1.6185897
  [43] 0.3823529
                   1.6090686
##
  [44] 0.3809524
                   1.6031746
  [45] 0.3809524
                   1.6031746
  [46] 0.3809524
                   1.6031746
   [47] 0.3800000
                   1.5991667
  [48] 0.3773585
                   1.5880503
  [49] 0.3750000
                   1.5781250
   [50] 0.3461538
                   1.4567308
   [51] 0.3287671
                   1.3835616
  [52] 0.3166667
                   1.3326389
                   1.3289474
  [53] 0.3157895
   [54] 0.3157895
                   1.3289474
##
   [55] 0.3116883
                   1.3116883
   [56] 0.3050847
                   1.2838983
   [57]
       0.2923077
                   1.2301282
##
   [58]
       0.2365591
                   0.9955197
##
        lhs
                                                         confidence lift
                                              support
##
  [1]
                          => {airborne=FALSE} 0.1287129 1.0000000
        {type=fish}
  [2]
##
        {fins=TRUE}
                          => {airborne=FALSE} 0.1683168 1.0000000
                                                                    1.3116883
   [3]
        fbreathes=FALSE} => {airborne=FALSE} 0.2079208 1.0000000
##
                                                                    1.3116883
##
  [4]
        {legs=FALSE}
                          => {airborne=FALSE} 0.2277228 1.0000000
                                                                    1.3116883
  [5]
        {toothed=TRUE}
                          => {airborne=FALSE} 0.5841584 0.9672131
                                                                    1.2686821
   [6]
                          => {airborne=FALSE} 0.3960396 0.9523810
##
        {eggs=FALSE}
                                                                    1.2492270
##
   [7]
        {milk=TRUE}
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                    1.2477035
##
  [8]
        {type=mammal}
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                    1.2477035
  [9]
        {catsize=TRUE}
                          => {airborne=FALSE} 0.4059406 0.9318182
                                                                    1.2222550
  [10]
       {predator=TRUE}
                         => {airborne=FALSE} 0.4851485 0.8750000
                                                                    1.1477273
##
  [11]
       {aquatic=TRUE}
                          => {airborne=FALSE} 0.3069307 0.8611111
                                                                    1.1295094
  [12]
       {hair=TRUE}
                          => {airborne=FALSE} 0.3663366 0.8604651
                                                                    1.1286620
  [13] {backbone=TRUE}
                         => {airborne=FALSE} 0.6435644 0.7831325
                                                                    1.0272258
       {tail=FALSE}
                          => {airborne=FALSE} 0.1980198 0.7692308
   Γ14]
                                                                    1.0089910
                          => {airborne=FALSE} 0.5643564 0.7600000
##
  [15] {tail=TRUE}
                                                                    0.9968831
  [16] {aquatic=FALSE}
                          => {airborne=FALSE} 0.4554455 0.7076923
                                                                    0.9282717
## [17] {hair=FALSE}
                          => {airborne=FALSE} 0.3960396 0.6896552
                                                                    0.9046126
       {backbone=FALSE} => {airborne=FALSE} 0.1188119 0.6666667
  [18]
                                                                    0.8744589
##
  [19] {milk=FALSE}
                          => {airborne=FALSE} 0.3762376 0.6333333
                                                                    0.8307359
  [20] {eggs=TRUE}
                          => {airborne=FALSE} 0.3663366 0.6271186
                                                                    0.8225842
   [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.6222222
                                                                    0.8161616
##
   [22] {toothed=FALSE}
                         => {airborne=FALSE} 0.1782178 0.4500000
                                                                    0.5902597
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
   [2] {eggs=TRUE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
   [3] {milk=FALSE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
   [4] {backbone=TRUE, catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
##
       lift
##
  [1] 3.060606
   [2] 1.603175
##
  [3] 1.603175
## [4] 1.578125
##
       lhs
                                                      support
                                                                confidence
                                     rhs
```

```
## [1] {toothed=FALSE,tail=TRUE} => {airborne=TRUE} 0.1584158 0.6956522
## [2] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
## [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4000000
  [5] {hair=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
## [6] {legs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1782178 0.3157895
                                  => {airborne=TRUE} 0.1782178 0.3050847
  [7] {fins=FALSE,tail=TRUE}
##
       lift.
## [1] 2.927536
##
  [2] 1.726496
## [3] 1.706081
## [4] 1.683333
##
  [5] 1.603175
## [6] 1.328947
## [7] 1.283898
##
       lhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
  [2] {eggs=TRUE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1683168 0.5862069
  [3] {milk=FALSE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1683168 0.5666667
  [4] {aquatic=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
## [5] {hair=FALSE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1287129 0.5000000
  [6] {aquatic=FALSE,legs=TRUE}
                                      => {airborne=TRUE} 0.1881188 0.3166667
##
       lift.
## [1] 2.649691
## [2] 2.466954
  [3] 2.384722
  [4] 2.104167
##
  [5] 2.104167
##
  [6] 1.332639
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
  [2] {hair=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1287129 0.5000000
  [3] {hair=FALSE,legs=TRUE}
                                    => {airborne=TRUE} 0.1782178 0.5000000
## [4] {hair=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.4864865
   [5] {hair=FALSE,fins=FALSE}
                                    => {airborne=TRUE} 0.1782178 0.4186047
## [6] {hair=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.3809524
  [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
##
       lift.
## [1] 2.104167
##
  [2] 2.104167
## [3] 2.104167
## [4] 2.047297
##
  [5] 1.761628
##
  [6] 1.603175
## [7] 1.456731
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
  [2] {milk=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1683168 0.5666667
## [3] {milk=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5641026
## [4] {milk=FALSE,legs=TRUE}
                                    => {airborne=TRUE} 0.2178218 0.5500000
## [5] {milk=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.2178218 0.4680851
## [6] {milk=FALSE,tail=TRUE}
                                    => {airborne=TRUE} 0.1584158 0.4000000
## [7] {milk=FALSE, catsize=FALSE}
                                   => {airborne=TRUE} 0.1881188 0.3958333
## [8] {milk=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
```

```
## [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
       lift.
## [1] 2.427885
## [2] 2.384722
  [3] 2.373932
## [4] 2.314583
  [5] 1.969858
## [6] 1.683333
## [7] 1.665799
## [8] 1.618590
## [9] 1.603175
##
       lhs
                                     rhs
                                                      support
                                                                confidence
## [1] {eggs=TRUE,aquatic=FALSE}
                                  => {airborne=TRUE} 0.1683168 0.5862069
## [2] {eggs=TRUE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
## [3] {eggs=TRUE,breathes=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5641026
## [4] {eggs=TRUE,legs=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5500000
## [5] {eggs=TRUE,fins=FALSE}
                                  => {airborne=TRUE} 0.2178218 0.4782609
## [6] {eggs=TRUE,catsize=FALSE}
                                  => {airborne=TRUE} 0.1881188 0.4130435
## [7] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
  [8] {eggs=TRUE,backbone=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
##
  [9] {eggs=TRUE,venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
       lift.
## [1] 2.466954
  [2] 2.427885
## [3] 2.373932
## [4] 2.314583
## [5] 2.012681
## [6] 1.738225
## [7] 1.726496
## [8] 1.603175
## [9] 1.588050
##
       lhs
                                           rhs
                                                           support
## [1] {predator=FALSE,toothed=FALSE}
                                        => {airborne=TRUE} 0.1485149
## [2] {eggs=TRUE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
## [3] {milk=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
## [4] {predator=FALSE,catsize=FALSE}
                                        => {airborne=TRUE} 0.1485149
## [5] {hair=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1089109
## [6] {predator=FALSE,legs=TRUE}
                                        => {airborne=TRUE} 0.1683168
## [7] {predator=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.1683168
  [8] {predator=FALSE,fins=FALSE}
                                        => {airborne=TRUE} 0.1683168
  [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
       confidence lift
##
## [1] 0.7142857
                  3.005952
## [2] 0.5769231
                  2.427885
## [3] 0.5769231
                  2.427885
## [4] 0.5172414
                  2.176724
## [5] 0.5000000
                  2.104167
## [6] 0.4358974
                  1.834402
## [7] 0.4146341
                  1.744919
## [8] 0.4146341
                  1.744919
##
  [9] 0.3823529
                  1.609069
##
                                          rhs
                                                          support
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
## [2] {predator=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1485149 0.7142857
```

```
## [3] {toothed=FALSE,tail=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.6956522
                                          {airborne=TRUE} 0.2178218 0.6666667
  [4] {toothed=FALSE, breathes=TRUE}
  [5] {aquatic=FALSE, toothed=FALSE}
                                         {airborne=TRUE} 0.1683168 0.6296296
  [6] {toothed=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1881188 0.6129032
   [7] {toothed=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6111111
   [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
##
       lift
## [1] 3.060606
   [2] 3.005952
   [3] 2.927536
  [4] 2.805556
   [5] 2.649691
   [6] 2.579301
##
  [7] 2.571759
  [8] 2.337963
##
       "Número de reglas con consecuente negado"
##
                                                            support
##
  [1]
        {backbone=FALSE,breathes=TRUE}
                                            {catsize=FALSE} 0.1089109
   [2]
##
        {eggs=TRUE,tail=FALSE}
                                           {catsize=FALSE} 0.1881188
   [3]
        {milk=FALSE,tail=FALSE}
                                           {catsize=FALSE} 0.1881188
##
   [4]
        {backbone=FALSE}
                                           {catsize=FALSE} 0.1683168
  [5]
        {hair=FALSE,tail=FALSE}
                                            {catsize=FALSE} 0.1485149
##
  [6]
        {predator=FALSE,tail=FALSE}
                                            {catsize=FALSE} 0.1089109
   [7]
        {airborne=TRUE}
                                            {catsize=FALSE} 0.2079208
##
  [8]
        {feathers=FALSE, toothed=FALSE}
                                           {catsize=FALSE} 0.1683168
  [9]
        {feathers=FALSE,milk=FALSE}
                                           {catsize=FALSE} 0.3366337
  [10] {eggs=TRUE,predator=FALSE}
                                           {catsize=FALSE} 0.2178218
  [11] {milk=FALSE,predator=FALSE}
                                           {catsize=FALSE} 0.2178218
## [12] {milk=FALSE,aquatic=FALSE}
                                         => {catsize=FALSE} 0.2475248
## [13] {milk=FALSE,fins=FALSE}
                                         => {catsize=FALSE} 0.3861386
  [14] {eggs=TRUE,aquatic=FALSE}
                                           {catsize=FALSE} 0.2376238
  [15] {feathers=FALSE,eggs=TRUE}
                                           {catsize=FALSE} 0.3168317
  [16] {milk=FALSE,breathes=TRUE}
                                           {catsize=FALSE} 0.3168317
  [17] {hair=FALSE,predator=FALSE}
                                         => {catsize=FALSE} 0.1782178
   [18] {hair=FALSE,fins=FALSE}
                                            {catsize=FALSE} 0.3465347
  [19] {milk=FALSE,toothed=TRUE}
                                           {catsize=FALSE} 0.1683168
  [20] {hair=FALSE,aquatic=FALSE}
                                           {catsize=FALSE} 0.2079208
## [21] {eggs=TRUE,fins=FALSE}
                                           {catsize=FALSE} 0.3663366
                                            {catsize=FALSE} 0.4752475
  [22] {milk=FALSE}
  [23] {eggs=TRUE,toothed=TRUE}
                                           {catsize=FALSE} 0.1584158
  [24] {eggs=TRUE,breathes=TRUE}
                                           {catsize=FALSE} 0.3069307
  [25] {hair=FALSE, feathers=FALSE}
                                           {catsize=FALSE} 0.2970297
  [26] {eggs=TRUE}
                                            {catsize=FALSE} 0.4554455
                                           {catsize=FALSE} 0.1386139
  [27] {breathes=FALSE, venomous=FALSE}
## [28] {hair=FALSE,legs=TRUE}
                                         => {catsize=FALSE} 0.2772277
## [29] {tail=FALSE}
                                           {catsize=FALSE} 0.1980198
  [30] {breathes=FALSE}
                                            {catsize=FALSE} 0.1584158
  [31] {aquatic=TRUE,fins=FALSE}
                                           {catsize=FALSE} 0.1386139
                                         => {catsize=FALSE} 0.1386139
  [32] {type=bird}
  [33] {feathers=TRUE}
                                           {catsize=FALSE} 0.1386139
##
  [34] {legs=FALSE}
                                           {catsize=FALSE} 0.1584158
  [35] {aquatic=TRUE,legs=TRUE}
                                           {catsize=FALSE} 0.1188119
## [36] {predator=FALSE,domestic=FALSE} => {catsize=FALSE} 0.2178218
## [37] {aquatic=TRUE}
                                           {catsize=FALSE} 0.2277228
```

```
## [38] {fins=FALSE,domestic=FALSE}
                                         => {catsize=FALSE} 0.4158416
  [39] {predator=TRUE}
                                         => {catsize=FALSE} 0.2772277
  [40] {airborne=FALSE}
                                         => {catsize=FALSE} 0.3564356
  [41] {hair=TRUE}
                                         => {catsize=FALSE} 0.1287129
##
   [42]
       {eggs=FALSE}
                                         => {catsize=FALSE} 0.1089109
##
        confidence lift
        1.0000000
  [1]
                  1.7719298
  [2]
##
        0.9500000
                   1.6833333
##
   [3]
        0.9500000
                   1.6833333
  [4]
##
        0.9444444
                   1.6734893
  [5]
        0.9375000
                   1.6611842
   [6]
##
        0.9166667
                   1.6242690
##
   [7]
        0.8750000
                   1.5504386
##
  [8]
        0.8500000
                   1.5061404
  [9]
        0.8500000
                   1.5061404
##
   [10] 0.8461538
                   1.4993252
  [11] 0.8461538
                   1.4993252
  [12] 0.8333333
                   1.4766082
                   1.4703247
  [13] 0.8297872
  [14] 0.8275862
                   1.4664247
  [15] 0.8205128
                   1.4538911
  [16] 0.8205128
                   1.4538911
  [17] 0.8181818
                   1.4497608
  [18] 0.8139535
                   1.4422685
  [19] 0.8095238
                   1.4344194
  [20] 0.8076923
                   1.4311741
  [21] 0.8043478
                   1.4252479
## [22] 0.8000000
                   1.4175439
## [23] 0.8000000
                   1.4175439
## [24] 0.7948718
                   1.4084570
  [25] 0.7894737
                   1.3988920
   [26] 0.7796610
                   1.3815046
  [27] 0.7777778
                   1.3781676
  [28] 0.7777778
                   1.3781676
   [29] 0.7692308
                   1.3630229
  [30] 0.7619048
                   1.3500418
##
  [31] 0.7368421
                   1.3056325
  [32] 0.7000000
                   1.2403509
  [33] 0.7000000
                   1.2403509
  [34] 0.6956522
                   1.2326468
  [35] 0.6666667
                   1.1812865
  [36] 0.6470588
                   1.1465428
   [37] 0.6388889
                   1.1320663
  [38] 0.5833333
                   1.0336257
  [39] 0.5000000
                   0.8859649
  [40] 0.4675325
                   0.8284347
   [41] 0.3023256
                   0.5356997
##
  [42] 0.2619048
                   0.4640769
##
       lhs
                                                     confidence lift
                                          support
##
  [1] {milk=TRUE}
                        => {catsize=TRUE} 0.3168317 0.7804878 1.7915743
                       => {catsize=TRUE} 0.3168317 0.7804878
   [2] {type=mammal}
                                                               1.7915743
  [3] {eggs=FALSE}
                        => {catsize=TRUE} 0.3069307 0.7380952 1.6942641
## [4] {hair=TRUE}
                       => {catsize=TRUE} 0.2970297 0.6976744 1.6014799
## [5] {aquatic=FALSE} => {catsize=TRUE} 0.3069307 0.4769231 1.0947552
```

```
## [6] {aquatic=TRUE}
                       => {catsize=TRUE} 0.1287129 0.3611111
                                                               0.8289141
                       => {catsize=TRUE} 0.1386139 0.2413793
  [7] {hair=FALSE}
                                                               0.5540752
  [8] {milk=FALSE}
                       => {catsize=TRUE} 0.1188119 0.2000000
##
       lhs
                                      rhs
                                                      support
                                                                 confidence
##
  [1] {milk=FALSE,aquatic=FALSE} => {catsize=FALSE} 0.2475248 0.8333333
   [2] {eggs=TRUE,aquatic=FALSE} => {catsize=FALSE} 0.2376238 0.8275862
   [3] {hair=FALSE,aquatic=FALSE} => {catsize=FALSE} 0.2079208 0.8076923
##
       lift
##
  [1] 1.476608
##
  [2] 1.466425
  [3] 1.431174
##
       lhs
                                     rhs
                                                     support
                                                                confidence
##
   [1] {aquatic=TRUE,fins=FALSE} => {catsize=FALSE} 0.1386139 0.7368421
   [2] {aquatic=TRUE,legs=TRUE} => {catsize=FALSE} 0.1188119 0.6666667
##
##
       lift.
##
  [1] 1.305633
   [2] 1.181287
##
##
       lhs
                                                       support
                                                                 confidence
                                    => {catsize=FALSE} 0.1485149 0.9375000
## [1] {hair=FALSE,tail=FALSE}
## [2] {hair=FALSE,predator=FALSE} => {catsize=FALSE} 0.1782178 0.8181818
## [3] {hair=FALSE,fins=FALSE}
                                    => {catsize=FALSE} 0.3465347 0.8139535
## [4] {hair=FALSE,aquatic=FALSE}
                                   => {catsize=FALSE} 0.2079208 0.8076923
## [5] {hair=FALSE,feathers=FALSE} => {catsize=FALSE} 0.2970297 0.7894737
                                    => {catsize=FALSE} 0.2772277 0.7777778
##
  [6] {hair=FALSE,legs=TRUE}
##
       lift
## [1] 1.661184
## [2] 1.449761
## [3] 1.442268
## [4] 1.431174
## [5] 1.398892
## [6] 1.378168
##
       lhs
                                                                  confidence
                                       rhs
                                                       support
## [1] {milk=FALSE,tail=FALSE}
                                    => {catsize=FALSE} 0.1881188 0.9500000
## [2] {feathers=FALSE,milk=FALSE} => {catsize=FALSE} 0.3366337 0.8500000
  [3] {milk=FALSE,predator=FALSE} => {catsize=FALSE} 0.2178218 0.8461538
## [4] {milk=FALSE,aquatic=FALSE} => {catsize=FALSE} 0.2475248 0.8333333
## [5] {milk=FALSE,fins=FALSE}
                                    => {catsize=FALSE} 0.3861386 0.8297872
## [6] {milk=FALSE,breathes=TRUE}
                                   => {catsize=FALSE} 0.3168317 0.8205128
## [7] {milk=FALSE,toothed=TRUE}
                                    => {catsize=FALSE} 0.1683168 0.8095238
##
       lift.
## [1] 1.683333
## [2] 1.506140
## [3] 1.499325
## [4] 1.476608
## [5] 1.470325
## [6] 1.453891
  [7] 1.434419
  [1] "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                           support
##
  [1]
        {milk=TRUE,predator=TRUE}
                                            {catsize=TRUE} 0.1980198
##
  [2]
        {predator=TRUE, type=mammal}
                                         => {catsize=TRUE} 0.1980198
## [3]
        {hair=TRUE, predator=TRUE}
                                         => {catsize=TRUE} 0.1782178
## [4]
        {eggs=FALSE,predator=TRUE}
                                         => {catsize=TRUE} 0.1881188
## [5]
        {hair=TRUE,airborne=FALSE}
                                         => {catsize=TRUE} 0.2970297
```

```
{milk=TRUE,domestic=FALSE}
                                         => {catsize=TRUE} 0.2574257
##
   [7]
        {domestic=FALSE, type=mammal}
                                            {catsize=TRUE} 0.2574257
##
   [8]
        {milk=TRUE}
                                            {catsize=TRUE} 0.3168317
   [9]
                                            {catsize=TRUE} 0.3168317
##
        {type=mammal}
   [10] {eggs=FALSE, venomous=FALSE}
##
                                            {catsize=TRUE} 0.3069307
   [11] {hair=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2970297
##
  [12] {hair=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2475248
   [13] {eggs=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3069307
##
       {eggs=FALSE}
                                            {catsize=TRUE} 0.3069307
   [14]
   [15]
       {hair=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.2970297
   [16] {hair=TRUE,domestic=FALSE}
                                            {catsize=TRUE} 0.2376238
   [17] {hair=TRUE}
                                            {catsize=TRUE} 0.2970297
##
       {aquatic=FALSE, toothed=TRUE}
                                            {catsize=TRUE} 0.2574257
   [18]
       {toothed=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.2772277
   [20] {toothed=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.3069307
        {airborne=FALSE, breathes=TRUE}
                                            {catsize=TRUE} 0.3564356
   [22]
       {airborne=FALSE,aquatic=FALSE}
                                            {catsize=TRUE} 0.2871287
   [23] {airborne=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3366337
   [24] {predator=TRUE, toothed=TRUE}
                                            {catsize=TRUE} 0.2277228
   [25] {airborne=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3960396
##
  [26] {airborne=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3465347
  [27] {toothed=TRUE,fins=FALSE}
                                            {catsize=TRUE} 0.2673267
  [28] {toothed=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.3366337
##
   [29]
       {aquatic=FALSE, predator=TRUE}
                                            {catsize=TRUE} 0.1584158
       {predator=TRUE, breathes=TRUE}
                                            {catsize=TRUE} 0.2277228
   [31] {feathers=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3663366
   [32] {aquatic=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3069307
##
   [33] {feathers=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3168317
   [34] {toothed=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2970297
   [35] {predator=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2673267
   [36]
        {backbone=TRUE, breathes=TRUE}
                                            {catsize=TRUE} 0.3861386
##
   [37]
        {airborne=FALSE, venomous=FALSE} =>
                                            {catsize=TRUE} 0.3960396
       {backbone=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.3564356
   [38]
   [39] {legs=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.3168317
        {breathes=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.3366337
   Γ401
##
   [41] {aquatic=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.2673267
  [42] {airborne=FALSE,fins=FALSE}
                                            {catsize=TRUE} 0.3267327
  [43] {feathers=FALSE,breathes=TRUE}
                                            {catsize=TRUE} 0.3267327
   [44] {predator=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2277228
##
   [45] {predator=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.2673267
##
   [46] {predator=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.2079208
   [47] {feathers=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3069307
##
   [48] {feathers=FALSE, predator=TRUE}
                                            {catsize=TRUE} 0.2475248
   [49] {backbone=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.4158416
  [50] {backbone=TRUE,fins=FALSE}
                                           {catsize=TRUE} 0.3465347
   [51]
        {feathers=FALSE, aquatic=FALSE}
                                            {catsize=TRUE} 0.2673267
##
   [52]
       {fins=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3069307
   [53] {venomous=FALSE,tail=TRUE}
                                           {catsize=TRUE} 0.3663366
   [54] {backbone=TRUE,domestic=FALSE}
                                         => {catsize=TRUE} 0.3663366
   [55]
        {breathes=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.3861386
##
       {aquatic=FALSE, venomous=FALSE}
                                            {catsize=TRUE} 0.3069307
       {feathers=FALSE, venomous=FALSE}
                                            {catsize=TRUE} 0.3663366
  [58] {venomous=FALSE,legs=TRUE}
                                           {catsize=TRUE} 0.3663366
## [59] {aquatic=FALSE}
                                            {catsize=TRUE} 0.3069307
```

```
## [60] {aquatic=TRUE}
##
   [61] {hair=FALSE}
   [62] {milk=FALSE}
##
        confidence lift
##
   [1]
        0.9090909
                   2.0867769
   [2]
        0.9090909
                   2.0867769
##
        0.9000000
   [3]
                   2.0659091
## [4]
        0.8260870
                   1.8962451
##
   [5]
        0.8108108
                   1.8611794
##
   [6]
        0.7878788
                   1.8085399
  [7]
        0.7878788
                   1.8085399
   [8]
##
        0.7804878
                   1.7915743
##
   [9]
        0.7804878
                   1.7915743
  [10] 0.7750000
                    1.7789773
## [11] 0.7692308
                    1.7657343
   [12] 0.7575758
                    1.7389807
  [13] 0.7560976
                    1.7355876
   [14] 0.7380952
                    1.6942641
  [15] 0.7317073
                    1.6796009
## [16] 0.7058824
                    1.6203209
## [17] 0.6976744
                    1.6014799
## [18] 0.6842105
                    1.5705742
## [19] 0.6666667
                    1.5303030
## [20] 0.6595745
                   1.5140232
  [21] 0.6428571
                    1.4756494
  [22] 0.6304348
                    1.4471344
  [23] 0.6296296
                    1.4452862
## [24] 0.6216216
                    1.4269042
## [25] 0.6153846
                    1.4125874
                   1.4094896
## [26] 0.6140351
## [27] 0.6136364
                    1.4085744
##
   [28] 0.5964912
                    1.3692185
   [29] 0.5925926
                    1.3602694
  [30] 0.5897436
                   1.3537296
   [31] 0.5873016
                    1.3481241
##
  [32] 0.5849057
                    1.3426244
  [33] 0.5818182
                    1.3355372
## [34] 0.5769231
                    1.3243007
   [35] 0.5744681
                    1.3186654
  [36] 0.5652174
##
                    1.2974308
   [37] 0.5633803
                   1.2932138
   [38] 0.5625000
                   1.2911932
   [39] 0.5614035
                    1.2886762
## [40] 0.5573770
                    1.2794337
## [41] 0.5510204
                   1.2648423
## [42] 0.5500000
                    1.2625000
## [43] 0.5500000
                    1.2625000
  [44] 0.5476190
                    1.2570346
## [45] 0.5400000
                    1.2395455
  [46] 0.5384615
                    1.2360140
## [47] 0.5344828
                    1.2268809
## [48] 0.5319149
                    1.2209865
## [49] 0.5316456
                   1.2203682
```

## [50] 0.5303030 1.2172865

=> {catsize=TRUE} 0.1287129 => {catsize=TRUE} 0.1386139 => {catsize=TRUE} 0.1188119

```
## [51] 0.5294118
                    1.2152406
   [52] 0.5254237
                    1.2060863
   [53] 0.5211268
                    1.1962228
   [54] 0.5211268
                    1.1962228
   [55] 0.5200000
                    1.1936364
   [56] 0.5081967
                    1.1665425
##
   [57] 0.5068493
                    1.1634496
   [58] 0.5000000
                    1.1477273
   [59] 0.4769231
                    1.0947552
   [60] 0.3611111
                    0.8289141
   [61] 0.2413793
                    0.5540752
        0.2000000
                    0.4590909
##
   [62]
                                                         confidence lift
##
        lhs
                             rhs
                                              support
##
   [1]
        {backbone=FALSE} => {catsize=FALSE} 0.1683168 0.9444444
##
   [2]
                          => {catsize=FALSE} 0.2079208 0.8750000
        {airborne=TRUE}
                                                                    1.5504386
##
   [3]
        {milk=FALSE}
                          => {catsize=FALSE} 0.4752475 0.8000000
                                                                    1.4175439
   [4]
##
                          => {catsize=FALSE} 0.4554455 0.7796610
                                                                    1.3815046
        {eggs=TRUE}
   [5]
        {tail=FALSE}
                          => {catsize=FALSE} 0.1980198 0.7692308
                                                                    1.3630229
        {breathes=FALSE} => {catsize=FALSE} 0.1584158 0.7619048
##
   [6]
                                                                    1.3500418
##
   [7]
        {type=bird}
                          => {catsize=FALSE} 0.1386139 0.7000000
                                                                    1.2403509
##
   [8]
        {feathers=TRUE}
                          => {catsize=FALSE} 0.1386139 0.7000000
                                                                    1.2403509
        {legs=FALSE}
                          => {catsize=FALSE} 0.1584158 0.6956522
##
   [9]
                                                                    1.2326468
                          => {catsize=FALSE} 0.2277228 0.6388889
   [10] {aquatic=TRUE}
                                                                    1.1320663
                             {catsize=FALSE} 0.2772277 0.5000000
##
   [11] {predator=TRUE}
                                                                    0.8859649
   [12] {airborne=FALSE} => {catsize=FALSE} 0.3564356 0.4675325
                                                                    0.8284347
   [13] {hair=TRUE}
                          => {catsize=FALSE} 0.1287129 0.3023256
                                                                    0.5356997
##
   [14] {eggs=FALSE}
                          => {catsize=FALSE} 0.1089109 0.2619048
                                                                    0.4640769
##
        lhs
                                            rhs
                                                            support
                                                                      confidence
##
                                         => {catsize=TRUE} 0.1980198 0.9090909
   [1]
        {milk=TRUE, predator=TRUE}
   [2]
        {predator=TRUE, type=mammal}
                                         => {catsize=TRUE} 0.1980198 0.9090909
##
   [3]
        {hair=TRUE, predator=TRUE}
                                         => {catsize=TRUE} 0.1782178 0.9000000
                                         => {catsize=TRUE} 0.1881188 0.8260870
##
   [4]
        {eggs=FALSE,predator=TRUE}
##
   [5]
        {predator=TRUE, toothed=TRUE}
                                         => {catsize=TRUE} 0.2277228 0.6216216
##
   [6]
        {aquatic=FALSE,predator=TRUE}
                                         => {catsize=TRUE} 0.1584158 0.5925926
   [7]
        {predator=TRUE, breathes=TRUE}
                                            {catsize=TRUE} 0.2277228 0.5897436
##
                                         => {catsize=TRUE} 0.2673267 0.5744681
##
   [8]
        {predator=TRUE, backbone=TRUE}
        {predator=TRUE,tail=TRUE}
                                         => {catsize=TRUE} 0.2277228 0.5476190
   [10] {predator=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2673267 0.5400000
   [11] {predator=TRUE,legs=TRUE}
                                         => {catsize=TRUE} 0.2079208 0.5384615
   [12] {feathers=FALSE,predator=TRUE} => {catsize=TRUE} 0.2475248 0.5319149
##
##
        lift
##
   [1]
        2.086777
##
   [2]
        2.086777
##
   [3]
        2.065909
   [4]
##
        1.896245
   [5]
##
        1.426904
##
   [6]
        1.360269
##
   [7]
        1.353730
##
   [8]
        1.318665
##
   [9]
        1.257035
##
   [10] 1.239545
##
  [11] 1.236014
##
  [12] 1.220986
##
       lhs
                                            rhs
                                                            support
                                                                      confidence
```

```
## [1] {hair=TRUE,airborne=FALSE}
                                        => {catsize=TRUE} 0.2970297 0.8108108
## [2] {airborne=FALSE,breathes=TRUE}
                                        => {catsize=TRUE} 0.3564356 0.6428571
## [3] {airborne=FALSE,aquatic=FALSE}
                                        => {catsize=TRUE} 0.2871287 0.6304348
## [4] {airborne=FALSE,legs=TRUE}
                                        => {catsize=TRUE} 0.3366337 0.6296296
## [5] {airborne=FALSE,backbone=TRUE}
                                        => {catsize=TRUE} 0.3960396 0.6153846
## [6] {airborne=FALSE,tail=TRUE}
                                        => {catsize=TRUE} 0.3465347 0.6140351
## [7] {airborne=FALSE,venomous=FALSE} => {catsize=TRUE} 0.3960396 0.5633803
## [8] {airborne=FALSE,fins=FALSE}
                                        => {catsize=TRUE} 0.3267327 0.5500000
##
       lift
## [1] 1.861179
## [2] 1.475649
## [3] 1.447134
## [4] 1.445286
## [5] 1.412587
## [6] 1.409490
## [7] 1.293214
##
  [8] 1.262500
##
       lhs
                                      rhs
                                                     support
                                                               confidence
## [1] {hair=TRUE,predator=TRUE} => {catsize=TRUE} 0.1782178 0.9000000
## [2] {hair=TRUE,airborne=FALSE} => {catsize=TRUE} 0.2970297 0.8108108
## [3] {hair=TRUE,backbone=TRUE} => {catsize=TRUE} 0.2970297 0.7692308
## [4] {hair=TRUE,tail=TRUE}
                                   => {catsize=TRUE} 0.2475248 0.7575758
## [5] {hair=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2970297 0.7317073
  [6] {hair=TRUE,domestic=FALSE} => {catsize=TRUE} 0.2376238 0.7058824
##
##
       lift
## [1] 2.065909
## [2] 1.861179
## [3] 1.765734
## [4] 1.738981
## [5] 1.679601
## [6] 1.620321
##
       lhs
                                       rhs
                                                      support
                                                                confidence
  [1] {eggs=FALSE,predator=TRUE} => {catsize=TRUE} 0.1881188 0.8260870
   [2] {eggs=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3069307 0.7750000
   [3] {eggs=FALSE,backbone=TRUE} => {catsize=TRUE} 0.3069307 0.7560976
##
##
       lift
## [1] 1.896245
## [2] 1.778977
  [3] 1.735588
##
  [1] "Número de reglas con consecuente negado"
##
                                            rhs
                                                            support
##
  [1]
        {type=bird}
                                           {feathers=TRUE} 0.1980198
##
  [2]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [3]
                                         => {feathers=TRUE} 0.1584158
        {hair=FALSE,airborne=TRUE}
## [4]
        {airborne=TRUE, tail=TRUE}
                                         => {feathers=TRUE} 0.1584158
## [5]
        {airborne=TRUE, backbone=TRUE}
                                         => {feathers=TRUE} 0.1584158
##
  [6]
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [7]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
## [8]
        {eggs=TRUE,airborne=TRUE}
                                         => {feathers=TRUE} 0.1584158
## [9]
        {milk=FALSE,airborne=TRUE}
                                         => {feathers=TRUE} 0.1584158
## [10] {airborne=TRUE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1584158
## [11] {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [12] {hair=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
## [13] {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
```

```
## [14] {toothed=FALSE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
  [15] {hair=FALSE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
  [16] {hair=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
  [17] {hair=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   [18] {predator=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1089109
  [19] {aquatic=FALSE, toothed=FALSE}
                                           {feathers=TRUE} 0.1386139
##
  [20] {eggs=TRUE,toothed=FALSE}
                                           {feathers=TRUE} 0.1980198
  [21] {milk=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [22]
       {eggs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [23]
       {eggs=TRUE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
   [24] {milk=FALSE,breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
   [25] {hair=FALSE,predator=FALSE}
                                           {feathers=TRUE} 0.1089109
   [26]
       {eggs=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
       {milk=FALSE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
  [28] {milk=FALSE,legs=TRUE}
        {eggs=TRUE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   [29]
   [30]
       {hair=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [31] {eggs=TRUE,backbone=TRUE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
   [32] {milk=FALSE,backbone=TRUE}
   [33] {milk=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
##
  [34] {hair=FALSE,fins=FALSE}
                                           {feathers=TRUE} 0.1980198
                                           {feathers=TRUE} 0.1980198
  [35]
       {hair=FALSE,backbone=TRUE}
  [36] {eggs=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
                                            {feathers=TRUE} 0.1980198
##
   [37]
       {milk=FALSE,fins=FALSE}
   [38]
       {eggs=TRUE,predator=FALSE}
                                           {feathers=TRUE} 0.1089109
   [39] {milk=FALSE,predator=FALSE}
                                           {feathers=TRUE} 0.1089109
   [40] {hair=FALSE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
   [41] {milk=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
  [42] {tail=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
  [43] {eggs=TRUE, venomous=FALSE}
                                           {feathers=TRUE} 0.1980198
   [44]
       {hair=FALSE,eggs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [45]
        {hair=FALSE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
   [46]
       {legs=TRUE,tail=TRUE}
                                           {feathers=TRUE} 0.1980198
   [47]
       {backbone=TRUE, catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
   [48]
        {hair=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [49]
       {eggs=TRUE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
  [50] {legs=TRUE,catsize=FALSE}
                                           {feathers=TRUE} 0.1386139
  [51] {breathes=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
##
       {fins=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [52]
##
       {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
   [53]
   [54]
       {breathes=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [55] {backbone=TRUE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
##
   [56]
       {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
       {backbone=TRUE,fins=FALSE}
                                           {feathers=TRUE} 0.1980198
##
   [57]
  [58] {fins=FALSE,catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
  [59]
        {backbone=TRUE, breathes=TRUE}
                                           {feathers=TRUE} 0.1980198
   [60]
##
       {aquatic=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1386139
   [61]
       {predator=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1089109
   [62] {venomous=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [63]
        {venomous=FALSE, catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
##
   [64]
       {breathes=TRUE,legs=TRUE}
                                           {feathers=TRUE} 0.1980198
  [65] {backbone=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [66] {venomous=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [67] {predator=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1089109
```

```
## [68] {predator=FALSE,fins=FALSE}
                                          => {feathers=TRUE} 0.1089109
       {breathes=TRUE, venomous=FALSE}
                                             {feathers=TRUE} 0.1980198
   [69]
   [70] {aquatic=FALSE,backbone=TRUE}
                                             {feathers=TRUE} 0.1386139
   [71] {breathes=TRUE,fins=FALSE}
                                             {feathers=TRUE} 0.1980198
##
   [72] {fins=FALSE,legs=TRUE}
                                             {feathers=TRUE} 0.1980198
   [73] {venomous=FALSE,fins=FALSE}
##
                                             {feathers=TRUE} 0.1980198
   [74] {legs=TRUE,domestic=FALSE}
                                             {feathers=TRUE} 0.1683168
       {predator=FALSE, venomous=FALSE} =>
                                             {feathers=TRUE} 0.1089109
##
   [76]
        {backbone=TRUE, venomous=FALSE}
                                             {feathers=TRUE} 0.1980198
        {aquatic=FALSE, venomous=FALSE}
                                             {feathers=TRUE} 0.1386139
   [78]
        {aquatic=FALSE}
                                             {feathers=TRUE} 0.1386139
##
   [79]
        {venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [08]
        {domestic=FALSE}
                                          => {feathers=TRUE} 0.1683168
##
        confidence lift
##
  [1]
        1.0000000
                   5.0500000
##
   [2]
        0.9090909
                    4.5909091
   [3]
##
        0.888889
                    4.4888889
   [4]
        0.888889
                    4.4888889
   [5]
##
        0.888889
                    4.4888889
##
   [6]
        0.8695652
                    4.3913043
##
   [7]
        0.7272727
                    3.6727273
   [8]
        0.7272727
                    3.6727273
##
   [9]
        0.7272727
                    3.6727273
##
   [10] 0.7272727
                    3.6727273
   [11] 0.6060606
                    3.0606061
   [12] 0.5714286
                    2.8857143
   [13] 0.5555556
                    2.8055556
##
   [14] 0.5555556
                    2.8055556
   [15] 0.5555556
                    2.8055556
   [16] 0.5405405
                    2.7297297
   [17] 0.5384615
                    2.7192308
##
   [18] 0.5238095
                    2.6452381
   [19] 0.5185185
                    2.6185185
   [20] 0.5128205
                    2.5897436
   [21] 0.5128205
                    2.5897436
##
   [22] 0.5128205
                    2.5897436
   [23] 0.5128205
                    2.5897436
   [24] 0.5128205
                    2.5897436
   [25] 0.5000000
                    2.5250000
##
   [26] 0.5000000
                    2.5250000
   [27] 0.5000000
                    2.5250000
   [28] 0.5000000
                    2.5250000
   [29] 0.4827586
                    2.4379310
   [30] 0.4761905
                    2.4047619
   [31] 0.4761905
                    2.4047619
   [32] 0.4761905
                    2.4047619
##
   [33] 0.4666667
                    2.3566667
   [34] 0.4651163
                    2.3488372
   [35]
        0.4545455
                    2.2954545
   [36]
        0.4347826
                    2.1956522
##
   [37]
        0.4255319
                    2.1489362
   [38] 0.4230769
                    2.1365385
  [39] 0.4230769
                    2.1365385
## [40] 0.3846154
                   1.9423077
```

```
## [41] 0.3846154
                    1.9423077
   [42] 0.3783784
                    1.9108108
   [43] 0.3773585
                    1.9056604
   [44] 0.3703704
                    1.8703704
   [45] 0.3571429
                    1.8035714
##
   [46] 0.3508772
                    1.7719298
   [47] 0.3500000
                    1.7675000
   [48] 0.3448276
                    1.7413793
   [49] 0.3448276
                    1.7413793
   [50] 0.3414634
                    1.7243902
   [51] 0.3414634
                    1.7243902
   [52] 0.3389831
                    1.7118644
                    1.6833333
##
   [53] 0.3333333
   [54] 0.3278689
                    1.6557377
   [55] 0.3125000
                    1.5781250
   [56] 0.3055556
                    1.5430556
##
   [57] 0.3030303
                    1.5303030
   [58] 0.2916667
                    1.4729167
   [59] 0.2898551
                    1.4637681
   [60] 0.2857143
                    1.4428571
##
   [61] 0.2820513
                    1.4243590
   [62] 0.2816901
                    1.4225352
##
   [63] 0.2800000
                    1.4140000
##
   [64] 0.2739726
                    1.3835616
   [65] 0.2702703
                    1.3648649
   [66] 0.2702703
                    1.3648649
   [67] 0.2682927
                    1.3548780
##
   [68] 0.2682927
                    1.3548780
   [69] 0.2666667
                    1.3466667
   [70] 0.2641509
                    1.3339623
   [71] 0.2631579
                    1.3289474
##
   [72] 0.2597403
                    1.3116883
   [73] 0.2597403
                    1.3116883
   [74] 0.2575758
                    1.3007576
   [75] 0.2558140
                    1.2918605
##
   [76] 0.2531646
                    1.2784810
   [77] 0.2295082
                    1.1590164
   [78] 0.2153846
                    1.0876923
   [79] 0.2150538
                    1.0860215
##
   [80] 0.1931818
                   0.9755682
##
        lhs
                                               support
                                                          confidence lift
##
   [1]
                          => {feathers=FALSE} 0.1287129 1.0000000
                                                                    1.2469136
        {type=fish}
##
   [2]
        {fins=TRUE}
                          => {feathers=FALSE} 0.1683168 1.0000000
                                                                     1.2469136
##
   [3]
        {backbone=FALSE} =>
                             {feathers=FALSE} 0.1782178 1.0000000
                                                                     1.2469136
   [4]
##
        {breathes=FALSE} =>
                             {feathers=FALSE} 0.2079208 1.0000000
                                                                     1.2469136
   [5]
##
        {legs=FALSE}
                             {feathers=FALSE} 0.2277228 1.0000000
                                                                     1.2469136
##
   [6]
        {tail=FALSE}
                             {feathers=FALSE} 0.2574257 1.0000000
                                                                     1.2469136
##
   [7]
        {eggs=FALSE}
                             {feathers=FALSE} 0.4158416 1.0000000
                                                                     1.2469136
##
   [8]
        {hair=TRUE}
                             {feathers=FALSE} 0.4257426 1.0000000
                                                                     1.2469136
##
   [9]
        {airborne=FALSE}
                             {feathers=FALSE} 0.7227723 0.9480519
                                                                     1.1821388
##
   [10]
       {catsize=TRUE}
                          => {feathers=FALSE} 0.3762376 0.8636364
                                                                     1.0768799
   [11] {predator=TRUE}
                          => {feathers=FALSE} 0.4653465 0.8392857
                                                                     1.0465168
## [12] {aquatic=TRUE}
                          => {feathers=FALSE} 0.2970297 0.8333333
                                                                     1.0390947
## [13] {aquatic=FALSE}
                          => {feathers=FALSE} 0.5049505 0.7846154
```

```
## [14] {predator=FALSE} => {feathers=FALSE} 0.3366337 0.7555556
                                                                    0.9421125
                         => {feathers=FALSE} 0.4257426 0.7543860
  [15] {catsize=FALSE}
                                                                    0.9406541
  [16] {breathes=TRUE}
                         => {feathers=FALSE} 0.5940594 0.7500000
                                                                    0.9351852
  [17] {legs=TRUE}
                          => {feathers=FALSE} 0.5742574 0.7435897
                                                                    0.9271921
##
  [18] {milk=FALSE}
                          => {feathers=FALSE} 0.3960396 0.6666667
                                                                    0.8312757
  [19] {eggs=TRUE}
                          => {feathers=FALSE} 0.3861386 0.6610169
                                                                    0.8242310
##
                          => {feathers=FALSE} 0.3762376 0.6551724
  [20] {hair=FALSE}
                                                                    0.8169434
##
  [21] {toothed=FALSE}
                         => {feathers=FALSE} 0.1980198 0.5000000
                                                                    0.6234568
##
       lhs
                                          rhs
                                                                     confidence
                                                           support
##
  [1] {hair=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5384615
   [2] {aquatic=FALSE,toothed=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5185185
   [3] {eggs=TRUE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4827586
   [4] {milk=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
                                       => {feathers=TRUE} 0.1386139 0.2857143
   [5] {aquatic=FALSE,tail=TRUE}
  [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
   [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
       lift
##
  [1] 2.719231
  [2] 2.618519
##
   [3] 2.437931
##
  [4] 2.356667
  [5] 1.442857
   [6] 1.333962
##
##
   [7] 1.159016
##
        lhs
                                            rhs
                                                             support
  [1]
        {predator=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1089109
   [2]
        {hair=FALSE, predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
##
   [3]
        {eggs=TRUE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [4]
##
        {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
  [5]
        {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [6]
        {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [7]
        {predator=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [8]
        {predator=FALSE, breathes=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [9]
        {predator=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1089109
        {predator=FALSE,venomous=FALSE} => {feathers=TRUE} 0.1089109
##
   Γ10]
##
        confidence lift
##
  [1]
        0.5238095 2.645238
##
  [2]
        0.5000000
                   2.525000
   [3]
##
        0.4230769
                   2.136538
   [4]
##
        0.4230769
                   2.136538
   [5]
        0.3333333
                   1.683333
   [6]
##
        0.3055556
                   1.543056
##
   [7]
        0.2820513
                   1.424359
##
   [8]
        0.2682927
                   1.354878
##
  [9]
        0.2682927
                   1.354878
  [10] 0.2558140
##
                   1.291860
##
       lhs
                                                           support
                                                                     confidence
##
  [1] {tail=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3783784
   [2] {backbone=TRUE, catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3500000
   [3] {legs=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
   [4] {breathes=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
  [5] {fins=FALSE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.2916667
## [6] {venomous=FALSE,catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
       lift
```

```
[1] 1.910811
   [2] 1.767500
   [3] 1.724390
   [4] 1.724390
##
##
   [5]
       1.472917
##
   [6] 1.414000
##
        lhs
                                            rhs
                                                             support
## [1]
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [2]
        {hair=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [3]
        {eggs=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [4]
        {milk=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [5]
##
        {breathes=TRUE,catsize=FALSE}
                                         => {feathers=TRUE} 0.1386139
##
   [6]
        {breathes=TRUE, tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
                                         => {feathers=TRUE} 0.1980198
##
   [7]
        {backbone=TRUE,breathes=TRUE}
   [8]
                                         => {feathers=TRUE} 0.1980198
##
        {breathes=TRUE,legs=TRUE}
##
   [9]
        {predator=FALSE,breathes=TRUE} =>
                                            {feathers=TRUE} 0.1089109
##
   [10]
       {breathes=TRUE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
        {breathes=TRUE,fins=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
        confidence lift
##
   [1]
        0.6060606
                   3.060606
##
   [2]
        0.5405405
                   2.729730
   [3]
##
        0.5128205
                   2.589744
   [4]
##
        0.5128205
                   2.589744
##
   [5]
        0.3414634
                    1.724390
##
   [6]
        0.3278689
                    1.655738
   [7]
        0.2898551
                    1.463768
   [8]
##
        0.2739726
                    1.383562
##
   [9]
        0.2682927
                    1.354878
##
   [10] 0.2666667
                    1.346667
##
   [11] 0.2631579
                    1.328947
##
        lhs
                                                         support
                                                                    confidence
##
   [1]
        {toothed=FALSE,legs=TRUE}
                                        {feathers=TRUE} 0.1980198 0.5555556
##
   [2]
        {hair=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5555556
   [3]
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
        {eggs=TRUE,legs=TRUE}
   [4]
        {milk=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
                                     => {feathers=TRUE} 0.1980198 0.3508772
##
        {legs=TRUE,tail=TRUE}
##
   [6]
        {legs=TRUE,catsize=FALSE}
                                        {feathers=TRUE} 0.1386139 0.3414634
   [7]
        {backbone=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3125000
##
   [8]
        {predator=FALSE,legs=TRUE}
                                        {feathers=TRUE} 0.1089109 0.2820513
##
##
   [9]
        {breathes=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2739726
   [10] {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
   [11] {fins=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.2597403
##
   Γ12]
       {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
##
        lift
##
  [1]
        2.805556
   [2]
        2.805556
##
##
   [3]
        2.525000
##
   [4]
        2.525000
##
   [5]
        1.771930
##
   [6]
        1.724390
##
   [7]
        1.578125
##
   [8]
        1.424359
## [9]
        1.383562
## [10] 1.364865
```

```
## [11] 1.311688
   [12] 1.300758
##
##
        lhs
                                                          support
                                                                    confidence
##
  [1]
        {milk=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.7272727
##
   [2]
        {milk=FALSE, toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
##
   [3]
        {milk=FALSE, breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5128205
   [4]
        {milk=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5000000
                                      => {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
        {milk=FALSE,legs=TRUE}
##
   [6]
        {milk=FALSE,backbone=TRUE}
                                         {feathers=TRUE} 0.1980198 0.4761905
##
   [7]
        {milk=FALSE,aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.4666667
   [8]
        {milk=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4255319
                                     => {feathers=TRUE} 0.1089109 0.4230769
##
   [9]
        {milk=FALSE,predator=FALSE}
##
   [10] {milk=FALSE, venomous=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3846154
                                      => {feathers=TRUE} 0.1980198 0.3571429
   [11] {hair=FALSE,milk=FALSE}
   [12] {eggs=TRUE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3448276
##
##
        lift
##
   [1]
        3.672727
   [2]
        2.589744
   [3]
##
        2.589744
##
   [4]
        2.525000
##
   [5]
        2.525000
   [6]
##
        2.404762
   [7]
        2.356667
##
   [8]
##
        2.148936
##
   [9]
        2.136538
   [10] 1.942308
##
   [11] 1.803571
##
   [12]
        1.741379
##
        lhs
                                        rhs
                                                         support
                                                                   confidence
##
  [1]
                                        {feathers=TRUE} 0.1584158 0.7272727
        {eggs=TRUE,airborne=TRUE}
##
   [2]
        {eggs=TRUE,toothed=FALSE}
                                        {feathers=TRUE} 0.1980198 0.5128205
##
   [3]
        {eggs=TRUE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
##
   [4]
        {eggs=TRUE,breathes=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
##
   [5]
        {eggs=TRUE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
   [6]
        {eggs=TRUE,aquatic=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.4827586
##
                                     => {feathers=TRUE} 0.1980198 0.4761905
##
   [7]
        {eggs=TRUE,backbone=TRUE}
   [8]
        {eggs=TRUE,fins=FALSE}
                                       {feathers=TRUE} 0.1980198 0.4347826
        {eggs=TRUE,predator=FALSE} =>
                                       {feathers=TRUE} 0.1089109 0.4230769
##
   [9]
   [10] {eggs=TRUE,venomous=FALSE} =>
                                        {feathers=TRUE} 0.1980198 0.3773585
##
                                     => {feathers=TRUE} 0.1980198 0.3703704
##
   [11] {hair=FALSE,eggs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3448276
   [12] {eggs=TRUE,milk=FALSE}
##
        lift
##
   Г17
        3.672727
##
   [2]
        2.589744
   [3]
##
        2.589744
   [4]
        2.589744
##
##
   [5]
        2.525000
##
   [6]
        2.437931
##
   [7]
        2.404762
##
   [8]
        2.195652
##
   [9]
        2.136538
## [10] 1.905660
## [11] 1.870370
## [12] 1.741379
```

```
##
                                                          support
                                                                     confidence
##
   [1]
        {hair=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.8888889
        {hair=FALSE,toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5714286
   [2]
   [3]
        {hair=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5555556
##
##
   [4]
        {hair=FALSE,breathes=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5405405
##
   [5]
        {hair=FALSE,aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.5384615
##
   [6]
        {hair=FALSE, predator=FALSE}
                                     => {feathers=TRUE} 0.1089109 0.5000000
##
   [7]
        {hair=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
##
   [8]
        {hair=FALSE,fins=FALSE}
                                         {feathers=TRUE} 0.1980198 0.4651163
   [9]
##
        {hair=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4545455
       {hair=FALSE, venomous=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3846154
   Γ10]
                                      => {feathers=TRUE} 0.1980198 0.3703704
   [11]
        {hair=FALSE,eggs=TRUE}
        {hair=FALSE,milk=FALSE}
##
                                      => {feathers=TRUE} 0.1980198 0.3571429
   [12]
##
        lift
##
  [1]
        4.488889
##
   [2]
        2.885714
   [3]
##
        2.805556
   [4]
        2.729730
##
   [5]
##
        2.719231
##
   [6]
        2.525000
##
   [7]
        2.404762
        2.348837
   [8]
  [9]
##
        2.295455
##
   [10] 1.942308
   [11] 1.870370
   [12] 1.803571
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [2]
##
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [3]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
##
   [4]
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [5]
        {hair=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
   [6]
        {toothed=FALSE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [7]
        {toothed=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198
   [8]
        {predator=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1089109
##
##
   [9]
        {aquatic=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1386139
   [10] {eggs=TRUE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [11] {milk=FALSE,toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
##
        confidence lift
##
   [1]
        0.9090909
                   4.590909
   [2]
        0.8695652
                   4.391304
   [3]
        0.7272727
                    3.672727
##
##
   [4]
        0.6060606
                    3.060606
##
   [5]
        0.5714286
                    2.885714
##
   [6]
        0.555556
                    2.805556
   [7]
##
        0.555556
                    2.805556
##
   [8]
        0.5238095
                    2.645238
   [9]
        0.5185185
                    2.618519
   [10] 0.5128205
                    2.589744
   [11] 0.5128205
                    2.589744
##
       "Número de reglas con consecuente negado"
   Г17
##
                                                              support
## [1]
        {catsize=FALSE, type=bird}
                                          => {airborne=TRUE} 0.1287129
## [2]
        {feathers=TRUE, catsize=FALSE}
                                          =>
                                             {airborne=TRUE} 0.1287129
```

```
[3]
        {type=bird}
                                         => {airborne=TRUE} 0.1584158
##
   [4]
        {feathers=TRUE}
                                            {airborne=TRUE} 0.1584158
                                            {airborne=TRUE} 0.1584158
##
   [5]
        {toothed=FALSE,backbone=TRUE}
   [6]
        {predator=FALSE, toothed=FALSE}
                                            {airborne=TRUE} 0.1485149
##
##
   [7]
        {toothed=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
##
   [8]
        {toothed=FALSE, breathes=TRUE}
                                           {airborne=TRUE} 0.2178218
   [9]
        {aquatic=FALSE, toothed=FALSE}
                                            {airborne=TRUE} 0.1683168
   [10]
       {toothed=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
##
   Γ11]
       {toothed=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
   [12] {eggs=TRUE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
   [13] {eggs=TRUE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
   [14] {milk=FALSE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
   [15] {milk=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
   [16] {eggs=TRUE,breathes=TRUE}
                                           {airborne=TRUE} 0.2178218
                                           {airborne=TRUE} 0.2178218
  [17] {milk=FALSE,breathes=TRUE}
   [18]
        {toothed=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
   [19]
       {toothed=FALSE}
                                            {airborne=TRUE} 0.2178218
   [20] {eggs=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
                                            {airborne=TRUE} 0.2178218
   [21] {milk=FALSE,legs=TRUE}
   [22] {predator=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
##
  [23] {legs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
  [24] {breathes=TRUE, catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
  [25] {hair=FALSE,predator=FALSE}
                                            {airborne=TRUE} 0.1089109
                                            {airborne=TRUE} 0.1683168
##
   [26] {aquatic=FALSE, catsize=FALSE}
   [27]
       {hair=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1287129
   [28] {hair=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1782178
                                            {airborne=TRUE} 0.1782178
   [29] {hair=FALSE,breathes=TRUE}
##
   [30] {eggs=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2178218
   [31] {milk=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.2178218
  [32] {fins=FALSE,catsize=FALSE}
                                           {airborne=TRUE} 0.2079208
   [33]
        {predator=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1683168
##
   [34]
        {hair=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1782178
   [35] {predator=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1683168
   [36] {predator=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1683168
   [37] {eggs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
##
   [38] {eggs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
   [39] {tail=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
  [40] {milk=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [41] {milk=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [42] {milk=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [43] {predator=FALSE,domestic=FALSE} =>
                                            {airborne=TRUE} 0.1287129
   [44] {hair=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
   [45] {eggs=TRUE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [46] {milk=FALSE,backbone=TRUE}
                                           {airborne=TRUE} 0.1584158
  [47] {venomous=FALSE, catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
       {eggs=TRUE, venomous=FALSE}
  [48]
                                           {airborne=TRUE} 0.1980198
   [49]
       {backbone=TRUE, catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
   [50] {hair=FALSE, venomous=FALSE}
                                           {airborne=TRUE} 0.1782178
   [51] {breathes=TRUE,legs=TRUE}
                                           {airborne=TRUE} 0.2376238
   [52] {aquatic=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1881188
##
   [53]
       {legs=TRUE,tail=TRUE}
                                           {airborne=TRUE} 0.1782178
  [54] {breathes=TRUE,fins=FALSE}
                                           {airborne=TRUE} 0.2376238
## [55] {fins=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2376238
## [56] {fins=FALSE,tail=TRUE}
                                           {airborne=TRUE} 0.1782178
```

```
## [57] {aquatic=FALSE}
                                         => {airborne=TRUE} 0.1881188
                                         => {airborne=TRUE} 0.2178218
##
   [58] {venomous=FALSE}
##
        confidence lift
##
        0.9285714 3.9077381
  [1]
##
   [2]
        0.9285714
                   3.9077381
  [3]
        0.8000000
##
                   3.3666667
  [4]
        0.8000000
                   3.3666667
## [5]
        0.7272727
                   3.0606061
##
  [6]
        0.7142857
                   3.0059524
##
  [7]
        0.6956522
                   2.9275362
  [8]
        0.6666667
                   2.8055556
  [9]
        0.6296296
                   2.6496914
## [10] 0.6129032
                   2.5793011
## [11] 0.6111111
                   2.5717593
## [12] 0.5862069
                   2.4669540
## [13] 0.5769231
                   2.4278846
  [14] 0.5769231
                   2.4278846
  [15] 0.5666667
                   2.3847222
  [16] 0.5641026
                   2.3739316
## [17] 0.5641026
                   2.3739316
## [18] 0.555556
                   2.3379630
## [19] 0.5500000
                   2.3145833
## [20] 0.5500000
                   2.3145833
## [21] 0.5500000
                   2.3145833
## [22] 0.5172414
                   2.1767241
## [23] 0.5121951
                   2.1554878
## [24] 0.5121951
                   2.1554878
## [25] 0.5000000
                   2.1041667
## [26] 0.5000000
                   2.1041667
                   2.1041667
## [27] 0.5000000
## [28] 0.5000000
                   2.1041667
  [29] 0.4864865
                   2.0472973
  [30] 0.4782609
                   2.0126812
                   1.9698582
  [31] 0.4680851
   [32] 0.4375000
                   1.8411458
## [33] 0.4358974
                   1.8344017
## [34] 0.4186047
                   1.7616279
## [35] 0.4146341
                   1.7449187
  [36] 0.4146341
                   1.7449187
  [37] 0.4130435
                   1.7382246
  [38] 0.4102564
                   1.7264957
  [39] 0.4054054
                   1.7060811
## [40] 0.4000000
                   1.6833333
## [41] 0.3958333
                   1.6657986
## [42] 0.3846154
                   1.6185897
## [43] 0.3823529
                   1.6090686
## [44] 0.3809524
                   1.6031746
## [45] 0.3809524
                   1.6031746
## [46] 0.3809524
                   1.6031746
## [47] 0.3800000
                   1.5991667
## [48] 0.3773585
                   1.5880503
## [49] 0.3750000
                   1.5781250
## [50] 0.3461538
                   1.4567308
## [51] 0.3287671 1.3835616
```

```
## [52] 0.3166667
                   1.3326389
   [53] 0.3157895
                   1.3289474
   [54] 0.3157895
                   1.3289474
   [55] 0.3116883
                   1.3116883
##
   [56] 0.3050847
                   1.2838983
   [57] 0.2923077
                   1.2301282
##
##
   [58] 0.2365591
                   0.9955197
##
        lhs
                                              support
                                                         confidence lift
## [1]
        {type=fish}
                          => {airborne=FALSE} 0.1287129 1.0000000 1.3116883
##
   [2]
        {fins=TRUE}
                          => {airborne=FALSE} 0.1683168 1.0000000
                                                                    1.3116883
  [3]
        {breathes=FALSE} => {airborne=FALSE} 0.2079208 1.0000000
                                                                    1.3116883
   [4]
##
        {legs=FALSE}
                         => {airborne=FALSE} 0.2277228 1.0000000
                                                                    1.3116883
##
   [5]
        {toothed=TRUE}
                          => {airborne=FALSE} 0.5841584 0.9672131
                                                                    1.2686821
        {eggs=FALSE}
##
   [6]
                         => {airborne=FALSE} 0.3960396 0.9523810
                                                                    1.2492270
  [7]
##
        {milk=TRUE}
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                    1.2477035
##
  [8]
        {type=mammal}
                          => {airborne=FALSE} 0.3861386 0.9512195
                                                                    1.2477035
        {catsize=TRUE}
##
  [9]
                          => {airborne=FALSE} 0.4059406 0.9318182
                                                                    1.2222550
                         => {airborne=FALSE} 0.4851485 0.8750000
  [10] {predator=TRUE}
                                                                    1.1477273
  [11] {aquatic=TRUE}
                          => {airborne=FALSE} 0.3069307 0.8611111
                                                                    1.1295094
  [12] {hair=TRUE}
                          => {airborne=FALSE} 0.3663366 0.8604651
                                                                    1.1286620
##
  [13] {backbone=TRUE}
                         => {airborne=FALSE} 0.6435644 0.7831325
                                                                    1.0272258
                          => {airborne=FALSE} 0.1980198 0.7692308
  [14] {tail=FALSE}
                                                                    1.0089910
  [15] {tail=TRUE}
                          => {airborne=FALSE} 0.5643564 0.7600000
                                                                    0.9968831
  [16] {aquatic=FALSE}
                          => {airborne=FALSE} 0.4554455 0.7076923
                                                                    0.9282717
  [17] {hair=FALSE}
                          => {airborne=FALSE} 0.3960396 0.6896552
                                                                    0.9046126
  [18] {backbone=FALSE} => {airborne=FALSE} 0.1188119 0.6666667
                                                                    0.8744589
                         => {airborne=FALSE} 0.3762376 0.6333333
##
  [19] {milk=FALSE}
                                                                    0.8307359
##
  [20] {eggs=TRUE}
                          => {airborne=FALSE} 0.3663366 0.6271186
                                                                    0.8225842
  [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.6222222
                                                                    0.8161616
##
  [22] {toothed=FALSE}
                         => {airborne=FALSE} 0.1782178 0.4500000
                                                                    0.5902597
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
##
  [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
   [2] {eggs=TRUE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
   [3] {milk=FALSE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
      {backbone=TRUE, catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
   Γ41
##
       lift
##
  [1] 3.060606
##
  [2] 1.603175
   [3] 1.603175
  [4] 1.578125
##
##
       lhs
                                     rhs
                                                     support
                                                                confidence
  [1] {toothed=FALSE,tail=TRUE} => {airborne=TRUE} 0.1584158 0.6956522
##
   [2] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
  [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4000000
                                  => {airborne=TRUE} 0.1584158 0.3809524
  [5] {hair=FALSE,tail=TRUE}
##
   [6] {legs=TRUE,tail=TRUE}
                                    {airborne=TRUE} 0.1782178 0.3157895
                                  => {airborne=TRUE} 0.1782178 0.3050847
##
   [7] {fins=FALSE,tail=TRUE}
##
       lift
## [1] 2.927536
##
  [2] 1.726496
## [3] 1.706081
## [4] 1.683333
## [5] 1.603175
```

```
## [6] 1.328947
## [7] 1.283898
##
       lhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
## [2] {eggs=TRUE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5862069
## [3] {milk=FALSE,aquatic=FALSE}
                                     => {airborne=TRUE} 0.1683168 0.5666667
## [4] {aquatic=FALSE, catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
                                     => {airborne=TRUE} 0.1287129 0.5000000
## [5] {hair=FALSE,aquatic=FALSE}
##
  [6] {aquatic=FALSE,legs=TRUE}
                                     => {airborne=TRUE} 0.1881188 0.3166667
##
       lift
## [1] 2.649691
## [2] 2.466954
## [3] 2.384722
## [4] 2.104167
## [5] 2.104167
## [6] 1.332639
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
## [2] {hair=FALSE,aquatic=FALSE} => {airborne=TRUE} 0.1287129 0.5000000
## [3] {hair=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.5000000
## [4] {hair=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.4864865
## [5] {hair=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.1782178 0.4186047
## [6] {hair=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.3809524
## [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
##
       lift
## [1] 2.104167
## [2] 2.104167
## [3] 2.104167
## [4] 2.047297
## [5] 1.761628
## [6] 1.603175
## [7] 1.456731
##
                                                                 confidence
                                                       support
## [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
## [2] {milk=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1683168 0.5666667
## [3] {milk=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5641026
## [4] {milk=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5500000
## [5] {milk=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.2178218 0.4680851
## [6] {milk=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.4000000
## [7] {milk=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1881188 0.3958333
## [8] {milk=FALSE,venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
## [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
       lift
## [1] 2.427885
## [2] 2.384722
## [3] 2.373932
## [4] 2.314583
## [5] 1.969858
## [6] 1.683333
## [7] 1.665799
## [8] 1.618590
## [9] 1.603175
##
       lhs
                                     rhs
                                                      support
                                                                confidence
## [1] {eggs=TRUE,aquatic=FALSE} => {airborne=TRUE} 0.1683168 0.5862069
```

```
## [2] {eggs=TRUE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
## [3] {eggs=TRUE,breathes=TRUE} => {airborne=TRUE} 0.2178218 0.5641026
## [4] {eggs=TRUE,legs=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5500000
## [5] {eggs=TRUE,fins=FALSE}
                                  => {airborne=TRUE} 0.2178218 0.4782609
## [6] {eggs=TRUE,catsize=FALSE}
                                  => {airborne=TRUE} 0.1881188 0.4130435
## [7] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
## [8] {eggs=TRUE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
## [9] {eggs=TRUE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
       lift
## [1] 2.466954
## [2] 2.427885
## [3] 2.373932
## [4] 2.314583
## [5] 2.012681
## [6] 1.738225
## [7] 1.726496
## [8] 1.603175
## [9] 1.588050
##
       lhs
                                           rhs
                                                           support
## [1] {predator=FALSE, toothed=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [2] {eggs=TRUE,predator=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [3] {milk=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
## [4] {predator=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [5] {hair=FALSE, predator=FALSE}
                                        => {airborne=TRUE} 0.1089109
## [6] {predator=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.1683168
## [7] {predator=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.1683168
  [8] {predator=FALSE,fins=FALSE}
                                       => {airborne=TRUE} 0.1683168
##
   [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
##
       confidence lift
## [1] 0.7142857
                  3.005952
## [2] 0.5769231
                  2.427885
## [3] 0.5769231
                  2.427885
## [4] 0.5172414
                  2.176724
## [5] 0.5000000
                  2.104167
   [6] 0.4358974
                  1.834402
## [7] 0.4146341
                  1.744919
## [8] 0.4146341
                  1.744919
## [9] 0.3823529
                  1.609069
##
       lhs
                                                          support
                                                                    confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
## [2] {predator=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1485149 0.7142857
## [3] {toothed=FALSE,tail=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.6956522
## [4] {toothed=FALSE,breathes=TRUE}
                                      => {airborne=TRUE} 0.2178218 0.6666667
## [5] {aquatic=FALSE,toothed=FALSE}
                                      => {airborne=TRUE} 0.1683168 0.6296296
## [6] {toothed=FALSE,catsize=FALSE}
                                      => {airborne=TRUE} 0.1881188 0.6129032
                                      => {airborne=TRUE} 0.2178218 0.6111111
## [7] {toothed=FALSE,legs=TRUE}
##
  [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
       lift
## [1] 3.060606
## [2] 3.005952
## [3] 2.927536
## [4] 2.805556
## [5] 2.649691
## [6] 2.579301
```

```
[7] 2.571759
   [8] 2.337963
   [1] "Número de reglas con consecuente negado"
##
##
                                            rhs
                                                              support
##
   [1]
        {type=fish}
                                            {breathes=FALSE} 0.1287129
##
   [2]
                                            {breathes=FALSE} 0.1287129
        {eggs=TRUE,fins=TRUE}
##
   [3]
        {milk=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
##
   [4]
        {hair=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
##
   [5]
        {aquatic=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
##
   [6]
        {milk=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
   [7]
        {eggs=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
##
   [8]
        {legs=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
##
   [9]
        {hair=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
                                            {breathes=FALSE} 0.1188119
       {predator=TRUE,legs=FALSE}
       {milk=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
  [11]
   [12] {feathers=FALSE, aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
       {milk=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
   [13]
   [14] {aquatic=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
                                            {breathes=FALSE} 0.1287129
   [15] {eggs=TRUE,toothed=TRUE}
   [16] {airborne=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
##
  [17] {eggs=TRUE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1881188
  [18] {hair=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [19] {aquatic=TRUE, toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
   [20] {hair=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
  [21] {hair=FALSE, feathers=FALSE}
                                            {breathes=FALSE} 0.2079208
   [22] {milk=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
   [23] {eggs=TRUE,airborne=FALSE}
                                            {breathes=FALSE} 0.1980198
   [24] {hair=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
  [25] {feathers=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
   [26] {feathers=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
        {milk=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
##
   [28]
       {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
   [29] {hair=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [30] {airborne=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [31] {predator=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1188119
##
   [32] {hair=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
   [33] {feathers=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
  [34] {hair=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
##
        {hair=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
   [35]
##
   [36]
       {hair=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [37]
       {milk=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
       {feathers=FALSE, predator=TRUE}
                                            {breathes=FALSE} 0.1683168
   [38]
   [39]
       {eggs=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1881188
  [40] {airborne=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
  [41] {domestic=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
  [42]
        {airborne=FALSE,domestic=FALSE}
                                         =>
                                            {breathes=FALSE} 0.1980198
   [43]
       {feathers=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
   [44] {feathers=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
   [45] {toothed=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1287129
##
   [46] {tail=TRUE}
                                         => {breathes=FALSE} 0.1386139
##
        confidence lift
## [1]
        1.0000000 4.8095238
##
  [2]
        1.0000000 4.8095238
## [3]
        1.0000000 4.8095238
```

```
[4]
        0.8666667
                    4.1682540
##
   [5]
        0.8333333
                    4.0079365
##
   [6]
        0.8000000
                    3.8476190
   [7]
##
        0.7894737
                    3.7969925
##
   [8]
        0.7500000
                    3.6071429
##
   [9]
        0.7272727
                    3.4978355
   [10] 0.7058824
                    3.3949580
   [11] 0.6666667
                    3.2063492
##
   [12] 0.6666667
                    3.2063492
   [13] 0.6666667
                    3.2063492
   [14] 0.6521739
                    3.1366460
   [15] 0.6500000
                    3.1261905
##
   [16] 0.6451613
                    3.1029186
   [17] 0.6333333
                    3.0460317
   [18] 0.6250000
                    3.0059524
   [19] 0.6086957
                    2.9275362
##
   [20] 0.6086957
                    2.9275362
   [21] 0.5526316
                    2.6578947
   [22] 0.5526316
                    2.6578947
   [23] 0.5405405
                    2.5997426
##
   [24] 0.5250000
                    2.5250000
   [25] 0.5250000
                    2.5250000
                    2.4664225
##
   [26] 0.5128205
##
   [27] 0.5000000
                    2.4047619
   [28] 0.4848485
                    2.3318903
   [29] 0.4722222
                    2.2711640
   [30] 0.444444
##
                    2.1375661
##
   [31] 0.4285714
                    2.0612245
   [32] 0.3750000
                    1.8035714
   [33] 0.3720930
                    1.7895903
##
   [34] 0.3703704
                    1.7813051
##
   [35] 0.3703704
                    1.7813051
   [36] 0.3636364
                    1.7489177
##
   [37]
        0.3636364
                    1.7489177
   [38]
        0.3617021
                    1.7396150
##
   [39] 0.3518519
                    1.6922399
   [40] 0.3469388
                    1.6686103
   [41] 0.3000000
##
                    1.4428571
   [42] 0.2941176
##
                    1.4145658
##
   [43] 0.2876712
                    1.3835616
   [44] 0.2816901
                    1.3547954
   [45] 0.2500000
                    1.2023810
##
   Γ461
       0.1866667
                    0.8977778
##
        lhs
                                               support
                                                         confidence lift
##
  [1]
        {type=bird}
                          => {breathes=TRUE} 0.1980198 1.0000000
                                                                     1.2625000
   [2]
                              {breathes=TRUE} 0.1980198 1.0000000
##
        {feathers=TRUE}
                                                                     1.2625000
##
   [3]
        {airborne=TRUE}
                              {breathes=TRUE} 0.2376238 1.0000000
                                                                     1.2625000
   [4]
##
        {milk=TRUE}
                              {breathes=TRUE} 0.4059406 1.0000000
                                                                     1.2625000
##
   [5]
        {type=mammal}
                             {breathes=TRUE} 0.4059406 1.0000000
                                                                     1.2625000
##
   [6]
        {hair=TRUE}
                              {breathes=TRUE} 0.4257426 1.0000000
                                                                     1.2625000
   [7]
##
        {aquatic=FALSE}
                              {breathes=TRUE} 0.6336634 0.9846154
                          =>
                                                                     1.2430769
##
   [8]
        {eggs=FALSE}
                              {breathes=TRUE} 0.4059406 0.9761905
                                                                     1.2324405
##
   [9]
        {legs=TRUE}
                          => {breathes=TRUE} 0.7227723 0.9358974
                                                                     1.1815705
## [10] {domestic=TRUE}
                          => {breathes=TRUE} 0.1188119 0.9230769
```

```
## [11] {predator=FALSE} => {breathes=TRUE} 0.4059406 0.9111111
                                                                  1.1502778
                         => {breathes=TRUE} 0.3861386 0.8863636
  [12] {catsize=TRUE}
                                                                  1.1190341
                         => {breathes=TRUE} 0.3267327 0.8250000
  [13] {toothed=FALSE}
                                                                  1.0415625
                         => {breathes=TRUE} 0.6039604 0.8133333
  [14] {tail=TRUE}
                                                                  1.0268333
  [15] {domestic=FALSE}
                         => {breathes=TRUE} 0.6732673 0.7727273
                                                                  0.9755682
  [16] {tail=FALSE}
                         => {breathes=TRUE} 0.1881188 0.7307692
                                                                  0.9225962
  [17] {airborne=FALSE} => {breathes=TRUE} 0.5544554 0.7272727
                                                                  0.9181818
## [18] {catsize=FALSE}
                         => {breathes=TRUE} 0.4059406 0.7192982
                                                                  0.9081140
##
  [19] {predator=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6964286
                                                                  0.8792411
   [20] {eggs=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6610169
                                                                  0.8345339
  [21] {milk=FALSE}
                         => {breathes=TRUE} 0.3861386 0.6500000
                                                                  0.8206250
   [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
##
                                                                  0.7715278
##
       lhs
                                           rhs
                                                            support
##
  [1] {hair=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
  [2] {milk=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
   [3] {eggs=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1881188
   [4] {domestic=FALSE, catsize=FALSE}
                                        => {breathes=FALSE} 0.1485149
  [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [7] {toothed=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1287129
##
       confidence lift
  [1] 0.3703704 1.781305
##
  [2] 0.3636364
                  1.748918
   [3] 0.3518519
                  1.692240
  [4] 0.3000000
                  1.442857
  [5] 0.2941176
                  1.414566
   [6] 0.2816901
                  1.354795
##
   [7] 0.2500000
                  1.202381
##
       lhs
                                           rhs
                                                            support
  [1] {airborne=FALSE,aquatic=TRUE}
                                        => {breathes=FALSE} 0.1980198
   [2] {milk=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
   [3] {eggs=TRUE,airborne=FALSE}
                                        => {breathes=FALSE} 0.1980198
  [4] {hair=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
  [5] {airborne=FALSE, catsize=FALSE}
                                       => {breathes=FALSE} 0.1584158
   [6] {airborne=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
##
   [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
##
       confidence lift
   [1] 0.6451613
                  3.102919
   [2] 0.5526316
                  2.657895
  [3] 0.5405405
                  2.599743
  [4] 0.5250000
                  2.525000
   [5] 0.444444
                  2.137566
   [6] 0.3469388
                  1.668610
## [7] 0.2941176
                  1.414566
## [8] 0.2876712
                  1.383562
##
       lhs
                                                           support
##
  [1] {legs=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [2] {aquatic=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1485149
   [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
   [4] {predator=TRUE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [5] {feathers=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
## [6] {hair=FALSE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1584158
## [7] {domestic=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1485149
```

```
confidence lift
##
  [1] 0.7500000 3.607143
##
   [2] 0.6521739
                  3.136646
   [3] 0.444444
                  2.137566
   [4] 0.4285714
                  2.061224
   [5] 0.3720930
##
                  1.789590
   [6] 0.3636364
                  1.748918
##
  [7] 0.3000000
                  1.442857
##
       lhs
                                          rhs
                                                           support
##
  [1] {predator=TRUE,legs=FALSE}
                                       => {breathes=FALSE} 0.1188119
   [2] {milk=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
   [3] {eggs=TRUE,predator=TRUE}
                                       => {breathes=FALSE} 0.1584158
   [4] {hair=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
##
   [5] {predator=TRUE,catsize=FALSE}
                                       => {breathes=FALSE} 0.1188119
  [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
##
       confidence lift
  [1] 0.7058824
                  3.394958
##
   [2] 0.5000000
##
                  2.404762
   [3] 0.4848485
                  2.331890
##
   [4] 0.4722222
                  2.271164
  [5] 0.4285714
                  2.061224
   [6] 0.3617021
##
                  1.739615
##
   [7] 0.3469388
                  1.668610
##
       lhs
                                      rhs
                                                       support
                                                                  confidence
  [1] {eggs=TRUE,fins=TRUE}
                                   => {breathes=FALSE} 0.1287129 1.0000000
   [2] {eggs=TRUE,legs=FALSE}
                                   => {breathes=FALSE} 0.1485149 0.7894737
   [3] {eggs=TRUE,toothed=TRUE}
                                      {breathes=FALSE} 0.1287129 0.6500000
  [4] {eggs=TRUE,aquatic=TRUE}
                                   => {breathes=FALSE} 0.1881188 0.6333333
  [5] {eggs=TRUE,airborne=FALSE} =>
                                      {breathes=FALSE} 0.1980198 0.5405405
   [6] {feathers=FALSE,eggs=TRUE} =>
                                      {breathes=FALSE} 0.1980198 0.5128205
   [7] {eggs=TRUE,predator=TRUE}
                                   => {breathes=FALSE} 0.1584158 0.4848485
   [8] {hair=FALSE,eggs=TRUE}
                                   => {breathes=FALSE} 0.1980198 0.3703704
##
   [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
       lift
## [1] 4.809524
  [2] 3.796992
  [3] 3.126190
##
   [4] 3.046032
##
  [5] 2.599743
  [6] 2.466422
   [7] 2.331890
##
##
   [8] 1.781305
##
   [9] 1.692240
##
       lhs
                                                        support
                                                                   confidence
  [1] {milk=FALSE,fins=TRUE}
                                      {breathes=FALSE} 0.1287129 1.0000000
##
##
   [2] {milk=FALSE,legs=FALSE}
                                      {breathes=FALSE} 0.1584158 0.8000000
   [3] {milk=FALSE,aquatic=TRUE}
                                    => {breathes=FALSE} 0.1980198 0.6666667
   [4] {milk=FALSE, toothed=TRUE}
                                    => {breathes=FALSE} 0.1386139 0.6666667
   [5] {milk=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208 0.5526316
   [6] {feathers=FALSE,milk=FALSE} => {breathes=FALSE} 0.2079208 0.5250000
  [7] {milk=FALSE,predator=TRUE}
                                    => {breathes=FALSE} 0.1683168 0.5000000
## [8] {hair=FALSE,milk=FALSE}
                                    => {breathes=FALSE} 0.2079208 0.3750000
## [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
```

```
lift
##
  [1] 4.809524
##
   [2] 3.847619
   [3] 3.206349
##
   [4] 3.206349
   [5] 2.657895
##
   [6] 2.525000
##
   [7] 2.404762
##
   [8] 1.803571
   [9] 1.748918
       "Número de reglas con consecuente negado"
##
                                                             support
        {type=bird}
##
   [1]
                                            {feathers=TRUE} 0.1980198
##
   [2]
        {toothed=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [3]
##
        {hair=FALSE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
##
   [4]
        {airborne=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1584158
   [5]
##
        {airborne=TRUE,backbone=TRUE}
                                            {feathers=TRUE} 0.1584158
   [6]
        {toothed=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
##
   [7]
        {airborne=TRUE, toothed=FALSE}
                                            {feathers=TRUE} 0.1584158
##
   [8]
        {eggs=TRUE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
##
   [9]
        {milk=FALSE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
  [10] {airborne=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1584158
   [11] {toothed=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1980198
##
   [12] {hair=FALSE,toothed=FALSE}
   [13] {toothed=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [14] {toothed=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [15] {hair=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [16] {hair=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
   [17] {hair=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   [18] {predator=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1089109
   [19]
       {aquatic=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   [20]
       {eggs=TRUE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
       {milk=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
   [22] {eggs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [23] {eggs=TRUE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [24] {milk=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
   [25] {hair=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [26] {eggs=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1980198
##
   [27] {milk=FALSE,tail=TRUE}
##
   [28] {milk=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [29] {eggs=TRUE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   [30] {hair=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [31] {eggs=TRUE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1980198
   [32] {milk=FALSE,backbone=TRUE}
   [33] {milk=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   [34]
        {hair=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [35]
##
        {hair=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [36]
       {eggs=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [37]
       {milk=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [38] {eggs=TRUE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [39]
       {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
  [40] {hair=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
## [41] {milk=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
## [42] {tail=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
```

```
## [43] {eggs=TRUE, venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [44] {hair=FALSE,eggs=TRUE}
                                            {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1980198
   [45] {hair=FALSE,milk=FALSE}
   [46] {legs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [47]
       {backbone=TRUE, catsize=FALSE}
                                             {feathers=TRUE} 0.1386139
##
   [48]
       {hair=FALSE}
                                            {feathers=TRUE} 0.1980198
   [49]
       {eggs=TRUE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
   [50]
        {legs=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [51]
        {breathes=TRUE,catsize=FALSE}
                                             {feathers=TRUE} 0.1386139
   [52]
       {fins=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [53] {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
   [54]
       {breathes=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
       {backbone=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [55]
        {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
        {backbone=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [57]
##
   [58]
        {fins=FALSE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
   [59]
##
        {backbone=TRUE, breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
       {aquatic=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1386139
   [61] {predator=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1089109
   [62]
       {venomous=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [63]
       {venomous=FALSE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
       {breathes=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [64]
   [65]
        {backbone=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
                                             {feathers=TRUE} 0.1980198
##
   [66]
        {venomous=FALSE,legs=TRUE}
   [67]
        {predator=FALSE, breathes=TRUE}
                                            {feathers=TRUE} 0.1089109
   [68] {predator=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1089109
   [69] {breathes=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [70] {aquatic=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1386139
   [71] {breathes=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
  [72] {fins=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [73]
        {venomous=FALSE, fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [74]
        {legs=TRUE,domestic=FALSE}
                                            {feathers=TRUE} 0.1683168
   [75] {predator=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1089109
   [76] {backbone=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1386139
   [77] {aquatic=FALSE, venomous=FALSE}
##
   [78] {aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
   [79] {venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
##
   [80] {domestic=FALSE}
                                         => {feathers=TRUE} 0.1683168
##
        confidence lift
##
   [1]
        1.0000000
                   5.0500000
   [2]
        0.9090909
                   4.5909091
   [3]
##
        0.8888889
                   4.4888889
##
   [4]
        0.888889
                   4.4888889
##
   [5]
        0.888889
                   4.4888889
##
   [6]
        0.8695652
                   4.3913043
   [7]
##
        0.7272727
                   3.6727273
##
   [8]
        0.7272727
                   3.6727273
##
   [9]
        0.7272727
                   3.6727273
       0.7272727
   [10]
                   3.6727273
        0.6060606
                   3.0606061
   [11]
##
                   2.8857143
   [12]
        0.5714286
  [13] 0.5555556
                   2.8055556
## [14] 0.555556
                   2.8055556
                   2.8055556
## [15] 0.555556
```

```
## [16] 0.5405405
                   2.7297297
   [17] 0.5384615
                   2.7192308
   [18] 0.5238095
                   2.6452381
   [19] 0.5185185
                   2.6185185
  [20] 0.5128205
                   2.5897436
  [21] 0.5128205
                   2.5897436
  [22] 0.5128205
                   2.5897436
  [23] 0.5128205
                   2.5897436
   [24] 0.5128205
                   2.5897436
   [25] 0.5000000
                   2.5250000
   [26] 0.5000000
                   2.5250000
   [27] 0.5000000
                   2.5250000
##
   [28] 0.5000000
                   2.5250000
   [29] 0.4827586
                   2.4379310
  [30] 0.4761905
                   2.4047619
   [31] 0.4761905
                   2.4047619
                   2.4047619
   [32] 0.4761905
   [33] 0.4666667
                   2.3566667
                   2.3488372
   [34] 0.4651163
   [35] 0.4545455
                   2.2954545
##
  [36] 0.4347826
                   2.1956522
  [37] 0.4255319
                   2.1489362
  [38] 0.4230769
                   2.1365385
   [39] 0.4230769
##
                   2.1365385
   [40] 0.3846154
                   1.9423077
   [41] 0.3846154
                   1.9423077
   [42] 0.3783784
                   1.9108108
##
   [43] 0.3773585
                   1.9056604
  [44] 0.3703704
                   1.8703704
                   1.8035714
  [45] 0.3571429
   [46] 0.3508772
                   1.7719298
##
   [47] 0.3500000
                   1.7675000
   [48] 0.3448276
                   1.7413793
   [49] 0.3448276
                   1.7413793
   [50] 0.3414634
                   1.7243902
##
   [51] 0.3414634
                   1.7243902
   [52] 0.3389831
                   1.7118644
  [53] 0.3333333
##
                   1.6833333
   [54] 0.3278689
##
                   1.6557377
##
   [55] 0.3125000
                   1.5781250
   [56] 0.3055556
                   1.5430556
   [57] 0.3030303
                   1.5303030
   [58] 0.2916667
                   1.4729167
##
   [59] 0.2898551
                   1.4637681
  [60] 0.2857143
                   1.4428571
   [61] 0.2820513
                   1.4243590
##
   [62] 0.2816901
                   1.4225352
   [63] 0.2800000
                   1.4140000
   [64] 0.2739726
                   1.3835616
   [65] 0.2702703
                   1.3648649
##
   [66] 0.2702703
                   1.3648649
  [67] 0.2682927
                   1.3548780
## [68] 0.2682927
                   1.3548780
## [69] 0.2666667
                   1.3466667
```

```
## [70] 0.2641509
                   1.3339623
   [71] 0.2631579
                   1.3289474
   [72] 0.2597403
                   1.3116883
  [73] 0.2597403
                   1.3116883
   [74] 0.2575758
                   1.3007576
   [75] 0.2558140
                   1.2918605
##
   [76] 0.2531646
                   1.2784810
   [77] 0.2295082
                   1.1590164
   [78] 0.2153846
                   1.0876923
   [79] 0.2150538
                   1.0860215
   [80] 0.1931818
                   0.9755682
##
        lhs
                                               support
                                                         confidence lift
##
  [1]
                          => {feathers=FALSE} 0.1287129 1.0000000
        {type=fish}
                                                                    1.2469136
        {fins=TRUE}
##
   [2]
                          => {feathers=FALSE} 0.1683168 1.0000000
  [3]
##
        {backbone=FALSE} => {feathers=FALSE} 0.1782178 1.0000000
                                                                    1.2469136
##
   [4]
        {breathes=FALSE} =>
                             {feathers=FALSE} 0.2079208 1.0000000
                                                                    1.2469136
   [5]
##
                          => {feathers=FALSE} 0.2277228 1.0000000
        {legs=FALSE}
                                                                    1.2469136
   [6]
        {tail=FALSE}
                          => {feathers=FALSE} 0.2574257 1.0000000
##
                                                                    1.2469136
##
  [7]
                          => {feathers=FALSE} 0.4158416 1.0000000
        {eggs=FALSE}
                                                                    1.2469136
##
   [8]
        {hair=TRUE}
                          => {feathers=FALSE} 0.4257426 1.0000000
                                                                    1.2469136
##
  [9]
        {airborne=FALSE}
                         => {feathers=FALSE} 0.7227723 0.9480519
                                                                    1.1821388
                          => {feathers=FALSE} 0.3762376 0.8636364
  [10] {catsize=TRUE}
                                                                    1.0768799
  [11] {predator=TRUE}
                          => {feathers=FALSE} 0.4653465 0.8392857
                                                                    1.0465168
##
  [12] {aquatic=TRUE}
                             {feathers=FALSE} 0.2970297 0.8333333
                                                                    1.0390947
  [13] {aquatic=FALSE}
                          => {feathers=FALSE} 0.5049505 0.7846154
                                                                    0.9783476
  [14] {predator=FALSE}
                         => {feathers=FALSE} 0.3366337 0.7555556
                                                                    0.9421125
   [15] {catsize=FALSE}
                         => {feathers=FALSE} 0.4257426 0.7543860
                                                                    0.9406541
   [16] {breathes=TRUE}
                          => {feathers=FALSE} 0.5940594 0.7500000
                                                                    0.9351852
  [17] {legs=TRUE}
                          => {feathers=FALSE} 0.5742574 0.7435897
                                                                    0.9271921
  [18] {milk=FALSE}
                          => {feathers=FALSE} 0.3960396 0.6666667
                                                                    0.8312757
   [19] {eggs=TRUE}
                         => {feathers=FALSE} 0.3861386 0.6610169
                                                                    0.8242310
   [20] {hair=FALSE}
                          => {feathers=FALSE} 0.3762376 0.6551724
                                                                    0.8169434
##
   [21] {toothed=FALSE}
                         => {feathers=FALSE} 0.1980198 0.5000000
                                                                    0.6234568
##
       lhs
                                          rhs
                                                           support
                                                                     confidence
   [1] {hair=FALSE,aquatic=FALSE}
                                          {feathers=TRUE} 0.1386139 0.5384615
##
   [2] {aquatic=FALSE,toothed=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5185185
  [3] {eggs=TRUE,aquatic=FALSE}
                                          {feathers=TRUE} 0.1386139 0.4827586
  [4] {milk=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4666667
  [5] {aquatic=FALSE,tail=TRUE}
                                          {feathers=TRUE} 0.1386139 0.2857143
##
   [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
   [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
       lift.
## [1] 2.719231
   [2] 2.618519
  [3] 2.437931
##
  [4] 2.356667
##
   [5] 1.442857
   [6] 1.333962
##
   [7]
       1.159016
##
        lhs
                                                             support
##
  [1]
        {predator=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1089109
##
  [2]
        {hair=FALSE, predator=FALSE}
                                            {feathers=TRUE} 0.1089109
## [3]
        {eggs=TRUE,predator=FALSE}
                                         => {feathers=TRUE} 0.1089109
## [4]
        {milk=FALSE, predator=FALSE}
                                            {feathers=TRUE} 0.1089109
```

```
{predator=FALSE,tail=TRUE}
                                          => {feathers=TRUE} 0.1089109
                                         => {feathers=TRUE} 0.1089109
##
   [6]
        {predator=FALSE,backbone=TRUE}
        {predator=FALSE,legs=TRUE}
   [7]
                                          => {feathers=TRUE} 0.1089109
   [8]
        {predator=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1089109
##
##
   [9]
        {predator=FALSE,fins=FALSE}
                                          => {feathers=TRUE} 0.1089109
   [10] {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
##
        confidence lift
## [1]
        0.5238095 2.645238
##
   [2]
        0.5000000
                   2.525000
##
   [3]
        0.4230769
                   2.136538
   [4]
        0.4230769
                   2.136538
##
   [5]
        0.3333333
                   1.683333
##
   [6]
        0.3055556
                   1.543056
##
   [7]
        0.2820513
                    1.424359
  [8]
        0.2682927
##
                    1.354878
##
   [9]
        0.2682927
                    1.354878
##
   [10] 0.2558140
                   1.291860
##
       lhs
                                                           support
                                                                      confidence
                                        => {feathers=TRUE} 0.1386139 0.3783784
## [1] {tail=TRUE,catsize=FALSE}
   [2] {backbone=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3500000
  [3] {legs=TRUE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.3414634
## [4] {breathes=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
  [5] {fins=FALSE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.2916667
   [6] {venomous=FALSE, catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
##
       lift
## [1] 1.910811
  [2] 1.767500
   [3] 1.724390
## [4] 1.724390
  [5] 1.472917
##
   [6] 1.414000
##
        lhs
                                            rhs
                                                             support
##
  [1]
        {toothed=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
   [2]
##
        {hair=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
   [3]
        {eggs=TRUE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
##
   [4]
        {milk=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [5]
        {breathes=TRUE, catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139
##
  [6]
        {breathes=TRUE, tail=TRUE}
                                        => {feathers=TRUE} 0.1980198
   [7]
        {backbone=TRUE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
##
  [8]
##
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [9]
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
       {breathes=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198
   [10]
##
       {breathes=TRUE,fins=FALSE}
                                        => {feathers=TRUE} 0.1980198
##
        confidence lift
## [1]
        0.6060606 3.060606
  [2]
                   2.729730
##
        0.5405405
##
   [3]
        0.5128205
                   2.589744
##
   [4]
        0.5128205
                   2.589744
##
   [5]
        0.3414634
                    1.724390
##
   [6]
        0.3278689
                    1.655738
##
   [7]
        0.2898551
                    1.463768
## [8]
        0.2739726
                    1.383562
## [9]
        0.2682927
                    1.354878
## [10] 0.2666667
                   1.346667
```

```
[11] 0.2631579 1.328947
##
        lhs
                                       rhs
                                                                   confidence
                                                        support
        {toothed=FALSE,legs=TRUE}
##
  [1]
                                    => {feathers=TRUE} 0.1980198 0.5555556
   [2]
        {hair=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5555556
##
   [3]
        {eggs=TRUE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5000000
   [4]
                                    => {feathers=TRUE} 0.1980198 0.5000000
##
        {milk=FALSE,legs=TRUE}
        {legs=TRUE,tail=TRUE}
##
   [5]
                                    => {feathers=TRUE} 0.1980198 0.3508772
##
   [6]
        {legs=TRUE,catsize=FALSE}
                                    => {feathers=TRUE} 0.1386139 0.3414634
##
   [7]
        {backbone=TRUE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.3125000
##
   [8]
        {predator=FALSE,legs=TRUE} => {feathers=TRUE} 0.1089109 0.2820513
        {breathes=TRUE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.2739726
   [10] {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
   [11] {fins=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.2597403
##
   [12]
       {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
##
        lift
##
   [1]
        2.805556
   [2]
##
        2.805556
##
   [3]
        2.525000
   [4]
##
        2.525000
##
   [5]
        1.771930
##
   [6]
        1.724390
   [7]
        1.578125
   [8]
##
        1.424359
   [9]
##
        1.383562
  [10] 1.364865
   [11] 1.311688
   [12]
##
       1.300758
##
        lhs
                                        rhs
                                                         support
                                                                    confidence
##
  [1]
        {milk=FALSE,airborne=TRUE}
                                     => {feathers=TRUE} 0.1584158 0.7272727
   [2]
        {milk=FALSE,toothed=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
##
   [3]
        {milk=FALSE, breathes=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
##
   [4]
        {milk=FALSE,tail=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
   [5]
        {milk=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
                                     => {feathers=TRUE} 0.1980198 0.4761905
##
   [6]
        {milk=FALSE,backbone=TRUE}
   [7]
        {milk=FALSE,aquatic=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.4666667
                                     => {feathers=TRUE} 0.1980198 0.4255319
##
   [8]
        {milk=FALSE,fins=FALSE}
        {milk=FALSE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
  [10] {milk=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3846154
   [11] {hair=FALSE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3571429
                                     => {feathers=TRUE} 0.1980198 0.3448276
##
   [12] {eggs=TRUE,milk=FALSE}
##
        lift
##
   [1]
        3.672727
##
   [2]
        2.589744
##
   [3]
        2.589744
  [4]
##
        2.525000
   [5]
        2.525000
##
##
   [6]
        2.404762
##
   [7]
        2.356667
   [8]
        2.148936
##
   [9]
        2.136538
   [10] 1.942308
##
## [11] 1.803571
## [12] 1.741379
##
        lhs
                                                        support
                                                                   confidence
                                       rhs
```

```
{eggs=TRUE,airborne=TRUE}
## [1]
                                    => {feathers=TRUE} 0.1584158 0.7272727
                                    => {feathers=TRUE} 0.1980198 0.5128205
##
   [2]
        {eggs=TRUE,toothed=FALSE}
        {eggs=TRUE,tail=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
   [3]
   [4]
                                    => {feathers=TRUE} 0.1980198 0.5128205
##
        {eggs=TRUE,breathes=TRUE}
##
   [5]
        {eggs=TRUE,legs=TRUE}
                                       {feathers=TRUE} 0.1980198 0.5000000
##
   [6]
        {eggs=TRUE,aquatic=FALSE}
                                       {feathers=TRUE} 0.1386139 0.4827586
   [7]
        {eggs=TRUE,backbone=TRUE}
                                        {feathers=TRUE} 0.1980198 0.4761905
##
   [8]
        {eggs=TRUE,fins=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.4347826
##
   [9]
        {eggs=TRUE,predator=FALSE} =>
                                        {feathers=TRUE} 0.1089109 0.4230769
   [10] {eggs=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198 0.3773585
   [11] {hair=FALSE,eggs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.3703704
                                    => {feathers=TRUE} 0.1980198 0.3448276
##
   [12]
       {eggs=TRUE,milk=FALSE}
##
        lift
##
   [1]
        3.672727
   [2]
        2.589744
##
##
   [3]
        2.589744
   [4]
##
        2.589744
   [5]
        2.525000
   [6]
##
        2.437931
##
   [7]
        2.404762
##
   [8]
        2.195652
   [9]
        2.136538
  [10] 1.905660
   「11〕 1.870370
##
   [12] 1.741379
        lhs
                                                         support
                                                                    confidence
##
   [1]
                                     => {feathers=TRUE} 0.1584158 0.8888889
        {hair=FALSE,airborne=TRUE}
##
   [2]
        {hair=FALSE,toothed=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.5714286
   [3]
##
        {hair=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5555556
##
  [4]
        {hair=FALSE,breathes=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5405405
##
   [5]
        {hair=FALSE,aquatic=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.5384615
##
   [6]
        {hair=FALSE,predator=FALSE}
                                     => {feathers=TRUE} 0.1089109 0.5000000
##
   [7]
        {hair=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
   [8]
                                      => {feathers=TRUE} 0.1980198 0.4651163
##
        {hair=FALSE,fins=FALSE}
        {hair=FALSE,backbone=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.4545455
   [9]
   [10] {hair=FALSE, venomous=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3846154
##
   [11] {hair=FALSE,eggs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.3703704
   [12] {hair=FALSE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3571429
##
##
        lift
##
  [1]
        4.488889
   [2]
        2.885714
   [3]
        2.805556
##
##
   [4]
        2.729730
##
   [5]
        2.719231
##
   [6]
        2.525000
   [7]
        2.404762
##
##
   [8]
        2.348837
   [9]
        2.295455
   [10] 1.942308
   [11]
       1.870370
##
##
   [12]
       1.803571
##
        lhs
                                            rhs
                                                             support
## [1]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [2]
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
```

```
{airborne=TRUE, toothed=FALSE}
                                        => {feathers=TRUE} 0.1584158
##
   [4]
        {toothed=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
   [5]
        {hair=FALSE,toothed=FALSE}
                                        => {feathers=TRUE} 0.1980198
   [6]
        {toothed=FALSE,legs=TRUE}
                                        => {feathers=TRUE} 0.1980198
##
##
   [7]
        {toothed=FALSE, venomous=FALSE}
                                        => {feathers=TRUE} 0.1980198
##
   [8]
        {predator=FALSE, toothed=FALSE} => {feathers=TRUE} 0.1089109
        {aquatic=FALSE, toothed=FALSE}
   [9]
                                        => {feathers=TRUE} 0.1386139
   [10]
       {eggs=TRUE,toothed=FALSE}
                                        => {feathers=TRUE} 0.1980198
##
   [11] {milk=FALSE,toothed=FALSE}
                                        => {feathers=TRUE} 0.1980198
##
        confidence lift
##
   [1]
        0.9090909
                   4.590909
   [2]
##
        0.8695652
                   4.391304
##
   [3]
        0.7272727
                   3.672727
##
   [4]
        0.6060606
                   3.060606
   [5]
                   2.885714
##
        0.5714286
##
   [6]
        0.555556
                   2.805556
##
   [7]
        0.555556
                   2.805556
   [8]
        0.5238095
                   2.645238
                   2.618519
##
   [9]
        0.5185185
   [10] 0.5128205
                   2.589744
##
   [11] 0.5128205
                   2.589744
##
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {aquatic=TRUE, catsize=TRUE}
                                         => {predator=TRUE} 0.1188119
   [2]
        {breathes=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.1683168
   [3]
        {aquatic=TRUE,fins=FALSE}
                                            {predator=TRUE} 0.1584158
   [4]
##
        {airborne=FALSE,aquatic=TRUE}
                                            {predator=TRUE} 0.2574257
##
   [5]
        {aquatic=TRUE,legs=TRUE}
                                            {predator=TRUE} 0.1485149
   [6]
##
        {feathers=FALSE, aquatic=TRUE}
                                            {predator=TRUE} 0.2475248
##
  [7]
        {fins=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.1287129
##
  [8]
        {aquatic=TRUE,breathes=TRUE}
                                             {predator=TRUE} 0.1287129
##
   [9]
        {breathes=FALSE}
                                             {predator=TRUE} 0.1683168
  [10] {aquatic=TRUE}
                                             {predator=TRUE} 0.2871287
  [11] {backbone=TRUE,legs=FALSE}
                                            {predator=TRUE} 0.1485149
        {hair=FALSE,toothed=TRUE}
                                             {predator=TRUE} 0.1782178
##
  [13] {legs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.1683168
  [14] {fins=TRUE}
                                             {predator=TRUE} 0.1287129
  [15] {milk=FALSE,toothed=TRUE}
                                             {predator=TRUE} 0.1584158
   [16] {eggs=TRUE,toothed=TRUE}
                                             {predator=TRUE} 0.1485149
  [17] {hair=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2871287
  [18] {hair=FALSE, feathers=FALSE}
                                            {predator=TRUE} 0.2673267
  [19] {milk=FALSE,airborne=FALSE}
                                            {predator=TRUE} 0.2673267
  [20] {eggs=TRUE,airborne=FALSE}
                                            {predator=TRUE} 0.2574257
  [21] {airborne=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.4653465
  [22] {domestic=FALSE,catsize=TRUE}
                                            {predator=TRUE} 0.2574257
## [23] {toothed=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.3465347
  [24]
       {airborne=FALSE, toothed=FALSE}
                                            {predator=TRUE} 0.1188119
  [25] {hair=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.3564356
  [26] {catsize=TRUE}
                                            {predator=TRUE} 0.2772277
        {feathers=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.4455446
  [28] {backbone=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4455446
## [29] {tail=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.4059406
## [30] {feathers=FALSE,milk=FALSE}
                                         => {predator=TRUE} 0.2475248
## [31] {eggs=FALSE,domestic=FALSE}
                                            {predator=TRUE} 0.2079208
```

```
## [32] {feathers=FALSE,eggs=TRUE}
                                          => {predator=TRUE} 0.2376238
   [33] {feathers=FALSE,backbone=TRUE}
                                             {predator=TRUE} 0.3762376
   [34] {milk=FALSE,tail=TRUE}
                                             {predator=TRUE} 0.2376238
  [35] {feathers=FALSE,tail=TRUE}
                                            {predator=TRUE} 0.3267327
   [36] {eggs=TRUE,backbone=TRUE}
                                             {predator=TRUE} 0.2475248
       {milk=FALSE,backbone=TRUE}
                                            {predator=TRUE} 0.2475248
       {eggs=TRUE,tail=TRUE}
   [38]
                                             {predator=TRUE} 0.2277228
       {backbone=TRUE}
   [39]
                                             {predator=TRUE} 0.4653465
##
   [40]
       {eggs=FALSE}
                                             {predator=TRUE} 0.2277228
   [41]
       {venomous=FALSE,tail=FALSE}
                                             {predator=TRUE} 0.1188119
   [42]
       {legs=TRUE}
                                            {predator=TRUE} 0.3861386
   [43]
        {hair=TRUE}
                                            {predator=TRUE} 0.1980198
##
   [44]
       {aquatic=FALSE}
                                          => {predator=TRUE} 0.2673267
##
        confidence lift
##
  [1]
        0.9230769
                   1.6648352
##
   [2]
        0.8500000
                    1.5330357
   [3]
##
        0.8421053
                    1.5187970
   [4]
        0.8387097
                    1.5126728
   [5]
##
        0.8333333
                    1.5029762
   [6]
        0.8333333
                    1.5029762
##
   [7]
        0.8125000
                    1.4654018
   [8]
        0.8125000
                    1.4654018
##
  [9]
        0.8095238
                    1.4600340
   [10] 0.8055556
                    1.4528770
   [11] 0.7894737
                    1.4238722
   [12] 0.7826087
                    1.4114907
   [13] 0.7727273
                    1.3936688
   [14] 0.7647059
                    1.3792017
   [15] 0.7619048
                    1.3741497
  [16] 0.7500000
                    1.3526786
   [17] 0.7250000
                    1.3075893
   [18] 0.7105263
                    1.2814850
   [19] 0.7105263
                    1.2814850
   [20] 0.7027027
                    1.2673745
   [21] 0.6911765
                    1.2465861
   [22] 0.6842105
                    1.2340226
   [23] 0.6730769
                    1.2139423
  [24] 0.6666667
                    1.2023810
   [25] 0.6666667
                    1.2023810
   [26] 0.6363636
                    1.1477273
   [27] 0.6338028
                    1.1431087
   [28] 0.6338028
                    1.1431087
   [29] 0.6307692
                    1.1376374
   [30] 0.6250000
                    1.1272321
  [31] 0.6176471
                    1.1139706
   [32] 0.6153846
                    1.1098901
##
   [33] 0.6031746
                    1.0878685
   [34] 0.6000000
                    1.0821429
   [35] 0.6000000
                    1.0821429
   [36]
        0.5952381
                    1.0735544
##
   [37]
                    1.0735544
        0.5952381
  [38] 0.5897436
                    1.0636447
## [39] 0.5662651
                    1.0212995
## [40] 0.5476190 0.9876701
```

```
## [41] 0.5454545 0.9837662
  [42] 0.5000000
                   0.9017857
  [43] 0.4651163
                   0.8388704
  [44] 0.4153846
                   0.7491758
##
                                              support
                                                        confidence lift
## [1]
                         => {predator=FALSE} 0.1089109 0.8461538
                                                                  1.8991453
        {domestic=TRUE}
  [2]
        {airborne=TRUE}
                         => {predator=FALSE} 0.1683168 0.7083333
## [3]
        {type=bird}
                         => {predator=FALSE} 0.1089109 0.5500000
                                                                   1.2344444
##
  ۲4٦
        {feathers=TRUE}
                         => {predator=FALSE} 0.1089109 0.5500000
                                                                   1.2344444
##
  [5]
        {toothed=FALSE}
                         => {predator=FALSE} 0.2079208 0.5250000
                                                                   1.1783333
  [6]
        {catsize=FALSE}
                         => {predator=FALSE} 0.2871287 0.5087719
                                                                   1.1419103
  [7]
##
        {milk=TRUE}
                         => {predator=FALSE} 0.1881188 0.4634146
                                                                   1.0401084
##
  [8]
                         => {predator=FALSE} 0.1881188 0.4634146
        {type=mammal}
                                                                   1.0401084
## [9]
        {tail=FALSE}
                         => {predator=FALSE} 0.1188119 0.4615385
                                                                   1.0358974
                         => {predator=FALSE} 0.1881188 0.4523810
## [10] {eggs=FALSE}
                                                                   1.0153439
  [11] {eggs=TRUE}
                         => {predator=FALSE} 0.2574257 0.4406780
                                                                   0.9890772
  [12] {milk=FALSE}
                         => {predator=FALSE} 0.2574257 0.4333333
                                                                   0.9725926
  [13] {domestic=FALSE} => {predator=FALSE} 0.3366337 0.3863636
  [14] {hair=FALSE}
                         => {predator=FALSE} 0.2178218 0.3793103
                                                                   0.8513410
   [15] {catsize=TRUE}
                         => {predator=FALSE} 0.1584158 0.3636364
                                                                   0.8161616
##
       lhs
                                          rhs
                                                          support
                                                                     confidence
  [1] {airborne=FALSE,toothed=FALSE} => {predator=TRUE} 0.1188119 0.6666667
##
##
       lift.
##
   [1] 1.202381
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
   [1] {venomous=FALSE,tail=FALSE} => {predator=TRUE} 0.1188119 0.5454545
##
       lift
   [1] 0.9837662
##
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
##
   [1] {eggs=FALSE,domestic=FALSE} => {predator=TRUE} 0.2079208 0.6176471
##
       lift
##
  [1] 1.113971
##
       lhs
                                                      support
                                                                confidence
##
  [1] {eggs=TRUE,toothed=TRUE}
                                  => {predator=TRUE} 0.1485149 0.7500000
   [2] {eggs=TRUE,airborne=FALSE} => {predator=TRUE} 0.2574257 0.7027027
   [3] {feathers=FALSE,eggs=TRUE} => {predator=TRUE} 0.2376238 0.6153846
## [4] {eggs=TRUE,backbone=TRUE}
                                  => {predator=TRUE} 0.2475248 0.5952381
  [5] {eggs=TRUE,tail=TRUE}
                                  => {predator=TRUE} 0.2277228 0.5897436
##
##
       lift
## [1] 1.352679
  [2] 1.267375
  [3] 1.109890
  [4] 1.073554
##
   [5] 1.063645
##
       lhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1584158 0.7619048
  [2] {milk=FALSE,airborne=FALSE} => {predator=TRUE} 0.2673267 0.7105263
  [3] {feathers=FALSE,milk=FALSE} => {predator=TRUE} 0.2475248 0.6250000
  [4] {milk=FALSE,tail=TRUE}
                                    => {predator=TRUE} 0.2376238 0.6000000
  [5] {milk=FALSE,backbone=TRUE} => {predator=TRUE} 0.2475248 0.5952381
##
       lift
## [1] 1.374150
## [2] 1.281485
## [3] 1.127232
```

```
## [4] 1.082143
   [5] 1.073554
##
##
        lhs
                                                              support
##
        {breathes=FALSE,domestic=FALSE} =>
   [1]
                                            {predator=TRUE} 0.1683168
##
   [2]
        {fins=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.1287129
        {legs=FALSE,domestic=FALSE}
##
   [3]
                                          => {predator=TRUE} 0.1683168
        {airborne=FALSE,domestic=FALSE} => {predator=TRUE} 0.4653465
   [4]
##
   [5]
        {domestic=FALSE, catsize=TRUE}
                                            {predator=TRUE} 0.2574257
##
   [6]
        {toothed=TRUE,domestic=FALSE}
                                            {predator=TRUE} 0.3465347
##
   [7]
        {hair=FALSE,domestic=FALSE}
                                          => {predator=TRUE} 0.3564356
   [8]
        {feathers=FALSE,domestic=FALSE} => {predator=TRUE} 0.4455446
        {backbone=TRUE,domestic=FALSE}
##
   [9]
                                         => {predator=TRUE} 0.4455446
   [10] {tail=TRUE,domestic=FALSE}
                                          => {predator=TRUE} 0.4059406
##
                                          => {predator=TRUE} 0.2079208
##
   [11] {eggs=FALSE,domestic=FALSE}
##
        confidence lift
##
   [1]
        0.8500000
                   1.533036
   [2]
##
        0.8125000
                   1.465402
        0.7727273
   [3]
                   1.393669
   [4]
##
        0.6911765
                   1.246586
   [5]
        0.6842105
                   1.234023
##
   [6]
        0.6730769
                   1.213942
   [7]
        0.6666667
                   1.202381
  [8]
        0.6338028
                   1.143109
##
   [9]
        0.6338028
                   1.143109
   [10] 0.6307692
                   1.137637
   [11] 0.6176471
                   1.113971
##
       lhs
                                        rhs
                                                        support
                                                                   confidence
##
   [1] {hair=FALSE,toothed=TRUE}
                                    => {predator=TRUE} 0.1782178 0.7826087
   [2] {hair=FALSE,airborne=FALSE} => {predator=TRUE} 0.2871287 0.7250000
   [3] {hair=FALSE,feathers=FALSE} => {predator=TRUE} 0.2673267 0.7105263
##
   [4] {hair=FALSE,domestic=FALSE} => {predator=TRUE} 0.3564356 0.6666667
##
       lift
   [1] 1.411491
   [2] 1.307589
   [3] 1.281485
##
   [4] 1.202381
##
                                                          support
                                                                     confidence
  [1] {aquatic=TRUE, catsize=TRUE}
                                      => {predator=TRUE} 0.1188119 0.9230769
##
   [2] {domestic=FALSE,catsize=TRUE} => {predator=TRUE} 0.2574257 0.6842105
##
       lift.
  [1] 1.664835
   [2] 1.234023
##
       "Número de reglas con consecuente negado"
##
        lhs
                                             rhs
                                                              support
##
  [1]
        {catsize=FALSE, type=bird}
                                          => {airborne=TRUE} 0.1287129
   [2]
        {feathers=TRUE, catsize=FALSE}
##
                                          => {airborne=TRUE} 0.1287129
##
   [3]
        {type=bird}
                                          => {airborne=TRUE} 0.1584158
##
   [4]
        {feathers=TRUE}
                                          => {airborne=TRUE} 0.1584158
   [5]
        {toothed=FALSE,backbone=TRUE}
                                          => {airborne=TRUE} 0.1584158
##
   [6]
        {predator=FALSE, toothed=FALSE}
                                          => {airborne=TRUE} 0.1485149
##
   [7]
        {toothed=FALSE,tail=TRUE}
                                          => {airborne=TRUE} 0.1584158
## [8]
        {toothed=FALSE, breathes=TRUE}
                                          => {airborne=TRUE} 0.2178218
        {aquatic=FALSE, toothed=FALSE}
                                          => {airborne=TRUE} 0.1683168
## [10] {toothed=FALSE,catsize=FALSE}
                                          => {airborne=TRUE} 0.1881188
```

```
## [11] {toothed=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2178218
  [12] {eggs=TRUE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
  [13] {eggs=TRUE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
   [14] {milk=FALSE,predator=FALSE}
                                            {airborne=TRUE} 0.1485149
   [15] {milk=FALSE,aquatic=FALSE}
##
                                            {airborne=TRUE} 0.1683168
  [16] {eggs=TRUE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
##
  [17] {milk=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
  [18] {toothed=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
   Г197
       {toothed=FALSE}
                                            {airborne=TRUE} 0.2178218
   [20] {eggs=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
   [21] {milk=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
   [22]
       {predator=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
  [23]
       {legs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
                                           {airborne=TRUE} 0.2079208
  [24] {breathes=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.1089109
  [25] {hair=FALSE,predator=FALSE}
        {aquatic=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1683168
   [27]
        {hair=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1287129
       {hair=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1782178
   [28]
   [29] {hair=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.1782178
   [30] {eggs=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2178218
##
  [31] {milk=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.2178218
       {fins=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
       {predator=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1683168
  [33]
##
   Γ341
       {hair=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1782178
   [35]
       {predator=FALSE, breathes=TRUE}
                                            {airborne=TRUE} 0.1683168
   [36] {predator=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1683168
   [37] {eggs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
##
   [38] {eggs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [39] {tail=TRUE,catsize=FALSE}
                                           {airborne=TRUE} 0.1485149
  [40] {milk=FALSE,tail=TRUE}
                                           {airborne=TRUE} 0.1584158
  [41]
       {milk=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
   [42]
        {milk=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
       {predator=FALSE,domestic=FALSE} =>
                                            {airborne=TRUE} 0.1287129
   [44] {hair=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
       {eggs=TRUE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
   Γ45]
##
  [46]
       {milk=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
       {venomous=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
       {eggs=TRUE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  [48]
        {backbone=TRUE, catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
   [49]
##
   [50]
       {hair=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1782178
   [51] {breathes=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2376238
   [52] {aquatic=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1881188
##
   Γ531
       {legs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1782178
   [54] {breathes=TRUE,fins=FALSE}
##
                                           {airborne=TRUE} 0.2376238
  [55] {fins=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2376238
   [56]
        {fins=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1782178
##
   [57]
        {aquatic=FALSE}
                                            {airborne=TRUE} 0.1881188
##
   [58]
       {venomous=FALSE}
                                         => {airborne=TRUE} 0.2178218
##
        confidence lift
##
   [1]
        0.9285714
                   3.9077381
   [2]
##
        0.9285714
                   3.9077381
##
   [3]
        0.8000000
                   3.3666667
##
  [4]
        0.8000000
                   3.3666667
## [5]
        0.7272727
                   3.0606061
```

```
## [6]
        0.7142857 3.0059524
##
   [7]
        0.6956522
                   2.9275362
   [8]
        0.6666667
                   2.8055556
  [9]
        0.6296296
                   2.6496914
  [10] 0.6129032
                   2.5793011
## [11] 0.6111111
                   2.5717593
## [12] 0.5862069
                   2.4669540
## [13] 0.5769231
                   2.4278846
## [14] 0.5769231
                   2.4278846
## [15] 0.5666667
                   2.3847222
## [16] 0.5641026
                   2.3739316
## [17] 0.5641026
                   2.3739316
## [18] 0.555556
                   2.3379630
## [19] 0.5500000
                   2.3145833
## [20] 0.5500000
                   2.3145833
## [21] 0.5500000
                   2.3145833
  [22] 0.5172414
                   2.1767241
  [23] 0.5121951
                   2.1554878
## [24] 0.5121951
                   2.1554878
## [25] 0.5000000
                   2.1041667
## [26] 0.5000000
                   2.1041667
## [27] 0.5000000
                   2.1041667
## [28] 0.5000000
                   2.1041667
## [29] 0.4864865
                   2.0472973
## [30] 0.4782609
                   2.0126812
  [31] 0.4680851
                   1.9698582
  [32] 0.4375000
                   1.8411458
## [33] 0.4358974
                   1.8344017
## [34] 0.4186047
                   1.7616279
## [35] 0.4146341
                   1.7449187
## [36] 0.4146341
                   1.7449187
   [37] 0.4130435
                   1.7382246
   [38] 0.4102564
                   1.7264957
  [39] 0.4054054
                   1.7060811
   [40] 0.4000000
                   1.6833333
## [41] 0.3958333
                   1.6657986
## [42] 0.3846154
                   1.6185897
## [43] 0.3823529
                   1.6090686
## [44] 0.3809524
                   1.6031746
## [45] 0.3809524
                   1.6031746
  [46] 0.3809524
                   1.6031746
  [47] 0.3800000
                   1.5991667
## [48] 0.3773585
                   1.5880503
## [49] 0.3750000
                   1.5781250
## [50] 0.3461538
                   1.4567308
## [51] 0.3287671
                   1.3835616
                   1.3326389
##
   [52] 0.3166667
   [53] 0.3157895
                   1.3289474
  [54] 0.3157895
                   1.3289474
   [55] 0.3116883
                   1.3116883
   [56] 0.3050847
                   1.2838983
## [57] 0.2923077
                   1.2301282
## [58] 0.2365591
                   0.9955197
##
        lhs
                             rhs
                                               support
                                                         confidence lift
```

```
1.3116883
## [1]
        {type=fish}
                         => {airborne=FALSE} 0.1287129 1.0000000
##
  [2]
                         => {airborne=FALSE} 0.1683168 1.0000000
        {fins=TRUE}
                                                                   1.3116883
        {breathes=FALSE}
##
  [3]
                         => {airborne=FALSE} 0.2079208 1.0000000
  [4]
                         => {airborne=FALSE} 0.2277228 1.0000000
##
        {legs=FALSE}
                                                                   1.3116883
##
   [5]
        {toothed=TRUE}
                         => {airborne=FALSE} 0.5841584 0.9672131
                                                                   1.2686821
##
  [6]
                         => {airborne=FALSE} 0.3960396 0.9523810
                                                                   1.2492270
        {eggs=FALSE}
  [7]
        {milk=TRUE}
                         => {airborne=FALSE} 0.3861386 0.9512195
                                                                   1.2477035
## [8]
        {type=mammal}
                         => {airborne=FALSE} 0.3861386 0.9512195
                                                                   1.2477035
##
  [9]
        {catsize=TRUE}
                         => {airborne=FALSE} 0.4059406 0.9318182
                                                                   1.2222550
  [10] {predator=TRUE}
                         => {airborne=FALSE} 0.4851485 0.8750000
                                                                   1.1477273
  [11] {aquatic=TRUE}
                         => {airborne=FALSE} 0.3069307 0.8611111
                                                                   1.1295094
  [12] {hair=TRUE}
                         => {airborne=FALSE} 0.3663366 0.8604651
                                                                   1.1286620
## [13] {backbone=TRUE}
                         => {airborne=FALSE} 0.6435644 0.7831325
                                                                   1.0272258
                         => {airborne=FALSE} 0.1980198 0.7692308
## [14] {tail=FALSE}
                                                                   1.0089910
## [15] {tail=TRUE}
                         => {airborne=FALSE} 0.5643564 0.7600000
                                                                   0.9968831
  [16] {aquatic=FALSE}
                         => {airborne=FALSE} 0.4554455 0.7076923
                                                                   0.9282717
  [17] {hair=FALSE}
                         => {airborne=FALSE} 0.3960396 0.6896552
                                                                   0.9046126
  [18] {backbone=FALSE} => {airborne=FALSE} 0.1188119 0.6666667
                                                                   0.8744589
                         => {airborne=FALSE} 0.3762376 0.6333333
  [19] {milk=FALSE}
                                                                   0.8307359
  [20] {eggs=TRUE}
                         => {airborne=FALSE} 0.3663366 0.6271186
                                                                   0.8225842
  [21] {predator=FALSE} => {airborne=FALSE} 0.2772277 0.6222222
                                                                   0.8161616
                         => {airborne=FALSE} 0.1782178 0.4500000
  [22] {toothed=FALSE}
                                                                   0.5902597
##
       lhs
                                         rhs
                                                         support
                                                                    confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
   [2] {eggs=TRUE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
   [3] {milk=FALSE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
   [4] {backbone=TRUE, catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift
## [1] 3.060606
  [2] 1.603175
##
  [3] 1.603175
##
  [4] 1.578125
##
       lhs
                                                     support
                                                               confidence
## [1] {toothed=FALSE,tail=TRUE} =>
                                    {airborne=TRUE} 0.1584158 0.6956522
   [2] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
  [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4000000
## [5] {hair=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
                                  => {airborne=TRUE} 0.1782178 0.3157895
## [6] {legs=TRUE,tail=TRUE}
  [7] {fins=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1782178 0.3050847
##
##
       lift
## [1] 2.927536
  [2] 1.726496
  [3] 1.706081
## [4] 1.683333
  [5] 1.603175
##
  [6] 1.328947
##
  [7] 1.283898
##
       lhs
                                                         support
                                                                    confidence
##
  [1] {aquatic=FALSE, toothed=FALSE} =>
                                        {airborne=TRUE} 0.1683168 0.6296296
                                      => {airborne=TRUE} 0.1683168 0.5862069
  [2] {eggs=TRUE,aquatic=FALSE}
## [3] {milk=FALSE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1683168 0.5666667
## [4] {aquatic=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
## [5] {hair=FALSE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1287129 0.5000000
```

```
## [6] {aquatic=FALSE,legs=TRUE}
                                      => {airborne=TRUE} 0.1881188 0.3166667
##
       lift.
  [1] 2.649691
##
  [2] 2.466954
   [3] 2.384722
  [4] 2.104167
##
  [5] 2.104167
##
  [6] 1.332639
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
  [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
##
  [2] {hair=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1287129 0.5000000
                                   => {airborne=TRUE} 0.1782178 0.5000000
  [3] {hair=FALSE,legs=TRUE}
  [4] {hair=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.4864865
  [5] {hair=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.1782178 0.4186047
                                   => {airborne=TRUE} 0.1584158 0.3809524
## [6] {hair=FALSE,tail=TRUE}
   [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
##
##
       lift
  [1] 2.104167
##
  [2] 2.104167
##
  [3] 2.104167
##
  [4] 2.047297
  [5] 1.761628
##
  [6] 1.603175
##
   [7] 1.456731
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
  [2] {milk=FALSE, aquatic=FALSE}
                                   => {airborne=TRUE} 0.1683168 0.5666667
  [3] {milk=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5641026
## [4] {milk=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5500000
## [5] {milk=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.2178218 0.4680851
  [6] {milk=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.4000000
  [7] {milk=FALSE,catsize=FALSE}
                                   => {airborne=TRUE} 0.1881188 0.3958333
  [8] {milk=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
   [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
       lift
##
## [1] 2.427885
## [2] 2.384722
## [3] 2.373932
##
  [4] 2.314583
##
  [5] 1.969858
  [6] 1.683333
##
  [7] 1.665799
##
   [8] 1.618590
##
   [9] 1.603175
##
       lhs
                                      rhs
                                                                confidence
                                                      support
##
  [1] {eggs=TRUE,aquatic=FALSE}
                                  => {airborne=TRUE} 0.1683168 0.5862069
##
   [2] {eggs=TRUE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
  [3] {eggs=TRUE,breathes=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5641026
  [4] {eggs=TRUE,legs=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5500000
   [5] {eggs=TRUE,fins=FALSE}
                                  => {airborne=TRUE} 0.2178218 0.4782609
  [6] {eggs=TRUE,catsize=FALSE}
                                  => {airborne=TRUE} 0.1881188 0.4130435
##
## [7] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
## [8] {eggs=TRUE,backbone=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.3809524
## [9] {eggs=TRUE,venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
```

```
##
       lift
## [1] 2.466954
   [2] 2.427885
   [3] 2.373932
   [4] 2.314583
   [5] 2.012681
##
  [6] 1.738225
  [7] 1.726496
   [8] 1.603175
##
  [9] 1.588050
##
       lhs
                                           rhs
                                                           support
##
  [1] {predator=FALSE,toothed=FALSE}
                                        => {airborne=TRUE} 0.1485149
   [2] {eggs=TRUE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [3] {milk=FALSE,predator=FALSE}
                                        => {airborne=TRUE} 0.1485149
  [4] {predator=FALSE,catsize=FALSE}
                                        => {airborne=TRUE} 0.1485149
   [5] {hair=FALSE,predator=FALSE}
                                           {airborne=TRUE} 0.1089109
   [6] {predator=FALSE,legs=TRUE}
                                        => {airborne=TRUE} 0.1683168
  [7] {predator=FALSE,breathes=TRUE}
                                        => {airborne=TRUE} 0.1683168
  [8] {predator=FALSE,fins=FALSE}
                                        => {airborne=TRUE} 0.1683168
   [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
##
       confidence lift
## [1] 0.7142857
                  3.005952
  [2] 0.5769231
                  2.427885
   [3] 0.5769231
                  2.427885
  [4] 0.5172414
                  2.176724
  [5] 0.5000000
                  2.104167
  [6] 0.4358974
                  1.834402
   [7] 0.4146341
                  1.744919
  [8] 0.4146341
                  1.744919
##
  [9] 0.3823529
                  1.609069
##
       lhs
                                                          support
                                                                     confidence
##
  [1] {toothed=FALSE,backbone=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.7272727
  [2] {predator=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1485149 0.7142857
  [3] {toothed=FALSE,tail=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.6956522
   [4] {toothed=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6666667
                                       => {airborne=TRUE} 0.1683168 0.6296296
  [5] {aquatic=FALSE,toothed=FALSE}
  [6] {toothed=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1881188 0.6129032
  [7] {toothed=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6111111
  [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
##
       lift
  [1] 3.060606
  [2] 3.005952
   [3] 2.927536
  [4] 2.805556
  [5] 2.649691
##
  [6] 2.579301
##
   [7] 2.571759
   [8] 2.337963
##
       "Número de reglas con consecuente negado"
##
                                                              support
##
  [1]
        {toothed=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
  [2]
        {feathers=FALSE, toothed=FALSE}
                                           {backbone=FALSE} 0.1782178
## [3]
        {eggs=TRUE,tail=FALSE}
                                         => {backbone=FALSE} 0.1683168
## [4]
        {milk=FALSE,tail=FALSE}
                                           {backbone=FALSE} 0.1683168
```

```
[5]
        {hair=FALSE,tail=FALSE}
                                             {backbone=FALSE} 0.1287129
##
   [6]
        {tail=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1584158
        {tail=FALSE,domestic=FALSE}
##
   [7]
                                             {backbone=FALSE} 0.1584158
   [8]
        {aquatic=FALSE,tail=FALSE}
                                             {backbone=FALSE} 0.1089109
##
##
   [9]
        {fins=FALSE,tail=FALSE}
                                             {backbone=FALSE} 0.1683168
  [10] {airborne=FALSE, toothed=FALSE}
##
                                             {backbone=FALSE} 0.1188119
  [11] {toothed=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
  [12] {toothed=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
   Γ137
       {milk=FALSE,toothed=FALSE}
                                             {backbone=FALSE} 0.1782178
   [14] {toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
  [15] {feathers=FALSE,milk=FALSE}
                                            {backbone=FALSE} 0.1782178
   [16] {feathers=FALSE,eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
   [17] {milk=FALSE,aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
                                            {backbone=FALSE} 0.1683168
   [18] {feathers=FALSE,catsize=FALSE}
                                            {backbone=FALSE} 0.1782178
  [19]
       {milk=FALSE,fins=FALSE}
   [20]
        {eggs=TRUE,aquatic=FALSE}
                                             {backbone=FALSE} 0.1089109
   [21]
       {eggs=TRUE,fins=FALSE}
                                             {backbone=FALSE} 0.1683168
       {hair=FALSE, feathers=FALSE}
                                            {backbone=FALSE} 0.1386139
   [22]
                                            {backbone=FALSE} 0.1683168
   [23] {milk=FALSE,catsize=FALSE}
   [24] {fins=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
                                             {backbone=FALSE} 0.1188119
##
  [25]
       {aquatic=FALSE, catsize=FALSE}
       {milk=FALSE,legs=TRUE}
                                             {backbone=FALSE} 0.1386139
  [26]
       {eggs=TRUE,catsize=FALSE}
                                             {backbone=FALSE} 0.1584158
  [27]
       {hair=FALSE,fins=FALSE}
##
   [28]
                                             {backbone=FALSE} 0.1386139
   [29]
       {eggs=TRUE,legs=TRUE}
                                             {backbone=FALSE} 0.1287129
   [30] {domestic=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1584158
   [31] {legs=TRUE,catsize=FALSE}
                                             {backbone=FALSE} 0.1287129
##
   [32] {milk=FALSE,airborne=FALSE}
                                             {backbone=FALSE} 0.1188119
  [33] {milk=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1683168
  [34] {airborne=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1089109
   [35]
        {eggs=TRUE,airborne=FALSE}
                                             {backbone=FALSE} 0.1089109
##
   [36]
        {eggs=TRUE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
   [37]
        {eggs=TRUE}
                                            {backbone=FALSE} 0.1683168
##
   [38] {feathers=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
        {hair=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1386139
##
   [40] {feathers=FALSE,legs=TRUE}
                                             {backbone=FALSE} 0.1386139
  [41] {feathers=FALSE,domestic=FALSE} =>
                                             {backbone=FALSE} 0.1683168
  [42] {fins=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
       {feathers=FALSE,aquatic=FALSE}
                                             {backbone=FALSE} 0.1188119
##
   [43]
   [44]
##
       {aquatic=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1089109
   [45]
       {legs=TRUE,domestic=FALSE}
                                            {backbone=FALSE} 0.1287129
   Γ461
       {aquatic=FALSE}
                                         => {backbone=FALSE} 0.1188119
##
##
        confidence lift
##
   [1]
        1.0000000 5.611111
##
   [2]
        0.9000000
                   5.050000
   [3]
##
        0.8500000
                   4.769444
##
   [4]
        0.8500000
                   4.769444
##
   [5]
        0.8125000
                   4.559028
##
   [6]
        0.8000000
                   4.488889
##
   [7]
        0.6956522
                   3.903382
##
   [8]
        0.6875000
                   3.857639
  [9]
        0.6800000
                   3.815556
## [10] 0.6666667
                   3.740741
## [11] 0.5483871
                   3.077061
```

```
## [12] 0.4722222
                    2.649691
   [13] 0.4615385
                    2.589744
   [14] 0.4500000
                    2.525000
   [15] 0.4500000
                    2.525000
   [16] 0.4358974
                    2.445869
##
   [17] 0.4000000
                    2.244444
   [18] 0.3953488
                    2.218346
   [19] 0.3829787
                    2.148936
   [20] 0.3793103
                    2.128352
   [21] 0.3695652
                    2.073671
   [22] 0.3684211
                    2.067251
   [23] 0.3541667
                    1.987269
   [24] 0.3541667
                    1.987269
   [25] 0.3529412
                    1.980392
   [26] 0.3500000
                    1.963889
   [27]
        0.3478261
                    1.951691
   [28] 0.3255814
                    1.826873
   [29] 0.3250000
                    1.823611
   [30] 0.3200000
                    1.795556
   [31] 0.3170732
                    1.779133
##
   [32] 0.3157895
                    1.771930
   [33] 0.3090909
                    1.734343
   [34] 0.3055556
                    1.714506
##
   [35] 0.2972973
                    1.668168
##
   [36] 0.2962963
                    1.662551
   [37] 0.2881356
                    1.616761
   [38] 0.2812500
                    1.578125
##
   [39] 0.2592593
                    1.454733
   [40] 0.2413793
                    1.354406
   [41] 0.2394366
                    1.343505
   [42] 0.2361111
                    1.324846
##
   [43] 0.2352941
                    1.320261
   [44] 0.2075472
                    1.164570
   [45] 0.1969697
                    1.105219
##
   [46]
        0.1846154
                    1.035897
##
                                                         confidence lift
        lhs
                             rhs
                                              support
##
   [1]
        {type=fish}
                             {backbone=TRUE} 0.1287129 1.0000000
##
   [2]
        {fins=TRUE}
                             {backbone=TRUE} 0.1683168 1.0000000
                                                                    1.2168675
        {type=bird}
##
   [3]
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                    1.2168675
##
   [4]
        {feathers=TRUE}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                    1.2168675
   [5]
        {milk=TRUE}
                             {backbone=TRUE} 0.4059406 1.0000000
                                                                    1.2168675
   [6]
                             {backbone=TRUE} 0.4059406 1.0000000
##
        {type=mammal}
                                                                    1.2168675
##
   [7]
        {toothed=TRUE}
                             {backbone=TRUE} 0.6039604 1.0000000
                                                                    1.2168675
##
   [8]
        {tail=TRUE}
                             {backbone=TRUE} 0.7326733 0.9866667
                                                                    1.2006426
   [9]
        {catsize=TRUE}
                             {backbone=TRUE} 0.4257426 0.9772727
                                                                    1.1892114
   [10]
        {domestic=TRUE}
                             {backbone=TRUE} 0.1188119 0.9230769
                                                                    1.1232623
   [11]
##
        {breathes=TRUE}
                             {backbone=TRUE} 0.6831683 0.8625000
                                                                    1.0495482
   [12]
        {legs=FALSE}
                             {backbone=TRUE} 0.1881188 0.8260870
                                                                    1.0052383
   [13]
       {legs=TRUE}
                             {backbone=TRUE} 0.6336634 0.8205128
                                                                    0.9984554
   [14] {aquatic=FALSE}
                             {backbone=TRUE} 0.5247525 0.8153846
                                                                    0.9922150
##
   [15] {predator=FALSE}
                          =>
                             {backbone=TRUE} 0.3564356 0.8000000
                                                                    0.9734940
  [16] {feathers=FALSE}
                             {backbone=TRUE} 0.6237624 0.7777778
                                                                    0.9464525
                          => {backbone=TRUE} 0.1782178 0.7500000
## [17] {airborne=TRUE}
                                                                    0.9126506
## [18] {eggs=TRUE}
                          => {backbone=TRUE} 0.4158416 0.7118644
```

```
## [19] {catsize=FALSE} => {backbone=TRUE} 0.3960396 0.7017544
                                                                  0.8539421
  [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                  0.8112450
  [21] {toothed=FALSE} => {backbone=TRUE} 0.2178218 0.5500000
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
##
  [1] {milk=FALSE,legs=TRUE}
                                  => {backbone=FALSE} 0.1386139 0.3500000
  [2] {eggs=TRUE,legs=TRUE}
                                  => {backbone=FALSE} 0.1287129 0.3250000
  [3] {legs=TRUE,catsize=FALSE}
                                  => {backbone=FALSE} 0.1287129 0.3170732
  [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
##
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
       lift
## [1] 1.963889
  [2] 1.823611
##
  [3] 1.779133
## [4] 1.354406
  [5] 1.105219
##
##
       lhs
                                         rhs
                                                           support
##
  [1] {aquatic=FALSE,tail=FALSE}
                                      => {backbone=FALSE} 0.1089109
  [2] {milk=FALSE,aquatic=FALSE}
                                      => {backbone=FALSE} 0.1188119
  [3] {eggs=TRUE,aquatic=FALSE}
                                      => {backbone=FALSE} 0.1089109
  [4] {aquatic=FALSE,catsize=FALSE}
                                      => {backbone=FALSE} 0.1188119
  [5] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
  [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
       confidence lift
##
## [1] 0.6875000 3.857639
  [2] 0.4000000 2.244444
  [3] 0.3793103
                  2.128352
  [4] 0.3529412
                  1.980392
   [5] 0.2352941
                  1.320261
##
   [6] 0.2075472
                 1.164570
##
       lhs
                                          rhs
                                                            support
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
   [2] {feathers=FALSE,milk=FALSE}
                                       => {backbone=FALSE} 0.1782178
  [3] {feathers=FALSE,eggs=TRUE}
                                        => {backbone=FALSE} 0.1683168
## [4] {feathers=FALSE,catsize=FALSE}
                                       => {backbone=FALSE} 0.1683168
  [5] {hair=FALSE, feathers=FALSE}
                                        => {backbone=FALSE} 0.1386139
## [6] {feathers=FALSE,fins=FALSE}
                                       => {backbone=FALSE} 0.1782178
  [7] {feathers=FALSE,legs=TRUE}
                                       => {backbone=FALSE} 0.1386139
## [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
  [9] {feathers=FALSE,aquatic=FALSE}
                                       => {backbone=FALSE} 0.1188119
##
##
       confidence lift
## [1] 0.9000000 5.050000
  [2] 0.4500000
                  2.525000
  [3] 0.4358974
                  2.445869
## [4] 0.3953488
                  2.218346
## [5] 0.3684211
                  2.067251
## [6] 0.2812500
                  1.578125
  [7] 0.2413793
                  1.354406
  [8] 0.2394366
                  1.343505
##
  [9] 0.2352941
                  1.320261
##
       lhs
                                                       support
                                                                 confidence
## [1] {eggs=TRUE,tail=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE}
                                  => {backbone=FALSE} 0.1683168 0.4358974
                                  => {backbone=FALSE} 0.1089109 0.3793103
## [3] {eggs=TRUE,aquatic=FALSE}
## [4] {eggs=TRUE,fins=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.3695652
```

```
## [5] {eggs=TRUE,catsize=FALSE} => {backbone=FALSE} 0.1584158 0.3478261
                                   => {backbone=FALSE} 0.1287129 0.3250000
## [6] {eggs=TRUE,legs=TRUE}
  [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
  [8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
       lift.
## [1] 4.769444
## [2] 2.445869
## [3] 2.128352
## [4] 2.073671
## [5] 1.951691
## [6] 1.823611
## [7] 1.668168
##
   [8] 1.662551
##
        lhs
                                           rhs
                                                             support
## [1]
        {tail=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
## [2]
        {toothed=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
  [3]
        {feathers=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1683168
## [4]
        {milk=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
##
  [5]
        {fins=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
  [6]
        {aquatic=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1188119
##
  [7]
        {eggs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
## [8]
        {domestic=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1584158
## [9]
        {legs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1287129
  [10] {airborne=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1089109
##
##
        confidence lift
## [1]
        0.8000000 4.488889
  [2]
        0.5483871
                   3.077061
##
##
  [3]
        0.3953488
                   2.218346
## [4]
        0.3541667
                   1.987269
## [5]
        0.3541667
                   1.987269
##
  [6]
        0.3529412
                   1.980392
##
  [7]
        0.3478261
                   1.951691
  [8]
        0.3200000
                   1.795556
##
  [9]
        0.3170732
                   1.779133
   [10] 0.3055556
##
                   1.714506
##
       lhs
                                          rhs
                                                            support
## [1] {toothed=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1683168
## [2] {feathers=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1782178
## [3] {airborne=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1188119
  [4] {toothed=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1683168
  [5] {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
  [6] {milk=FALSE,toothed=FALSE}
                                       => {backbone=FALSE} 0.1782178
##
       confidence lift
## [1] 1.0000000 5.611111
## [2] 0.9000000
                  5.050000
## [3] 0.6666667
                  3.740741
## [4] 0.5483871
                  3.077061
## [5] 0.4722222
                  2.649691
  [6] 0.4615385
                  2.589744
##
   [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
        lhs
                                                         support
                                                                   confidence
## [1]
        {milk=TRUE, predator=FALSE}
                                         => {hair=TRUE} 0.1881188 1.0000000
## [2]
        {milk=TRUE,aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 1.0000000
## [3]
        {milk=TRUE,legs=TRUE}
                                         => {hair=TRUE} 0.3762376 1.0000000
```

```
[4]
        {milk=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.3663366 1.0000000
##
   [5]
        {predator=FALSE, type=mammal}
                                            {hair=TRUE} 0.1881188 1.0000000
        {aquatic=FALSE, type=mammal}
   [6]
                                            {hair=TRUE} 0.3465347 1.0000000
   [7]
                                            {hair=TRUE} 0.3762376 1.0000000
        {legs=TRUE, type=mammal}
##
##
   [8]
        {fins=FALSE,type=mammal}
                                            {hair=TRUE} 0.3663366 1.0000000
##
   [9]
        {eggs=FALSE,predator=FALSE}
                                            {hair=TRUE} 0.1881188 1.0000000
  [10] {eggs=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3663366 0.9736842
  [11] {eggs=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3465347 0.9722222
##
   [12] {milk=TRUE}
                                            {hair=TRUE} 0.3861386 0.9512195
   [13] {type=mammal}
                                            {hair=TRUE} 0.3861386 0.9512195
  [14] {eggs=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.9500000
   [15] {eggs=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3564356 0.9473684
   [16] {eggs=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.9268293
   [17] {aquatic=FALSE, toothed=TRUE}
                                            {hair=TRUE} 0.3465347 0.9210526
                                            {hair=TRUE} 0.3762376 0.9047619
  [18] {eggs=FALSE}
       {toothed=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3663366 0.8809524
   [19]
   [20] {aquatic=FALSE, catsize=TRUE}
                                            {hair=TRUE} 0.2574257 0.8387097
   [21] {toothed=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2871287 0.8285714
   [22] {toothed=TRUE,fins=FALSE}
                                           {hair=TRUE} 0.3564356 0.8181818
   [23] {toothed=TRUE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.8085106
##
  [24] {predator=FALSE,toothed=TRUE}
                                            {hair=TRUE} 0.1881188 0.7916667
  [25] {feathers=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2970297 0.7894737
  [26] {legs=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2871287 0.7837838
   [27] {fins=FALSE.catsize=TRUE}
                                            {hair=TRUE} 0.2772277 0.7777778
  [28] {breathes=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2970297 0.7692308
   [29] {feathers=FALSE, aquatic=FALSE}
                                           {hair=TRUE} 0.3861386 0.7647059
   [30] {predator=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.1188119 0.7500000
   [31] {feathers=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.7241379
  [32] {airborne=FALSE,aquatic=FALSE}
                                           {hair=TRUE} 0.3267327 0.7173913
  [33] {feathers=FALSE, breathes=TRUE}
                                           {hair=TRUE} 0.4257426 0.7166667
   [34] {feathers=FALSE,predator=FALSE}
                                            {hair=TRUE} 0.2277228 0.6764706
   [35] {toothed=TRUE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.6666667
   [36] {airborne=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.3564356 0.6666667
   [37] {airborne=FALSE,breathes=TRUE}
                                           {hair=TRUE} 0.3663366 0.6607143
   [38] {aquatic=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3465347 0.6603774
##
   [39] {aquatic=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3861386 0.6500000
  [40] {feathers=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.4059406 0.6406250
  [41] {toothed=TRUE}
                                            {hair=TRUE} 0.3762376 0.6229508
       {feathers=FALSE, backbone=TRUE}
                                            {hair=TRUE} 0.3861386 0.6190476
  [42]
##
  [43] {aquatic=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.2970297 0.6122449
  [44] {aquatic=FALSE, breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.6093750
   [45] {airborne=FALSE, predator=FALSE} =>
                                            {hair=TRUE} 0.1683168 0.6071429
   [46] {aquatic=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3663366 0.6065574
       {feathers=FALSE,tail=TRUE}
  [47]
                                           {hair=TRUE} 0.3267327 0.6000000
  [48] {backbone=TRUE,legs=TRUE}
                                           {hair=TRUE} 0.3762376 0.5937500
   [49] {predator=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.2277228 0.5897436
##
   [50]
       {airborne=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3465347 0.5833333
   [51] {legs=TRUE,tail=TRUE}
                                           {hair=TRUE} 0.3267327 0.5789474
                                           {hair=TRUE} 0.4158416 0.5753425
   [52] {breathes=TRUE,legs=TRUE}
   [53]
       {airborne=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3663366 0.5692308
##
   [54]
       {backbone=TRUE, breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.5652174
  [55] {feathers=FALSE, venomous=FALSE}
                                           {hair=TRUE} 0.4059406 0.5616438
## [56] {predator=FALSE,breathes=TRUE}
                                           {hair=TRUE} 0.2277228 0.5609756
## [57] {predator=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.2277228 0.5609756
```

```
## [58] {backbone=TRUE,fins=FALSE}
                                         => {hair=TRUE} 0.3663366 0.5606061
  [59] {breathes=TRUE, venomous=FALSE}
                                           {hair=TRUE} 0.4059406 0.5466667
                                           {hair=TRUE} 0.3069307 0.5438596
  [60] {airborne=FALSE,tail=TRUE}
  [61] {fins=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.3168317 0.5423729
  [62] {breathes=TRUE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.5409836
  [63] {venomous=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.3960396 0.5405405
  [64] {breathes=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.4059406 0.5394737
  [65] {predator=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.1881188 0.5277778
   [66]
       {airborne=FALSE, venomous=FALSE} =>
                                            {hair=TRUE} 0.3663366 0.5211268
   [67] {predator=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.1683168 0.5151515
  [68] {predator=FALSE}
                                         => {hair=TRUE} 0.2277228 0.5111111
                                         => {hair=TRUE} 0.3861386 0.5064935
   [69] {venomous=FALSE,fins=FALSE}
  [70] {backbone=TRUE, venomous=FALSE}
                                         => {hair=TRUE} 0.3861386 0.4936709
  [71] {backbone=TRUE}
                                         => {hair=TRUE} 0.3861386 0.4698795
## [72] {venomous=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.3267327 0.4647887
##
   [73] {domestic=FALSE}
                                         => {hair=TRUE} 0.3366337 0.3863636
##
        lift
##
  [1]
        2.3488372
   [2]
##
        2.3488372
   [3]
        2.3488372
##
  [4]
        2.3488372
  [5]
        2.3488372
##
  [6]
        2.3488372
##
##
   [7]
        2.3488372
##
  [8]
        2.3488372
  [9]
        2.3488372
  [10] 2.2870257
##
  [11] 2.2835917
## [12] 2.2342598
## [13] 2.2342598
## [14] 2.2313953
  [15] 2.2252142
  [16] 2.1769711
  [17] 2.1634027
   [18] 2.1251384
## [19] 2.0692137
## [20] 1.9699925
## [21] 1.9461794
  [22] 1.9217759
##
  [23] 1.8990599
  [24] 1.8594961
  [25] 1.8543452
## [26] 1.8409805
  [27] 1.8268734
## [28] 1.8067979
## [29] 1.7961696
##
  [30] 1.7616279
  [31] 1.7008821
  [32] 1.6850354
  [33] 1.6833333
## [34] 1.5889193
## [35] 1.5658915
## [36] 1.5658915
## [37] 1.5519103
```

```
## [38] 1.5511189
   [39] 1.5267442
   [40] 1.5047238
   [41] 1.4632101
   [42] 1.4540421
##
  [43] 1.4380636
   [44] 1.4313227
  [45] 1.4260797
   [46] 1.4247045
   [47] 1.4093023
   [48] 1.3946221
   [49] 1.3852117
   [50] 1.3701550
   [51] 1.3598531
   [52] 1.3513858
   [53] 1.3370304
##
   [54] 1.3276036
   [55] 1.3192099
   [56] 1.3176404
   [57] 1.3176404
##
   [58] 1.3167724
   [59] 1.2840310
   [60] 1.2774378
##
   [61] 1.2739456
   [62] 1.2706824
   [63] 1.2696417
   [64] 1.2671359
##
   [65] 1.2396641
   [66] 1.2240419
   [67] 1.2100070
   [68] 1.2005168
   [69] 1.1896708
   [70] 1.1595525
   [71] 1.1036705
   [72] 1.0917131
##
   [73] 0.9075053
##
        lhs
                             rhs
                                          support
                                                     confidence lift
##
  [1]
                          => {hair=FALSE} 0.1287129 1.0000000
        {type=fish}
                                                                1.7413793
##
   [2]
        {breathes=FALSE} => {hair=FALSE} 0.2079208 1.0000000
                                                                 1.7413793
##
   [3]
                          => {hair=FALSE} 0.2178218 0.9565217
        {legs=FALSE}
                                                                 1.6656672
   [4]
        {aquatic=TRUE}
                          => {hair=FALSE} 0.3168317 0.8888889
                                                                 1.5478927
   [5]
        {toothed=FALSE}
                          => {hair=FALSE} 0.3465347 0.8750000
##
                                                                1.5237069
##
   [6]
        {backbone=FALSE}
                         =>
                             {hair=FALSE} 0.1386139 0.7777778
                                                                 1.3544061
##
   [7]
                          => {hair=FALSE} 0.4356436 0.7719298
        {catsize=FALSE}
                                                                1.3442226
   [8]
        {airborne=TRUE}
                          => {hair=FALSE} 0.1782178 0.7500000
                                                                1.3060345
   [9]
                          => {hair=FALSE} 0.3564356 0.6428571
##
        {predator=TRUE}
                                                                 1.1194581
                                                                1.0716180
   [10] {tail=FALSE}
                             {hair=FALSE} 0.1584158 0.6153846
   [11] {backbone=TRUE}
                             {hair=FALSE} 0.4356436 0.5301205
                                                                 0.9231408
   [12] {breathes=TRUE}
                          => {hair=FALSE} 0.3663366 0.4625000
                                                                0.8053879
   [13] {legs=TRUE}
                             {hair=FALSE} 0.3564356 0.4615385
                                                                0.8037135
##
                          => {hair=FALSE} 0.2574257 0.4000000
   [14] {aquatic=FALSE}
                                                                0.6965517
##
                                          rhs
                                                       support
                                                                  confidence
  [1] {aquatic=FALSE,backbone=TRUE} => {hair=TRUE} 0.3465347 0.6603774
## [2] {feathers=FALSE,backbone=TRUE} => {hair=TRUE} 0.3861386 0.6190476
```

```
## [3] {backbone=TRUE,legs=TRUE}
                                       => {hair=TRUE} 0.3762376 0.5937500
  [4] {airborne=FALSE,backbone=TRUE} => {hair=TRUE} 0.3663366 0.5692308
  [5] {backbone=TRUE, breathes=TRUE} => {hair=TRUE} 0.3861386 0.5652174
  [6] {backbone=TRUE,fins=FALSE}
                                       => {hair=TRUE} 0.3663366 0.5606061
   [7] {predator=FALSE,backbone=TRUE} => {hair=TRUE} 0.1881188 0.5277778
   [8] {backbone=TRUE,venomous=FALSE} => {hair=TRUE} 0.3861386 0.4936709
##
##
       lift.
## [1] 1.551119
   [2] 1.454042
  [3] 1.394622
  [4] 1.337030
  [5] 1.327604
##
   [6] 1.316772
  [7] 1.239664
##
  [8] 1.159553
##
##
        lhs
                                                                  confidence
                                           rhs
                                                        support
##
        {eggs=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3762376 0.9268293
  [1]
        {toothed=TRUE,breathes=TRUE}
                                        => {hair=TRUE} 0.3762376 0.8085106
  [3]
        {breathes=TRUE,catsize=TRUE}
                                        => {hair=TRUE} 0.2970297 0.7692308
##
##
   [4]
        {feathers=FALSE,breathes=TRUE} => {hair=TRUE} 0.4257426 0.7166667
                                        => {hair=TRUE} 0.3663366 0.6607143
##
  [5]
        {airborne=FALSE,breathes=TRUE}
  [6]
        {aquatic=FALSE, breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6093750
##
  [7]
##
        {breathes=TRUE,legs=TRUE}
                                        => {hair=TRUE} 0.4158416 0.5753425
  [8]
        {backbone=TRUE,breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.5652174
##
##
  [9]
        {predator=FALSE,breathes=TRUE} => {hair=TRUE} 0.2277228 0.5609756
  [10] {breathes=TRUE, venomous=FALSE} => {hair=TRUE} 0.4059406 0.5466667
   [11] {breathes=TRUE,tail=TRUE}
                                        => {hair=TRUE} 0.3267327 0.5409836
                                        => {hair=TRUE} 0.4059406 0.5394737
##
   [12]
        {breathes=TRUE,fins=FALSE}
##
        lift
##
  [1]
        2.176971
##
   [2]
        1.899060
##
   [3]
        1.806798
##
   [4]
        1.683333
   [5]
##
        1.551910
   [6]
##
        1.431323
##
   [7]
        1.351386
##
  [8]
        1.327604
  [9]
        1.317640
##
  [10] 1.284031
##
  [11] 1.270682
  [12] 1.267136
##
        lhs
                                                    support
                                                              confidence
##
  [1]
        {milk=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.3762376 1.0000000
##
   [2]
        {legs=TRUE, type=mammal}
                                    => {hair=TRUE} 0.3762376 1.0000000
##
  [3]
        {eggs=FALSE,legs=TRUE}
                                    => {hair=TRUE} 0.3663366 0.9736842
## [4]
        {toothed=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.3663366 0.8809524
##
  [5]
        {legs=TRUE,catsize=TRUE}
                                      {hair=TRUE} 0.2871287 0.7837838
  [6]
##
        {feathers=FALSE,legs=TRUE} =>
                                       {hair=TRUE} 0.4158416 0.7241379
##
  [7]
        {airborne=FALSE,legs=TRUE} => {hair=TRUE} 0.3564356 0.6666667
##
   [8]
        {aquatic=FALSE,legs=TRUE}
                                    => {hair=TRUE} 0.3861386 0.6500000
##
   [9]
        {backbone=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.3762376 0.5937500
## [10] {predator=FALSE,legs=TRUE} => {hair=TRUE} 0.2277228 0.5897436
## [11] {legs=TRUE,tail=TRUE}
                                    => {hair=TRUE} 0.3267327 0.5789474
## [12] {breathes=TRUE,legs=TRUE} => {hair=TRUE} 0.4158416 0.5753425
```

```
[13] {venomous=FALSE,legs=TRUE} => {hair=TRUE} 0.3960396 0.5405405
##
        lift
##
   [1]
        2.348837
   [2]
##
        2.348837
##
   [3]
        2.287026
   [4]
##
        2.069214
##
   [5]
        1.840981
##
   [6]
        1.700882
##
   [7]
        1.565891
##
   [8]
        1.526744
   [9]
        1.394622
##
   [10]
       1.385212
##
   [11] 1.359853
##
   [12] 1.351386
   [13] 1.269642
##
##
        lhs
                                                                   confidence
                                            rhs
                                                         support
##
   [1]
                                         => {hair=TRUE} 0.3465347 1.0000000
        {milk=TRUE,aquatic=FALSE}
        {aquatic=FALSE, type=mammal}
                                         => {hair=TRUE} 0.3465347 1.0000000
##
   [3]
        {eggs=FALSE,aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 0.9722222
##
   [4]
        {aquatic=FALSE, toothed=TRUE}
                                         => {hair=TRUE} 0.3465347 0.9210526
                                         => {hair=TRUE} 0.2574257 0.8387097
##
   [5]
        {aquatic=FALSE, catsize=TRUE}
   [6]
        {feathers=FALSE, aquatic=FALSE} => {hair=TRUE} 0.3861386 0.7647059
##
   [7]
        {airborne=FALSE,aquatic=FALSE} => {hair=TRUE} 0.3267327 0.7173913
##
        {aquatic=FALSE,backbone=TRUE}
##
   [8]
                                         => {hair=TRUE} 0.3465347 0.6603774
##
   [9]
        {aquatic=FALSE,legs=TRUE}
                                         => {hair=TRUE} 0.3861386 0.6500000
   [10] {aquatic=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.2970297 0.6122449
   [11] {aquatic=FALSE,breathes=TRUE}
                                         => {hair=TRUE} 0.3861386 0.6093750
##
   [12]
        {aquatic=FALSE, venomous=FALSE} => {hair=TRUE} 0.3663366 0.6065574
##
        lift
##
  [1]
        2.348837
##
   [2]
        2.348837
##
   [3]
        2.283592
##
   [4]
        2.163403
   [5]
##
        1.969992
   [6]
##
        1.796170
##
   [7]
        1.685035
##
   [8]
        1.551119
  [9]
        1.526744
##
   [10] 1.438064
   [11] 1.431323
   [12] 1.424705
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                                          support
                                                                    confidence
##
   [1]
                                            {hair=TRUE} 0.1881188 1.0000000
        {milk=TRUE, predator=FALSE}
##
  [2]
        {milk=TRUE,aquatic=FALSE}
                                          => {hair=TRUE} 0.3465347 1.0000000
## [3]
                                            {hair=TRUE} 0.3762376 1.0000000
        {milk=TRUE,legs=TRUE}
##
   [4]
        {milk=TRUE,fins=FALSE}
                                             {hair=TRUE} 0.3663366 1.0000000
##
   [5]
        {predator=FALSE, type=mammal}
                                          => {hair=TRUE} 0.1881188 1.0000000
                                          => {hair=TRUE} 0.3465347 1.0000000
   [6]
        {aquatic=FALSE, type=mammal}
   [7]
        {legs=TRUE, type=mammal}
                                            {hair=TRUE} 0.3762376 1.0000000
##
##
   [8]
        {fins=FALSE,type=mammal}
                                            {hair=TRUE} 0.3663366 1.0000000
        {eggs=FALSE,predator=FALSE}
                                            {hair=TRUE} 0.1881188 1.0000000
## [10] {eggs=FALSE,legs=TRUE}
                                          => {hair=TRUE} 0.3663366 0.9736842
## [11] {eggs=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3465347 0.9722222
```

```
## [12] {milk=TRUE}
                                            {hair=TRUE} 0.3861386 0.9512195
  [13] {type=mammal}
                                            {hair=TRUE} 0.3861386 0.9512195
  [14] {eggs=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.9500000
  [15] {eggs=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3564356 0.9473684
   [16] {eggs=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.9268293
   [17] {aquatic=FALSE,toothed=TRUE}
                                            {hair=TRUE} 0.3465347 0.9210526
##
  [18] {eggs=FALSE}
                                            {hair=TRUE} 0.3762376 0.9047619
  [19] {toothed=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3663366 0.8809524
   [20] {aquatic=FALSE, catsize=TRUE}
                                            {hair=TRUE} 0.2574257 0.8387097
   [21] {toothed=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2871287 0.8285714
   [22] {toothed=TRUE,fins=FALSE}
                                           {hair=TRUE} 0.3564356 0.8181818
   [23] {toothed=TRUE,breathes=TRUE}
                                           {hair=TRUE} 0.3762376 0.8085106
   [24] {predator=FALSE,toothed=TRUE}
                                            {hair=TRUE} 0.1881188 0.7916667
  [25] {feathers=FALSE,catsize=TRUE}
                                           {hair=TRUE} 0.2970297 0.7894737
                                           {hair=TRUE} 0.2871287 0.7837838
  [26] {legs=TRUE,catsize=TRUE}
        {fins=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2772277 0.7777778
   [27]
   [28]
       {breathes=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2970297 0.7692308
   [29] {feathers=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3861386 0.7647059
   [30] {predator=FALSE,catsize=TRUE}
                                           {hair=TRUE} 0.1188119 0.7500000
   [31] {feathers=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.7241379
                                            {hair=TRUE} 0.3267327 0.7173913
##
  [32] {airborne=FALSE,aquatic=FALSE}
  [33] {feathers=FALSE, breathes=TRUE}
                                            {hair=TRUE} 0.4257426 0.7166667
  [34] {feathers=FALSE,predator=FALSE}
                                        =>
                                            {hair=TRUE} 0.2277228 0.6764706
       {toothed=TRUE, venomous=FALSE}
##
   [35]
                                            {hair=TRUE} 0.3762376 0.6666667
   [36] {airborne=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.3564356 0.6666667
   [37] {airborne=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3663366 0.6607143
   [38] {aquatic=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3465347 0.6603774
##
   [39] {aquatic=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3861386 0.6500000
  [40] {feathers=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.4059406 0.6406250
  [41] {toothed=TRUE}
                                           {hair=TRUE} 0.3762376 0.6229508
  [42]
       {feathers=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3861386 0.6190476
   [43]
        {aquatic=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.2970297 0.6122449
   [44] {aquatic=FALSE, breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.6093750
   [45] {airborne=FALSE,predator=FALSE} =>
                                           {hair=TRUE} 0.1683168 0.6071429
   [46] {aquatic=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3663366 0.6065574
##
  [47] {feathers=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.3267327 0.6000000
  [48] {backbone=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3762376 0.5937500
  [49] {predator=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.2277228 0.5897436
       {airborne=FALSE,fins=FALSE}
##
   [50]
                                            {hair=TRUE} 0.3465347 0.5833333
##
   [51] {legs=TRUE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.5789474
   [52] {breathes=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.5753425
   [53] {airborne=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3663366 0.5692308
   Γ54]
       {backbone=TRUE, breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.5652174
       {feathers=FALSE, venomous=FALSE}
   [55]
                                            {hair=TRUE} 0.4059406 0.5616438
  [56] {predator=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.2277228 0.5609756
   [57]
        {predator=FALSE,fins=FALSE}
                                           {hair=TRUE} 0.2277228 0.5609756
##
   [58]
       {backbone=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.3663366 0.5606061
   [59]
       {breathes=TRUE, venomous=FALSE}
                                           {hair=TRUE} 0.4059406 0.5466667
                                         => {hair=TRUE} 0.3069307 0.5438596
   [60] {airborne=FALSE,tail=TRUE}
   [61]
       {fins=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.3168317 0.5423729
##
   [62]
       {breathes=TRUE,tail=TRUE}
                                           {hair=TRUE} 0.3267327 0.5409836
  [63] {venomous=FALSE,legs=TRUE}
                                           {hair=TRUE} 0.3960396 0.5405405
## [64] {breathes=TRUE,fins=FALSE}
                                         => {hair=TRUE} 0.4059406 0.5394737
## [65] {predator=FALSE,backbone=TRUE}
                                           {hair=TRUE} 0.1881188 0.5277778
```

```
## [66] {airborne=FALSE,venomous=FALSE} => {hair=TRUE} 0.3663366 0.5211268
## [67] {predator=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.1683168 0.5151515
## [68] {predator=FALSE}
                                         => {hair=TRUE} 0.2277228 0.5111111
## [69] {venomous=FALSE,fins=FALSE}
                                         => {hair=TRUE} 0.3861386 0.5064935
## [70] {backbone=TRUE, venomous=FALSE}
                                        => {hair=TRUE} 0.3861386 0.4936709
## [71] {backbone=TRUE}
                                         => {hair=TRUE} 0.3861386 0.4698795
## [72] {venomous=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.3267327 0.4647887
                                         => {hair=TRUE} 0.3366337 0.3863636
## [73] {domestic=FALSE}
##
        lift
## [1]
        2.3488372
## [2]
        2.3488372
## [3]
        2.3488372
##
  [4]
        2.3488372
## [5]
        2.3488372
## [6]
        2.3488372
## [7]
        2.3488372
## [8]
        2.3488372
## [9]
        2.3488372
## [10] 2.2870257
## [11] 2.2835917
## [12] 2.2342598
## [13] 2.2342598
## [14] 2.2313953
## [15] 2.2252142
## [16] 2.1769711
## [17] 2.1634027
## [18] 2.1251384
## [19] 2.0692137
## [20] 1.9699925
## [21] 1.9461794
## [22] 1.9217759
## [23] 1.8990599
## [24] 1.8594961
## [25] 1.8543452
## [26] 1.8409805
## [27] 1.8268734
## [28] 1.8067979
## [29] 1.7961696
## [30] 1.7616279
## [31] 1.7008821
## [32] 1.6850354
## [33] 1.6833333
## [34] 1.5889193
## [35] 1.5658915
## [36] 1.5658915
## [37] 1.5519103
## [38] 1.5511189
## [39] 1.5267442
## [40] 1.5047238
## [41] 1.4632101
## [42] 1.4540421
## [43] 1.4380636
## [44] 1.4313227
## [45] 1.4260797
```

```
## [46] 1.4247045
   [47] 1.4093023
   [48] 1.3946221
   [49] 1.3852117
##
   [50] 1.3701550
   [51] 1.3598531
##
   [52] 1.3513858
##
   [53] 1.3370304
##
   [54] 1.3276036
   [55] 1.3192099
   [56] 1.3176404
   [57] 1.3176404
##
   [58] 1.3167724
##
   [59] 1.2840310
   [60] 1.2774378
   [61] 1.2739456
##
   [62] 1.2706824
   [63] 1.2696417
   [64] 1.2671359
##
   [65] 1.2396641
##
   [66] 1.2240419
   [67] 1.2100070
##
   [68] 1.2005168
##
   [69] 1.1896708
   [70] 1.1595525
   [71] 1.1036705
   [72] 1.0917131
##
##
   [73]
       0.9075053
##
        lhs
                             rhs
                                           support
                                                     confidence lift
##
   [1]
                          => {hair=FALSE} 0.1287129 1.0000000
        {type=fish}
                                                                1.7413793
##
   [2]
        {breathes=FALSE} =>
                             {hair=FALSE} 0.2079208 1.0000000
                                                                 1.7413793
##
   [3]
        {legs=FALSE}
                             {hair=FALSE} 0.2178218 0.9565217
                                                                 1.6656672
##
   [4]
        {aquatic=TRUE}
                          => {hair=FALSE} 0.3168317 0.8888889
                                                                 1.5478927
   [5]
##
        {toothed=FALSE}
                          => {hair=FALSE} 0.3465347 0.8750000
                                                                 1.5237069
##
   [6]
        {backbone=FALSE}
                             {hair=FALSE} 0.1386139 0.7777778
                                                                 1.3544061
##
   [7]
        {catsize=FALSE}
                          => {hair=FALSE} 0.4356436 0.7719298
                                                                 1.3442226
   [8]
        {airborne=TRUE}
                          => {hair=FALSE} 0.1782178 0.7500000
   [9]
                          => {hair=FALSE} 0.3564356 0.6428571
##
        {predator=TRUE}
                                                                 1.1194581
   [10] {tail=FALSE}
                             {hair=FALSE} 0.1584158 0.6153846
                                                                 1.0716180
##
   [11] {backbone=TRUE}
                          => {hair=FALSE} 0.4356436 0.5301205
                                                                 0.9231408
   [12] {breathes=TRUE}
                          => {hair=FALSE} 0.3663366 0.4625000
                                                                 0.8053879
                          => {hair=FALSE} 0.3564356 0.4615385
   [13] {legs=TRUE}
                                                                 0.8037135
##
   [14] {aquatic=FALSE}
                          => {hair=FALSE} 0.2574257 0.4000000
                                                                 0.6965517
##
       lhs
                                           rhs
                                                       support
                                                                  confidence
   [1] {aquatic=FALSE,backbone=TRUE}
                                       => {hair=TRUE} 0.3465347 0.6603774
   [2] {feathers=FALSE,backbone=TRUE} => {hair=TRUE} 0.3861386 0.6190476
   [3] {backbone=TRUE,legs=TRUE}
                                       => {hair=TRUE} 0.3762376 0.5937500
   [4] {airborne=FALSE,backbone=TRUE} => {hair=TRUE} 0.3663366 0.5692308
   [5] {backbone=TRUE,breathes=TRUE}
                                       => {hair=TRUE} 0.3861386 0.5652174
   [6] {backbone=TRUE,fins=FALSE}
                                       => {hair=TRUE} 0.3663366 0.5606061
   [7] {predator=FALSE,backbone=TRUE} => {hair=TRUE} 0.1881188 0.5277778
##
   [8] {backbone=TRUE, venomous=FALSE} => {hair=TRUE} 0.3861386 0.4936709
##
       lift
## [1] 1.551119
```

```
[2] 1.454042
   [3] 1.394622
   [4] 1.337030
   [5] 1.327604
##
##
   [6] 1.316772
##
   [7] 1.239664
##
   [8] 1.159553
##
        lhs
                                            rhs
                                                         support
                                                                   confidence
##
   [1]
        {eggs=FALSE,breathes=TRUE}
                                         => {hair=TRUE} 0.3762376 0.9268293
   [2]
##
        {toothed=TRUE,breathes=TRUE}
                                         => {hair=TRUE} 0.3762376 0.8085106
   [3]
        {breathes=TRUE, catsize=TRUE}
                                         => {hair=TRUE} 0.2970297 0.7692308
   [4]
##
        {feathers=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.4257426 0.7166667
##
   [5]
        {airborne=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3663366 0.6607143
                                        =>
                                            {hair=TRUE} 0.3861386 0.6093750
##
   [6]
        {aquatic=FALSE, breathes=TRUE}
   [7]
        {breathes=TRUE,legs=TRUE}
                                         => {hair=TRUE} 0.4158416 0.5753425
##
##
   [8]
        {backbone=TRUE, breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.5652174
##
   [9]
        {predator=FALSE,breathes=TRUE} =>
                                           {hair=TRUE} 0.2277228 0.5609756
       {breathes=TRUE, venomous=FALSE} =>
                                            {hair=TRUE} 0.4059406 0.5466667
   [11] {breathes=TRUE,tail=TRUE}
                                         => {hair=TRUE} 0.3267327 0.5409836
       {breathes=TRUE,fins=FALSE}
                                         => {hair=TRUE} 0.4059406 0.5394737
##
        lift
##
  [1]
        2.176971
   [2]
##
        1.899060
   [3]
##
        1.806798
##
   [4]
        1.683333
   [5]
        1.551910
   [6]
##
        1.431323
##
   [7]
        1.351386
   [8]
##
        1.327604
##
   [9]
        1.317640
##
   [10] 1.284031
##
   [11] 1.270682
##
   [12] 1.267136
##
        lhs
                                        rhs
                                                     support
                                                               confidence
##
   [1]
        {milk=TRUE,legs=TRUE}
                                        {hair=TRUE} 0.3762376 1.0000000
##
   [2]
        {legs=TRUE, type=mammal}
                                       {hair=TRUE} 0.3762376 1.0000000
##
   [3]
        {eggs=FALSE,legs=TRUE}
                                        {hair=TRUE} 0.3663366 0.9736842
##
   [4]
        {toothed=TRUE,legs=TRUE}
                                        {hair=TRUE} 0.3663366 0.8809524
   [5]
        {legs=TRUE,catsize=TRUE}
                                        {hair=TRUE} 0.2871287 0.7837838
##
   [6]
##
        {feathers=FALSE,legs=TRUE} => {hair=TRUE} 0.4158416 0.7241379
        {airborne=FALSE,legs=TRUE} => {hair=TRUE} 0.3564356 0.6666667
   [7]
   [8]
        {aquatic=FALSE,legs=TRUE}
                                     => {hair=TRUE} 0.3861386 0.6500000
##
##
   [9]
        {backbone=TRUE,legs=TRUE}
                                     => {hair=TRUE} 0.3762376 0.5937500
   [10] {predator=FALSE,legs=TRUE} => {hair=TRUE} 0.2277228 0.5897436
##
   [11] {legs=TRUE,tail=TRUE}
                                     => {hair=TRUE} 0.3267327 0.5789474
        {breathes=TRUE,legs=TRUE} => {hair=TRUE} 0.4158416 0.5753425
##
   [13]
       {venomous=FALSE,legs=TRUE} => {hair=TRUE} 0.3960396 0.5405405
##
        lift
##
   [1]
        2.348837
##
   [2]
        2.348837
   [3]
##
        2.287026
##
   [4]
        2.069214
##
  [5]
        1.840981
## [6]
        1.700882
```

```
[7]
        1.565891
##
   [8]
        1.526744
   [9]
        1.394622
   [10] 1.385212
##
##
   [11]
       1.359853
   [12] 1.351386
##
##
   [13] 1.269642
##
        lhs
                                            rhs
                                                        support
                                                                   confidence
##
   Γ17
        {milk=TRUE,aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 1.0000000
##
   [2]
        {aquatic=FALSE, type=mammal}
                                         => {hair=TRUE} 0.3465347 1.0000000
   [3]
        {eggs=FALSE,aquatic=FALSE}
                                         => {hair=TRUE} 0.3465347 0.9722222
   [4]
##
        {aquatic=FALSE, toothed=TRUE}
                                            {hair=TRUE} 0.3465347 0.9210526
##
   [5]
        {aquatic=FALSE, catsize=TRUE}
                                         => {hair=TRUE} 0.2574257 0.8387097
   [6]
##
        {feathers=FALSE, aquatic=FALSE}
                                            {hair=TRUE} 0.3861386 0.7647059
   [7]
##
        {airborne=FALSE,aquatic=FALSE} => {hair=TRUE} 0.3267327 0.7173913
##
   [8]
        {aquatic=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3465347 0.6603774
##
   [9]
        {aquatic=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3861386 0.6500000
       {aguatic=FALSE,tail=TRUE}
                                           {hair=TRUE} 0.2970297 0.6122449
   [11] {aquatic=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6093750
       {aquatic=FALSE, venomous=FALSE} => {hair=TRUE} 0.3663366 0.6065574
##
        lift
##
  [1]
        2.348837
        2.348837
   [2]
##
   [3]
##
        2.283592
##
   [4]
        2.163403
   [5]
        1.969992
   [6]
##
        1.796170
##
   [7]
        1.685035
   [8]
##
        1.551119
##
   [9]
        1.526744
##
   [10] 1.438064
##
   [11] 1.431323
   [12] 1.424705
##
       "Número de reglas con consecuente negado"
##
        lhs
                                                         support
                                                                    confidence
##
   [1]
        {hair=TRUE,eggs=FALSE}
                                            {milk=TRUE} 0.3762376 1.0000000
   [2]
        {eggs=FALSE,catsize=TRUE}
                                             {milk=TRUE} 0.3069307 1.0000000
   [3]
        {eggs=FALSE,predator=FALSE}
                                             {milk=TRUE} 0.1881188 1.0000000
##
   [4]
                                             {milk=TRUE} 0.3960396 1.0000000
##
        {eggs=FALSE, venomous=FALSE}
   [5]
##
        {hair=TRUE,catsize=TRUE}
                                             {milk=TRUE} 0.2970297 1.0000000
   [6]
        {hair=TRUE, predator=TRUE}
                                             {milk=TRUE} 0.1980198 1.0000000
   [7]
        {hair=TRUE, toothed=TRUE}
                                             {milk=TRUE} 0.3762376 1.0000000
##
##
   [8]
        {hair=TRUE,tail=TRUE}
                                             {milk=TRUE} 0.3267327 1.0000000
##
   [9]
        {hair=TRUE,airborne=FALSE}
                                             {milk=TRUE} 0.3663366 1.0000000
  [10] {hair=TRUE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 1.0000000
   [11]
        {eggs=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.9756098
##
   [12] {eggs=FALSE,backbone=TRUE}
                                             {milk=TRUE} 0.3960396 0.9756098
   [13] {eggs=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3663366 0.9736842
   [14] {hair=TRUE, venomous=FALSE}
                                            {milk=TRUE} 0.3861386 0.9512195
   [15] {aquatic=FALSE, toothed=TRUE}
                                             {milk=TRUE} 0.3465347 0.9210526
   [16] {hair=TRUE,domestic=FALSE}
                                             {milk=TRUE} 0.3069307 0.9117647
  [17] {toothed=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3069307 0.8857143
## [18] {toothed=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3663366 0.8809524
## [19] {toothed=TRUE,breathes=TRUE}
                                             {milk=TRUE} 0.3960396 0.8510638
```

```
## [20] {feathers=FALSE,catsize=TRUE}
                                         => {milk=TRUE} 0.3168317 0.8421053
  [21] {aquatic=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.2574257 0.8387097
                                            {milk=TRUE} 0.3168317 0.8205128
  [22] {breathes=TRUE,catsize=TRUE}
  [23] {toothed=TRUE,fins=FALSE}
                                            {milk=TRUE} 0.3564356 0.8181818
##
   [24] {predator=FALSE,toothed=TRUE}
                                            {milk=TRUE} 0.1881188 0.7916667
  [25] {legs=TRUE,catsize=TRUE}
                                           {milk=TRUE} 0.2871287 0.7837838
##
  [26] {airborne=FALSE.catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7804878
  [27] {fins=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.2772277 0.7777778
   [28]
       {predator=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.1188119 0.7500000
   [29] {backbone=TRUE, catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
   [30] {venomous=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.7441860
   [31] {airborne=FALSE,aquatic=FALSE}
                                           {milk=TRUE} 0.3267327 0.7173913
   [32] {toothed=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.3960396 0.7017544
                                           {milk=TRUE} 0.3861386 0.6964286
   [33] {airborne=FALSE,breathes=TRUE}
  [34] {feathers=FALSE,aquatic=FALSE}
                                           {milk=TRUE} 0.3465347 0.6862745
   [35]
        {feathers=FALSE, breathes=TRUE}
                                            {milk=TRUE} 0.4059406 0.6833333
   [36]
       {airborne=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3564356 0.6666667
   [37] {aguatic=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.3465347 0.6603774
   [38] {toothed=TRUE}
                                           {milk=TRUE} 0.3960396 0.6557377
   [39] {feathers=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.6551724
##
  [40] {feathers=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.4059406 0.6507937
  [41] {feathers=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.3465347 0.6363636
  [42] {aquatic=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.2970297 0.6122449
##
   [43] {airborne=FALSE, predator=FALSE} =>
                                            {milk=TRUE} 0.1683168 0.6071429
  [44] {airborne=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 0.6000000
  [45] {backbone=TRUE, breathes=TRUE}
                                           {milk=TRUE} 0.4059406 0.5942029
   [46] {backbone=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5937500
   [47] {aquatic=FALSE,predator=TRUE}
                                           {milk=TRUE} 0.1584158 0.5925926
  [48] {aquatic=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3465347 0.5833333
  [49] {airborne=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3465347 0.5833333
   [50]
       {airborne=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
##
   [51]
       {legs=TRUE,tail=TRUE}
                                           {milk=TRUE} 0.3267327 0.5789474
       {feathers=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.5781250
   [53] {aquatic=FALSE, venomous=FALSE}
                                           {milk=TRUE} 0.3465347 0.5737705
       {breathes=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3465347 0.5737705
   ſ541
   [55]
##
       {predator=TRUE,breathes=TRUE}
                                           {milk=TRUE} 0.2178218 0.5641026
   [56] {feathers=FALSE, venomous=FALSE} =>
                                            {milk=TRUE} 0.4059406 0.5616438
       {backbone=TRUE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.5606061
##
   [57]
       {feathers=FALSE,predator=FALSE}
##
   [58]
                                            {milk=TRUE} 0.1881188 0.5588235
##
   [59]
       {airborne=FALSE, venomous=FALSE}
                                           {milk=TRUE} 0.3861386 0.5492958
   [60] {aquatic=FALSE, breathes=TRUE}
                                           {milk=TRUE} 0.3465347 0.5468750
   [61] {breathes=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.4059406 0.5466667
##
   [62] {fins=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3168317 0.5423729
   [63] {feathers=FALSE,airborne=FALSE}
##
                                           {milk=TRUE} 0.3861386 0.5342466
  [64] {predator=FALSE,backbone=TRUE}
                                           {milk=TRUE} 0.1881188 0.5277778
   [65]
        {breathes=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5205479
##
   [66]
        {backbone=TRUE, venomous=FALSE}
                                           {milk=TRUE} 0.4059406 0.5189873
       {predator=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.1683168 0.5151515
   [68] {venomous=FALSE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5135135
   [69] {feathers=FALSE}
                                           {milk=TRUE} 0.4059406 0.5061728
##
   [70]
       {venomous=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.4929577
## [71] {venomous=FALSE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.4805195
## [72] {predator=FALSE, venomous=FALSE} =>
                                           {milk=TRUE} 0.1881188 0.4418605
## [73] {predator=TRUE}
                                           {milk=TRUE} 0.2178218 0.3928571
```

- ## lift ## [1] 2.463415 [2] 2.463415 [3] 2.463415 ##
- ## [4] 2.463415
- ## [5] 2.463415 [6] 2.463415
- ## [7]
- 2.463415
- ## [8] 2.463415
- ## [9] 2.463415
- ## [10] 2.463415
- [11] 2.403331
- ## [12] 2.403331
- ## [13] 2.398588
- ## [14] 2.343248
- ## [15] 2.268935
- ## [16] 2.246055
- ## [17] 2.181882
- ## [18] 2.170151
- ## [19] 2.096523
- ## [20] 2.074454
- ## [21] 2.066090
- ## [22] 2.021263
- ## [23] 2.015521
- ## [24] 1.950203
- ## [25] 1.930784
- ## [26] 1.922665
- ## [27] 1.915989
- ## [28] 1.847561
- ## [29] 1.833239
- ## [30] 1.833239
- ## [31] 1.767232
- ## [32] 1.728712 ## [33] 1.715592
- ## [34] 1.690579
- ## [35] 1.683333
- ## [36] 1.642276 ## [37] 1.626783
- ## [38] 1.615354
- ## [39] 1.613961 ## [40] 1.603175
- ## [41] 1.567627
- ## [42] 1.508213
- ## [43] 1.495645
- ## [44] 1.478049
- ## [45] 1.463768
- ## [46] 1.462652
- ## [47] 1.459801
- ## [48] 1.436992
- ## [49] 1.436992
- ## [50] 1.426187
- ## [51] 1.426187
- ## [52] 1.424162
- ## [53] 1.413435

```
## [54] 1.413435
   [55] 1.389619
   [56] 1.383562
  [57] 1.381005
   [58] 1.376614
##
  [59] 1.353143
  [60] 1.347180
  [61] 1.346667
   [62] 1.336089
   [63] 1.316071
  [64] 1.300136
  [65] 1.282325
   [66] 1.278481
  [67] 1.269032
  [68] 1.264997
   [69] 1.246914
   [70] 1.214359
  [71] 1.183719
  [72] 1.088486
##
   [73] 0.967770
##
        lhs
                             rhs
                                          support
                                                     confidence lift
## [1]
                          => {milk=FALSE} 0.1287129 1.0000000
        {type=fish}
  [2]
        {backbone=FALSE} => {milk=FALSE} 0.1782178 1.0000000
##
                                                                1.6833333
                          => {milk=FALSE} 0.1980198 1.0000000
##
   [3]
        {type=bird}
                                                                1.6833333
##
  [4]
        {feathers=TRUE}
                         => {milk=FALSE} 0.1980198 1.0000000
                                                                1.6833333
  [5]
        {breathes=FALSE} => {milk=FALSE} 0.2079208 1.0000000
                                                                1.6833333
##
  [6]
                          => {milk=FALSE} 0.5742574 0.9830508
        {eggs=TRUE}
                                                                1.6548023
   [7]
        {hair=FALSE}
                          => {milk=FALSE} 0.5544554 0.9655172
                                                                1.6252874
##
  [8]
        {airborne=TRUE}
                         => {milk=FALSE} 0.2178218 0.9166667
                                                                1.5430556
  [9]
        {legs=FALSE}
                          => {milk=FALSE} 0.1980198 0.8695652
                                                                1.4637681
  [10] {aquatic=TRUE}
                          => {milk=FALSE} 0.2970297 0.8333333
                                                                1.4027778
  [11]
       {tail=FALSE}
                             {milk=FALSE} 0.1980198 0.7692308
                                                                1.2948718
  [12] {fins=TRUE}
                          => {milk=FALSE} 0.1287129 0.7647059
                                                                1.2872549
                         => {milk=FALSE} 0.3366337 0.6071429
                                                                1.0220238
  [13] {predator=TRUE}
   [14] {fins=FALSE}
                          => {milk=FALSE} 0.4653465 0.5595238
                                                                0.9418651
                          => {milk=FALSE} 0.3960396 0.5333333
##
  [15] {tail=TRUE}
                                                                0.8977778
  [16] {backbone=TRUE}
                         => {milk=FALSE} 0.4158416 0.5060241
  [17] {aquatic=FALSE}
                         => {milk=FALSE} 0.2970297 0.4615385
##
                                                                0.7769231
  [18] {toothed=TRUE}
                          => {milk=FALSE} 0.2079208 0.3442623
##
                                                                0.5795082
##
       lhs
                                         rhs
                                                      support
                                                                confidence
  [1] {hair=TRUE,predator=TRUE}
                                      => {milk=TRUE} 0.1980198 1.0000000
   [2] {aquatic=FALSE,predator=TRUE} => {milk=TRUE} 0.1584158 0.5925926
   [3] {predator=TRUE,breathes=TRUE} => {milk=TRUE} 0.2178218 0.5641026
##
##
       lift
  [1] 2.463415
   [2] 1.459801
##
   [3] 1.389619
##
       lhs
                                       rhs
                                                    support
                                                              confidence
  [1] {toothed=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3564356 0.8181818
   [2] {fins=FALSE,catsize=TRUE}
                                    => {milk=TRUE} 0.2772277 0.7777778
   [3] {airborne=FALSE,fins=FALSE} => {milk=TRUE} 0.3465347 0.5833333
## [4] {feathers=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5781250
## [5] {backbone=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3663366 0.5606061
## [6] {fins=FALSE,tail=TRUE}
                                    => {milk=TRUE} 0.3168317 0.5423729
```

```
## [7] {venomous=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.4805195
##
       lift.
## [1] 2.015521
  [2] 1.915989
##
  [3] 1.436992
  [4] 1.424162
##
  [5] 1.381005
##
  [6] 1.336089
##
  [7] 1.183719
##
       lhs
                                      rhs
                                                   support
                                                             confidence
## [1] {hair=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 1.0000000
##
  [2] {feathers=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.6363636
  [3] {aquatic=FALSE,tail=TRUE}
                                  => {milk=TRUE} 0.2970297 0.6122449
## [4] {airborne=FALSE,tail=TRUE} => {milk=TRUE} 0.3267327 0.5789474
                                   => {milk=TRUE} 0.3267327 0.5789474
## [5] {legs=TRUE,tail=TRUE}
  [6] {breathes=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3465347 0.5737705
  [7] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
  [8] {predator=FALSE,tail=TRUE} => {milk=TRUE} 0.1683168 0.5151515
   [9] {venomous=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.4929577
##
##
       lift.
## [1] 2.463415
  [2] 1.567627
## [3] 1.508213
##
  [4] 1.426187
## [5] 1.426187
  [6] 1.413435
  [7] 1.336089
##
##
   [8] 1.269032
  [9] 1.214359
##
##
        lhs
                                           rhs
                                                        support
                                                                  confidence
## [1]
        {hair=TRUE,backbone=TRUE}
                                        => {milk=TRUE} 0.3861386 1.0000000
##
   [2]
        {eggs=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3960396 0.9756098
##
  [3]
        {backbone=TRUE, catsize=TRUE}
                                        => {milk=TRUE} 0.3168317 0.7441860
  [4]
##
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
   [5]
        {feathers=FALSE,backbone=TRUE} => {milk=TRUE} 0.4059406 0.6507937
##
##
   [6]
        {airborne=FALSE,backbone=TRUE} => {milk=TRUE} 0.3861386 0.6000000
  [7]
        {backbone=TRUE,breathes=TRUE}
                                        => {milk=TRUE} 0.4059406 0.5942029
  [8]
        {backbone=TRUE,legs=TRUE}
                                        => {milk=TRUE} 0.3762376 0.5937500
##
  [9]
        {backbone=TRUE,fins=FALSE}
                                        => {milk=TRUE} 0.3663366 0.5606061
##
  [10] {predator=FALSE,backbone=TRUE} => {milk=TRUE} 0.1881188 0.5277778
##
   [11] {backbone=TRUE,venomous=FALSE} => {milk=TRUE} 0.4059406 0.5189873
##
        lift
## [1]
        2.463415
##
  [2]
        2.403331
  [3]
##
        1.833239
  [4]
##
        1.626783
##
   [5]
        1.603175
##
   [6]
        1.478049
##
  [7]
        1.463768
##
   [8]
        1.462652
##
  [9]
        1.381005
## [10] 1.300136
## [11] 1.278481
##
        lhs
                                                                  confidence
                                           rhs
                                                        support
```

```
{aquatic=FALSE,toothed=TRUE}
                                        => {milk=TRUE} 0.3465347 0.9210526
##
  [2]
        {aquatic=FALSE, catsize=TRUE}
                                        => {milk=TRUE} 0.2574257 0.8387097
        {airborne=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3267327 0.7173913
  [3]
  [4]
        {feathers=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3465347 0.6862745
##
##
   [5]
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
##
   [6]
        {aquatic=FALSE,tail=TRUE}
                                        => {milk=TRUE} 0.2970297 0.6122449
##
  [7]
        {aquatic=FALSE, predator=TRUE}
                                        => {milk=TRUE} 0.1584158 0.5925926
##
  [8]
        {aquatic=FALSE,legs=TRUE}
                                        => {milk=TRUE} 0.3465347 0.5833333
##
   [9]
        {aquatic=FALSE, venomous=FALSE} => {milk=TRUE} 0.3465347 0.5737705
##
   [10] {aquatic=FALSE,breathes=TRUE} => {milk=TRUE} 0.3465347 0.5468750
##
        lift
   [1]
        2.268935
##
##
   [2]
        2.066090
##
   [3]
        1.767232
  [4]
##
        1.690579
##
   [5]
        1.626783
   [6]
##
        1.508213
   [7]
##
        1.459801
   [8]
##
        1.436992
##
   [9]
        1.413435
##
   [10] 1.347180
##
       lhs
                                         rhs
                                                                confidence
                                                      support
  [1] {hair=TRUE,toothed=TRUE}
                                      => {milk=TRUE} 0.3762376 1.0000000
##
##
   [2] {aquatic=FALSE,toothed=TRUE}
                                      => {milk=TRUE} 0.3465347 0.9210526
  [3] {toothed=TRUE,catsize=TRUE}
                                      => {milk=TRUE} 0.3069307 0.8857143
  [4] {toothed=TRUE,legs=TRUE}
                                      => {milk=TRUE} 0.3663366 0.8809524
  [5] {toothed=TRUE,breathes=TRUE}
                                      => {milk=TRUE} 0.3960396 0.8510638
   [6] {toothed=TRUE,fins=FALSE}
                                      => {milk=TRUE} 0.3564356 0.8181818
  [7] {predator=FALSE,toothed=TRUE} => {milk=TRUE} 0.1881188 0.7916667
##
  [8] {toothed=TRUE, venomous=FALSE} => {milk=TRUE} 0.3960396 0.7017544
##
       lift
##
  [1] 2.463415
   [2] 2.268935
  [3] 2.181882
   [4] 2.170151
##
  [5] 2.096523
  [6] 2.015521
  [7] 1.950203
##
   [8]
       1.728712
##
  [1]
       "Número de reglas con consecuente negado"
##
                                            rhs
                                                          support
                                                                    confidence
##
  [1]
        {backbone=FALSE, venomous=FALSE} =>
                                            {tail=FALSE} 0.1386139 1.0000000
##
   [2]
        {backbone=FALSE}
                                         => {tail=FALSE} 0.1683168 0.9444444
##
  [3]
        {feathers=FALSE, toothed=FALSE}
                                         => {tail=FALSE} 0.1683168 0.8500000
## [4]
        {airborne=FALSE, toothed=FALSE}
                                         => {tail=FALSE} 0.1089109 0.6111111
## [5]
        {feathers=FALSE,eggs=TRUE}
                                            {tail=FALSE} 0.1980198 0.5128205
##
  [6]
        {feathers=FALSE,milk=FALSE}
                                            {tail=FALSE} 0.1980198 0.5000000
##
  [7]
        {feathers=FALSE, catsize=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4651163
  [8]
        {eggs=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1980198 0.4347826
  [9]
        {milk=FALSE,fins=FALSE}
                                            {tail=FALSE} 0.1980198 0.4255319
  [10] {hair=FALSE,feathers=FALSE}
                                            {tail=FALSE} 0.1584158 0.4210526
## [11] {fins=FALSE,catsize=FALSE}
                                            {tail=FALSE} 0.1980198 0.4166667
## [12] {eggs=TRUE,legs=TRUE}
                                         => {tail=FALSE} 0.1584158 0.4000000
## [13] {milk=FALSE,legs=TRUE}
                                            {tail=FALSE} 0.1584158 0.4000000
```

```
## [14] {feathers=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.3906250
                                         => {tail=FALSE} 0.1584158 0.3902439
## [15] {legs=TRUE,catsize=FALSE}
                                           {tail=FALSE} 0.1386139 0.3888889
  [16] {airborne=FALSE,catsize=FALSE}
  [17] {eggs=TRUE,aquatic=FALSE}
                                           {tail=FALSE} 0.1089109 0.3793103
  [18] {eggs=TRUE,airborne=FALSE}
                                            {tail=FALSE} 0.1386139 0.3783784
                                           {tail=FALSE} 0.1584158 0.3720930
  [19] {hair=FALSE,fins=FALSE}
  [20] {milk=FALSE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3684211
## [21] {milk=FALSE,aquatic=FALSE}
                                           {tail=FALSE} 0.1089109 0.3666667
  [22] {feathers=FALSE,legs=TRUE}
                                           {tail=FALSE} 0.2079208 0.3620690
  [23] {domestic=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1782178 0.3600000
  [24] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
  [25] {aquatic=FALSE,catsize=FALSE}
                                         => {tail=FALSE} 0.1188119 0.3529412
  [26] {hair=FALSE,airborne=FALSE}
                                         => {tail=FALSE} 0.1386139 0.3500000
## [27] {hair=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1188119 0.3333333
## [28] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
        {airborne=FALSE,fins=FALSE}
                                         => {tail=FALSE} 0.1881188 0.3166667
  [30] {fins=FALSE,domestic=FALSE}
                                         => {tail=FALSE} 0.2178218 0.3055556
  [31] {predator=TRUE,fins=FALSE}
                                         => {tail=FALSE} 0.1287129 0.3023256
  [32] {fins=FALSE}
                                         => {tail=FALSE} 0.2475248 0.2976190
  [33] {predator=TRUE,legs=TRUE}
                                           {tail=FALSE} 0.1089109 0.2820513
  [34] {airborne=FALSE,legs=TRUE}
                                         => {tail=FALSE} 0.1485149 0.2777778
  [35] {legs=TRUE,domestic=FALSE}
                                         => {tail=FALSE} 0.1782178 0.2727273
  [36] {domestic=FALSE}
                                         => {tail=FALSE} 0.2277228 0.2613636
##
   [37] {predator=TRUE}
                                         => {tail=FALSE} 0.1386139 0.2500000
##
   [38] {venomous=FALSE}
                                         => {tail=FALSE} 0.2178218 0.2365591
        lift
##
  [1]
        3.8846154
##
   [2]
        3.6688034
##
  [3]
        3.3019231
##
  [4]
        2.3739316
##
  [5]
        1.9921105
##
   [6]
        1.9423077
##
  [7]
        1.8067979
  [8]
##
        1.6889632
   [9]
        1.6530278
##
  [10] 1.6356275
## [11] 1.6185897
## [12] 1.5538462
  [13] 1.5538462
## [14] 1.5174279
  [15] 1.5159475
  [16] 1.5106838
## [17] 1.4734748
## [18] 1.4698545
## [19] 1.4454383
## [20] 1.4311741
## [21] 1.4243590
## [22] 1.4064987
## [23] 1.3984615
## [24] 1.3710407
## [25] 1.3710407
## [26] 1.3596154
## [27] 1.2948718
## [28] 1.2583965
```

```
## [29] 1.2301282
  [30] 1.1869658
  [31] 1.1744186
  [32] 1.1561355
   [33] 1.0956607
  [34] 1.0790598
##
  [35] 1.0594406
  [36] 1.0152972
   [37] 0.9711538
##
   [38] 0.9189413
##
        lhs
                                                   confidence lift
                             rhs
                                         support
##
   [1]
        {type=fish}
                         => {tail=TRUE} 0.1287129 1.0000000
                                                               1.3466667
##
   [2]
        {type=bird}
                          => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
##
  [3]
        {feathers=TRUE}
                         => {tail=TRUE} 0.1980198 1.0000000
                                                               1.3466667
## [4]
        {fins=TRUE}
                          => {tail=TRUE} 0.1584158 0.9411765
                                                               1.2674510
##
  [5]
        {catsize=TRUE}
                          => {tail=TRUE} 0.3762376 0.8636364
                                                               1.1630303
##
  [6]
                          => {tail=TRUE} 0.3564356 0.8571429
        {eggs=FALSE}
                                                               1.1542857
  [7]
                          => {tail=TRUE} 0.3465347 0.8536585
        {milk=TRUE}
                                                               1.1495935
##
  [8]
        {type=mammal}
                          => {tail=TRUE} 0.3465347 0.8536585
                                                               1.1495935
  [9]
        {legs=FALSE}
                          => {tail=TRUE} 0.1782178 0.7826087
                                                               1.0539130
##
  [10] {hair=TRUE}
                          => {tail=TRUE} 0.3267327 0.7674419
                                                               1.0334884
  [11] {aquatic=FALSE}
                          => {tail=TRUE} 0.4851485 0.7538462
                                                               1.0151795
## [12] {airborne=TRUE}
                         => {tail=TRUE} 0.1782178 0.7500000
                                                               1.0100000
## [13] {predator=TRUE}
                         => {tail=TRUE} 0.4158416 0.7500000
                                                               1.0100000
  [14] {domestic=FALSE} => {tail=TRUE} 0.6435644 0.7386364
                                                               0.9946970
  [15] {predator=FALSE} => {tail=TRUE} 0.3267327 0.7333333
                                                               0.9875556
                          => {tail=TRUE} 0.4158416 0.7241379
  [16] {hair=FALSE}
                                                               0.9751724
## [17] {feathers=FALSE} => {tail=TRUE} 0.5445545 0.6790123
                                                               0.9144033
  [18] {eggs=TRUE}
                         => {tail=TRUE} 0.3861386 0.6610169
                                                               0.8901695
  [19] {catsize=FALSE}
                         => {tail=TRUE} 0.3663366 0.6491228
                                                               0.8741520
##
   [20] {toothed=FALSE}
                         => {tail=TRUE} 0.2277228 0.5750000
                                                               0.7743333
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
  [1] {eggs=TRUE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3793103
   [2] {milk=FALSE,aquatic=FALSE}
                                      => {tail=FALSE} 0.1089109 0.3666667
   [3] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
##
       lift
##
  [1] 1.473475
##
  [2] 1.424359
  [3] 1.371041
##
##
       lhs
                                      rhs
                                                    support
                                                              confidence
  [1] {predator=TRUE,fins=FALSE} => {tail=FALSE} 0.1287129 0.3023256
   [2] {predator=TRUE,legs=TRUE} => {tail=FALSE} 0.1089109 0.2820513
##
##
       lift
##
  [1] 1.174419
##
   [2] 1.095661
##
       lhs
                                           rhs
                                                         support
                                                                   confidence
##
  [1] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
   [2] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
   [3] {fins=FALSE,domestic=FALSE}
                                        => {tail=FALSE} 0.2178218 0.3055556
##
   [4] {legs=TRUE,domestic=FALSE}
                                        => {tail=FALSE} 0.1782178 0.2727273
##
       lift
## [1] 1.398462
## [2] 1.258397
## [3] 1.186966
```

```
## [4] 1.059441
##
       lhs
                                                                  confidence
                                          rhs
                                                        support
  [1] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
##
##
  Γ1 1.371041
##
       lhs
                                      rhs
                                                    support
                                                              confidence
## [1] {hair=FALSE, feathers=FALSE} => {tail=FALSE} 0.1584158 0.4210526
## [2] {hair=FALSE,fins=FALSE}
                                   => {tail=FALSE} 0.1584158 0.3720930
## [3] {hair=FALSE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3500000
  [4] {hair=FALSE,legs=TRUE}
                                   => {tail=FALSE} 0.1188119 0.3333333
##
       lift
## [1] 1.635628
## [2] 1.445438
## [3] 1.359615
## [4] 1.294872
##
       lhs
                                                                  confidence
                                           rhs
                                                        support
## [1] {feathers=FALSE,toothed=FALSE}
                                       => {tail=FALSE} 0.1683168 0.8500000
## [2] {feathers=FALSE,eggs=TRUE}
                                       => {tail=FALSE} 0.1980198 0.5128205
                                       => {tail=FALSE} 0.1980198 0.5000000
## [3] {feathers=FALSE,milk=FALSE}
## [4] {feathers=FALSE, catsize=FALSE}
                                       => {tail=FALSE} 0.1980198 0.4651163
## [5] {hair=FALSE,feathers=FALSE}
                                       => {tail=FALSE} 0.1584158 0.4210526
## [6] {feathers=FALSE,fins=FALSE}
                                       => {tail=FALSE} 0.2475248 0.3906250
                                       => {tail=FALSE} 0.2079208 0.3620690
## [7] {feathers=FALSE,legs=TRUE}
## [8] {feathers=FALSE,predator=FALSE} => {tail=FALSE} 0.1188119 0.3529412
## [9] {feathers=FALSE,domestic=FALSE} => {tail=FALSE} 0.2277228 0.3239437
       lift
## [1] 3.301923
## [2] 1.992110
## [3] 1.942308
## [4] 1.806798
## [5] 1.635628
## [6] 1.517428
## [7] 1.406499
## [8] 1.371041
## [9] 1.258397
##
       lhs
                                     rhs
                                                   support
                                                             confidence
## [1] {feathers=FALSE,eggs=TRUE} => {tail=FALSE} 0.1980198 0.5128205
## [2] {eggs=TRUE,fins=FALSE}
                                  => {tail=FALSE} 0.1980198 0.4347826
## [3] {eggs=TRUE,legs=TRUE}
                                  => {tail=FALSE} 0.1584158 0.4000000
## [4] {eggs=TRUE,aquatic=FALSE} => {tail=FALSE} 0.1089109 0.3793103
## [5] {eggs=TRUE,airborne=FALSE} => {tail=FALSE} 0.1386139 0.3783784
##
       lift
## [1] 1.992110
## [2] 1.688963
## [3] 1.553846
## [4] 1.473475
## [5] 1.469854
##
       lhs
                                          rhs
                                                       support
## [1] {feathers=FALSE,catsize=FALSE} => {tail=FALSE} 0.1980198 0.4651163
## [2] {fins=FALSE,catsize=FALSE}
                                      => {tail=FALSE} 0.1980198 0.4166667
## [3] {legs=TRUE,catsize=FALSE}
                                      => {tail=FALSE} 0.1584158 0.3902439
## [4] {airborne=FALSE,catsize=FALSE} => {tail=FALSE} 0.1386139 0.3888889
## [5] {domestic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1782178 0.3600000
## [6] {aquatic=FALSE,catsize=FALSE} => {tail=FALSE} 0.1188119 0.3529412
```

```
##
       lift
##
  [1] 1.806798
   [2] 1.618590
   [3] 1.515947
   [4] 1.510684
##
   [5] 1.398462
##
   [6] 1.371041
##
       lhs
                                          rhs
                                                        support
                                                                  confidence
   [1] {feathers=FALSE,toothed=FALSE} => {tail=FALSE} 0.1683168 0.8500000
##
   [2] {airborne=FALSE,toothed=FALSE} => {tail=FALSE} 0.1089109 0.6111111
##
       lift
   [1] 3.301923
##
##
   [2] 2.373932
##
       "Número de reglas con consecuente negado"
##
                                                              support
##
   [1]
        {type=fish}
                                            {breathes=FALSE} 0.1287129
   [2]
##
                                            {breathes=FALSE} 0.1287129
        {eggs=TRUE,fins=TRUE}
   [3]
        {milk=FALSE,fins=TRUE}
                                            {breathes=FALSE} 0.1287129
   [4]
                                            {breathes=FALSE} 0.1287129
##
        {hair=FALSE,fins=TRUE}
##
   [5]
        {aquatic=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
##
   [6]
        {milk=FALSE,legs=FALSE}
                                            {breathes=FALSE} 0.1584158
        {eggs=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1485149
   [7]
                                            {breathes=FALSE} 0.1188119
##
  [8]
        {legs=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
##
   [9]
        {hair=FALSE,legs=FALSE}
   [10] {predator=TRUE,legs=FALSE}
                                            {breathes=FALSE} 0.1188119
  [11] {milk=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [12] {feathers=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [13] {milk=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
  [14] {aquatic=TRUE, catsize=FALSE}
                                            {breathes=FALSE} 0.1485149
  [15] {eggs=TRUE,toothed=TRUE}
                                            {breathes=FALSE} 0.1287129
   [16] {airborne=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [17] {eggs=TRUE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1881188
   [18] {hair=FALSE,aquatic=TRUE}
                                            {breathes=FALSE} 0.1980198
   [19] {aquatic=TRUE, toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
   [20] {hair=FALSE,toothed=TRUE}
                                            {breathes=FALSE} 0.1386139
                                            {breathes=FALSE} 0.2079208
##
  [21] {hair=FALSE,feathers=FALSE}
  [22] {milk=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
  [23] {eggs=TRUE,airborne=FALSE}
                                            {breathes=FALSE} 0.1980198
   [24] {hair=FALSE,airborne=FALSE}
                                            {breathes=FALSE} 0.2079208
   [25] {feathers=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
   [26] {feathers=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
   [27] {milk=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
  [28] {eggs=TRUE,predator=TRUE}
                                            {breathes=FALSE} 0.1584158
  [29] {hair=FALSE,predator=TRUE}
                                            {breathes=FALSE} 0.1683168
  [30] {airborne=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
                                            {breathes=FALSE} 0.1188119
   [31] {predator=TRUE, catsize=FALSE}
   [32] {hair=FALSE,milk=FALSE}
                                            {breathes=FALSE} 0.2079208
   [33] {feathers=FALSE, catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
   [34] {hair=FALSE,eggs=TRUE}
                                            {breathes=FALSE} 0.1980198
   [35] {hair=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
##
  [36]
       {hair=FALSE,catsize=FALSE}
                                            {breathes=FALSE} 0.1584158
  [37] {milk=FALSE,domestic=FALSE}
                                            {breathes=FALSE} 0.1980198
## [38] {feathers=FALSE,predator=TRUE}
                                         =>
                                            {breathes=FALSE} 0.1683168
## [39] {eggs=TRUE,domestic=FALSE}
                                            {breathes=FALSE} 0.1881188
```

```
## [40] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
  [41] {domestic=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1485149
  [42] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
## [43] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
  [44] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
  [45] {toothed=TRUE,domestic=FALSE}
##
                                         => {breathes=FALSE} 0.1287129
##
  [46] {tail=TRUE}
                                         => {breathes=FALSE} 0.1386139
##
        confidence lift
## [1]
        1.0000000
                  4.8095238
   [2]
##
        1.0000000
                   4.8095238
  [3]
        1.0000000
                   4.8095238
   [4]
##
        0.8666667
                   4.1682540
##
   [5]
        0.8333333
                   4.0079365
##
   [6]
        0.8000000
                   3.8476190
  [7]
##
        0.7894737
                   3.7969925
##
   [8]
        0.7500000
                   3.6071429
##
  [9]
        0.7272727
                   3.4978355
  [10] 0.7058824
                   3.3949580
  [11] 0.6666667
                   3.2063492
  [12] 0.6666667
                   3.2063492
## [13] 0.6666667
                   3.2063492
  [14] 0.6521739
                   3.1366460
## [15] 0.6500000
                   3.1261905
##
  [16] 0.6451613
                   3.1029186
  [17] 0.6333333
                   3.0460317
  [18] 0.6250000
                   3.0059524
  [19] 0.6086957
                   2.9275362
## [20] 0.6086957
                   2.9275362
## [21] 0.5526316
                   2.6578947
## [22] 0.5526316
                   2.6578947
## [23] 0.5405405
                   2.5997426
##
  [24] 0.5250000
                   2.5250000
  [25] 0.5250000
                   2.5250000
  [26] 0.5128205
                   2.4664225
   [27] 0.5000000
                   2.4047619
##
  [28] 0.4848485
                   2.3318903
  [29] 0.4722222
                   2.2711640
## [30] 0.444444
                   2.1375661
  [31] 0.4285714
                   2.0612245
##
  [32] 0.3750000
                   1.8035714
  [33] 0.3720930
                   1.7895903
  [34] 0.3703704
                   1.7813051
##
  [35] 0.3703704
                   1.7813051
  [36] 0.3636364
                   1.7489177
## [37] 0.3636364
                   1.7489177
  [38] 0.3617021
                   1.7396150
##
  [39] 0.3518519
                   1.6922399
  [40] 0.3469388
                   1.6686103
  [41] 0.3000000
                   1.4428571
  [42] 0.2941176
                   1.4145658
## [43] 0.2876712
                   1.3835616
## [44] 0.2816901
                   1.3547954
## [45] 0.2500000
                   1.2023810
## [46] 0.1866667
                   0.8977778
```

```
##
        lhs
                                             support
                                                        confidence lift
        {type=bird}
##
  [1]
                         => {breathes=TRUE} 0.1980198 1.0000000
                                                                  1.2625000
##
   [2]
        {feathers=TRUE}
                         => {breathes=TRUE} 0.1980198 1.0000000
   [3]
        {airborne=TRUE}
                         => {breathes=TRUE} 0.2376238 1.0000000
##
                                                                   1.2625000
##
   [4]
        {milk=TRUE}
                            {breathes=TRUE} 0.4059406 1.0000000
                                                                   1.2625000
##
   [5]
                         => {breathes=TRUE} 0.4059406 1.0000000
        {type=mammal}
                                                                   1.2625000
##
   [6]
        {hair=TRUE}
                            {breathes=TRUE} 0.4257426 1.0000000
                                                                   1.2625000
##
  [7]
        {aquatic=FALSE}
                            {breathes=TRUE} 0.6336634 0.9846154
                                                                   1.2430769
##
   [8]
        {eggs=FALSE}
                            {breathes=TRUE} 0.4059406 0.9761905
                                                                   1.2324405
##
   [9]
        {legs=TRUE}
                         => {breathes=TRUE} 0.7227723 0.9358974
                                                                   1.1815705
  [10] {domestic=TRUE}
                         => {breathes=TRUE} 0.1188119 0.9230769
                                                                   1.1653846
   [11] {predator=FALSE}
                         => {breathes=TRUE} 0.4059406 0.9111111
                                                                   1.1502778
   [12] {catsize=TRUE}
                         => {breathes=TRUE} 0.3861386 0.8863636
                                                                   1.1190341
  [13] {toothed=FALSE}
                         => {breathes=TRUE} 0.3267327 0.8250000
                                                                   1.0415625
  [14] {tail=TRUE}
                         => {breathes=TRUE} 0.6039604 0.8133333
                                                                   1.0268333
  [15]
        {domestic=FALSE} => {breathes=TRUE} 0.6732673 0.7727273
                                                                   0.9755682
  [16]
       {tail=FALSE}
                         => {breathes=TRUE} 0.1881188 0.7307692
                                                                   0.9225962
                         => {breathes=TRUE} 0.5544554 0.7272727
  [17] {airborne=FALSE}
                                                                   0.9181818
  [18] {catsize=FALSE}
                         => {breathes=TRUE} 0.4059406 0.7192982
                                                                   0.9081140
   [19] {predator=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6964286
                                                                   0.8792411
##
  [20] {eggs=TRUE}
                         => {breathes=TRUE} 0.3861386 0.6610169
                                                                   0.8345339
                         => {breathes=TRUE} 0.3861386 0.6500000
##
  [21] {milk=FALSE}
                                                                   0.8206250
##
  [22] {backbone=FALSE} => {breathes=TRUE} 0.1089109 0.6111111
                                                                   0.7715278
##
                                           rhs
                                                             support
##
  [1] {hair=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
   [2] {milk=FALSE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1980198
   [3] {eggs=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1881188
   [4] {domestic=FALSE, catsize=FALSE}
                                        => {breathes=FALSE} 0.1485149
   [5] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [6] {feathers=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
##
   [7] {toothed=TRUE,domestic=FALSE}
                                        => {breathes=FALSE} 0.1287129
##
       confidence lift
##
  [1] 0.3703704
                 1.781305
   [2] 0.3636364
                  1.748918
   [3] 0.3518519
                  1.692240
##
   [4] 0.3000000
                  1.442857
   [5] 0.2941176
                  1.414566
  [6] 0.2816901
##
                  1.354795
  [7] 0.2500000
##
                  1.202381
##
       lhs
                                           rhs
                                                             support
  [1] {airborne=FALSE,aquatic=TRUE}
                                        => {breathes=FALSE} 0.1980198
   [2] {milk=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
   [3] {eggs=TRUE,airborne=FALSE}
                                        => {breathes=FALSE} 0.1980198
   [4] {hair=FALSE,airborne=FALSE}
                                        => {breathes=FALSE} 0.2079208
  [5] {airborne=FALSE, catsize=FALSE}
                                        => {breathes=FALSE} 0.1584158
   [6] {airborne=FALSE,predator=TRUE}
                                        => {breathes=FALSE} 0.1683168
##
   [7] {airborne=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198
   [8] {feathers=FALSE,airborne=FALSE} => {breathes=FALSE} 0.2079208
##
##
       confidence lift
##
  [1] 0.6451613
                  3.102919
##
   [2] 0.5526316
                  2.657895
  [3] 0.5405405
                  2.599743
## [4] 0.5250000
                  2.525000
## [5] 0.444444
                  2.137566
```

```
## [6] 0.3469388 1.668610
  [7] 0.2941176 1.414566
  [8] 0.2876712 1.383562
##
       lhs
                                         rhs
                                                           support
## [1] {legs=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [2] {aquatic=TRUE, catsize=FALSE}
                                      => {breathes=FALSE} 0.1485149
## [3] {airborne=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
## [4] {predator=TRUE, catsize=FALSE}
                                      => {breathes=FALSE} 0.1188119
  [5] {feathers=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1584158
  [6] {hair=FALSE,catsize=FALSE}
                                      => {breathes=FALSE} 0.1584158
  [7] {domestic=FALSE,catsize=FALSE} => {breathes=FALSE} 0.1485149
##
       confidence lift
## [1] 0.7500000
                  3.607143
## [2] 0.6521739
                  3.136646
## [3] 0.444444
                  2.137566
## [4] 0.4285714
                  2.061224
## [5] 0.3720930
                  1.789590
  [6] 0.3636364
                  1.748918
##
  [7] 0.3000000
                 1.442857
##
                                                           support
## [1] {predator=TRUE,legs=FALSE}
                                      => {breathes=FALSE} 0.1188119
## [2] {milk=FALSE,predator=TRUE}
                                       => {breathes=FALSE} 0.1683168
## [3] {eggs=TRUE,predator=TRUE}
                                      => {breathes=FALSE} 0.1584158
## [4] {hair=FALSE, predator=TRUE}
                                      => {breathes=FALSE} 0.1683168
  [5] {predator=TRUE,catsize=FALSE} => {breathes=FALSE} 0.1188119
  [6] {feathers=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
   [7] {airborne=FALSE,predator=TRUE} => {breathes=FALSE} 0.1683168
##
       confidence lift
## [1] 0.7058824 3.394958
## [2] 0.5000000
                  2.404762
## [3] 0.4848485
                  2.331890
## [4] 0.4722222
                  2.271164
## [5] 0.4285714
                  2.061224
## [6] 0.3617021
                  1.739615
##
   [7] 0.3469388
                  1.668610
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
## [1] {eggs=TRUE,fins=TRUE}
                                  => {breathes=FALSE} 0.1287129 1.0000000
                                  => {breathes=FALSE} 0.1485149 0.7894737
## [2] {eggs=TRUE,legs=FALSE}
                                  => {breathes=FALSE} 0.1287129 0.6500000
## [3] {eggs=TRUE,toothed=TRUE}
                                  => {breathes=FALSE} 0.1881188 0.6333333
## [4] {eggs=TRUE,aquatic=TRUE}
## [5] {eggs=TRUE,airborne=FALSE} => {breathes=FALSE} 0.1980198 0.5405405
  [6] {feathers=FALSE,eggs=TRUE} => {breathes=FALSE} 0.1980198 0.5128205
  [7] {eggs=TRUE,predator=TRUE}
                                  => {breathes=FALSE} 0.1584158 0.4848485
                                  => {breathes=FALSE} 0.1980198 0.3703704
  [8] {hair=FALSE,eggs=TRUE}
## [9] {eggs=TRUE,domestic=FALSE} => {breathes=FALSE} 0.1881188 0.3518519
##
       lift
## [1] 4.809524
## [2] 3.796992
## [3] 3.126190
## [4] 3.046032
## [5] 2.599743
## [6] 2.466422
## [7] 2.331890
## [8] 1.781305
```

```
[9] 1.692240
##
       lhs
                                       rhs
                                                        support
                                                                   confidence
  [1] {milk=FALSE,fins=TRUE}
                                      {breathes=FALSE} 0.1287129 1.0000000
   [2] {milk=FALSE,legs=FALSE}
                                    => {breathes=FALSE} 0.1584158 0.8000000
   [3] {milk=FALSE,aquatic=TRUE}
                                       {breathes=FALSE} 0.1980198 0.6666667
  [4] {milk=FALSE,toothed=TRUE}
                                      {breathes=FALSE} 0.1386139 0.6666667
  [5] {milk=FALSE,airborne=FALSE} =>
                                       {breathes=FALSE} 0.2079208 0.5526316
   [6] {feathers=FALSE,milk=FALSE} =>
                                       {breathes=FALSE} 0.2079208 0.5250000
   [7] {milk=FALSE,predator=TRUE}
                                      {breathes=FALSE} 0.1683168 0.5000000
   [8] {hair=FALSE,milk=FALSE}
                                    => {breathes=FALSE} 0.2079208 0.3750000
   [9] {milk=FALSE,domestic=FALSE} => {breathes=FALSE} 0.1980198 0.3636364
##
       lift
##
  [1] 4.809524
##
   [2] 3.847619
  [3] 3.206349
   [4]
       3.206349
##
   [5] 2.657895
   [6] 2.525000
  [7] 2.404762
##
   [8]
      1.803571
##
   [9] 1.748918
##
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                            support
##
  [1]
        {type=fish}
                                         => {aquatic=TRUE} 0.1287129
##
   [2]
        {fins=TRUE}
                                            {aquatic=TRUE} 0.1683168
   [3]
        {breathes=FALSE,tail=TRUE}
                                           {aquatic=TRUE} 0.1386139
   [4]
        {backbone=TRUE, breathes=FALSE}
##
                                            {aquatic=TRUE} 0.1386139
##
   [5]
        {breathes=FALSE}
                                            {aquatic=TRUE} 0.1980198
##
   [6]
        {backbone=TRUE,legs=FALSE}
                                            {aquatic=TRUE} 0.1683168
##
  [7]
        {hair=FALSE,toothed=TRUE}
                                            {aquatic=TRUE} 0.1980198
##
  [8]
        {milk=FALSE,toothed=TRUE}
                                            {aquatic=TRUE} 0.1782178
##
   [9]
        {eggs=TRUE,toothed=TRUE}
                                            {aquatic=TRUE} 0.1683168
  [10] {predator=TRUE,legs=FALSE}
                                            {aquatic=TRUE} 0.1386139
  [11] {venomous=FALSE,legs=FALSE}
                                           {aquatic=TRUE} 0.1485149
   [12]
       {legs=FALSE}
                                            {aquatic=TRUE} 0.1782178
##
  [13] {eggs=TRUE,predator=TRUE}
                                           {aquatic=TRUE} 0.2277228
  [14] {hair=FALSE,predator=TRUE}
                                            {aquatic=TRUE} 0.2475248
  [15] {hair=FALSE,feathers=FALSE}
                                            {aquatic=TRUE} 0.2574257
##
  [16] {milk=FALSE,predator=TRUE}
                                            {aquatic=TRUE} 0.2277228
  [17] {eggs=TRUE,airborne=FALSE}
                                            {aquatic=TRUE} 0.2475248
  [18] {hair=FALSE,airborne=FALSE}
                                           {aquatic=TRUE} 0.2673267
  [19] {milk=FALSE,airborne=FALSE}
                                           {aquatic=TRUE} 0.2475248
  [20] {feathers=FALSE,eggs=TRUE}
                                         => {aquatic=TRUE} 0.2376238
  [21] {predator=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1683168
## [22] {feathers=FALSE,milk=FALSE}
                                           {aquatic=TRUE} 0.2376238
## [23] {hair=FALSE,backbone=TRUE}
                                            {aquatic=TRUE} 0.2574257
                                            {aquatic=TRUE} 0.1089109
  [24]
       {predator=TRUE, toothed=FALSE}
       {hair=FALSE,domestic=FALSE}
                                            {aquatic=TRUE} 0.3069307
  [26] {eggs=TRUE,backbone=TRUE}
                                         => {aquatic=TRUE} 0.2376238
   [27] {milk=FALSE,backbone=TRUE}
                                           {aquatic=TRUE} 0.2376238
  [28] {toothed=TRUE,catsize=FALSE}
##
                                         => {aquatic=TRUE} 0.1386139
## [29] {eggs=TRUE,tail=TRUE}
                                         => {aquatic=TRUE} 0.2079208
## [30] {predator=TRUE,domestic=FALSE}
                                         => {aquatic=TRUE} 0.2871287
## [31] {eggs=TRUE,domestic=FALSE}
                                           {aquatic=TRUE} 0.2871287
```

```
## [32] {airborne=FALSE,catsize=FALSE}
                                          => {aquatic=TRUE} 0.1881188
   [33]
       {milk=FALSE,domestic=FALSE}
                                            {aquatic=TRUE} 0.2871287
   [34] {milk=FALSE,tail=TRUE}
                                             {aquatic=TRUE} 0.2079208
   [35] {backbone=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1782178
##
   [36]
       {feathers=FALSE, catsize=FALSE}
                                             {aquatic=TRUE} 0.1881188
       {airborne=FALSE,domestic=FALSE}
                                             {aquatic=TRUE} 0.2970297
       {domestic=FALSE, catsize=FALSE}
   [38]
                                             {aquatic=TRUE} 0.2178218
   [39]
        {toothed=TRUE,domestic=FALSE}
                                             {aquatic=TRUE} 0.2178218
   Γ401
       {feathers=FALSE,domestic=FALSE} =>
                                             {aquatic=TRUE} 0.2871287
   [41]
       {backbone=TRUE,domestic=FALSE}
                                             {aquatic=TRUE} 0.2871287
   [42]
       {tail=TRUE,catsize=FALSE}
                                            {aquatic=TRUE} 0.1485149
   [43]
        {feathers=FALSE, backbone=TRUE}
                                             {aquatic=TRUE} 0.2376238
   [44]
        {backbone=TRUE}
                                             {aquatic=TRUE} 0.2970297
   [45]
        {tail=TRUE}
                                             {aquatic=TRUE} 0.2574257
   [46]
        {venomous=FALSE}
                                             {aquatic=TRUE} 0.3168317
   [47]
        {toothed=FALSE}
                                             {aquatic=TRUE} 0.1287129
   [48]
##
                                             {aquatic=TRUE} 0.1584158
        {breathes=TRUE}
##
        confidence lift
##
   [1]
        1.0000000
                   2.8055556
##
   [2]
        1.0000000
                   2.8055556
##
   [3]
        1.0000000
                   2.8055556
   [4]
        1.0000000
                   2.8055556
   [5]
##
        0.9523810
                   2.6719577
##
   [6]
        0.8947368
                   2.5102339
##
   [7]
        0.8695652
                   2.4396135
   [8]
        0.8571429
                    2.4047619
   [9]
##
        0.8500000
                    2.3847222
                    2.3104575
##
   [10] 0.8235294
   [11] 0.7894737
                    2.2149123
   [12] 0.7826087
                    2.1956522
   [13] 0.6969697
                    1.9553872
##
   [14] 0.6944444
                    1.9483025
   [15] 0.6842105
                    1.9195906
   [16] 0.6764706
                    1.8978758
        0.6756757
                    1.8956456
   [17]
##
   [18] 0.6750000
                    1.8937500
   [19] 0.6578947
                    1.8457602
   [20] 0.6153846
                    1.7264957
   [21] 0.6071429
                    1.7033730
   [22] 0.6000000
                    1.6833333
   [23] 0.5909091
                    1.6578283
   [24] 0.5789474
                    1.6242690
   [25] 0.5740741
                    1.6105967
   [26] 0.5714286
                    1.6031746
   [27] 0.5714286
                    1.6031746
   [28] 0.5384615
                    1.5106838
                    1.5106838
##
   [29] 0.5384615
   [30] 0.5370370
                    1.5066872
   [31]
        0.5370370
                    1.5066872
   [32]
        0.5277778
                    1.4807099
##
   [33]
                    1.4792929
        0.5272727
   [34] 0.5250000
                    1.4729167
  [35] 0.4500000
                    1.2625000
## [36] 0.4418605
                   1.2396641
```

```
[37] 0.4411765
                   1.2377451
   [38] 0.4400000
                   1.2344444
   [39] 0.4230769
                   1.1869658
  [40] 0.4084507
                   1.1459311
   [41] 0.4084507
                   1.1459311
  [42] 0.4054054
                   1.1373874
  [43] 0.3809524
                   1.0687831
  [44] 0.3614458
                   1.0140562
   [45] 0.3466667
                   0.9725926
   [46] 0.3440860
                   0.9653524
   [47] 0.3250000
                   0.9118056
##
   [48]
        0.2000000
                   0.5611111
##
        lhs
                                             support
                                                        confidence lift
##
  [1]
        {domestic=TRUE}
                             {aquatic=FALSE} 0.1188119 0.9230769
  [2]
                          => {aquatic=FALSE} 0.3861386 0.9069767
##
        {hair=TRUE}
                                                                   1.4093023
##
   [3]
                          => {aquatic=FALSE} 0.3564356 0.8571429
        {eggs=FALSE}
                                                                   1.3318681
   [4]
##
                          => {aquatic=FALSE} 0.3465347 0.8536585
        {milk=TRUE}
                                                                   1.3264540
   [5]
                          => {aquatic=FALSE} 0.3465347 0.8536585
        {type=mammal}
                                                                   1.3264540
        {predator=FALSE}
##
   [6]
                         => {aquatic=FALSE} 0.3762376 0.8444444
                                                                   1.3121368
   [7]
        {fins=FALSE}
                          => {aquatic=FALSE} 0.6435644 0.7738095
                                                                   1.2023810
##
   [8]
        {toothed=FALSE}
                          => {aquatic=FALSE} 0.2673267 0.6750000
                                                                   1.0488462
  [9]
        {toothed=TRUE}
                          => {aquatic=FALSE} 0.3762376 0.6229508
                                                                   0.9679697
  [10] {tail=FALSE}
                          => {aquatic=FALSE} 0.1584158 0.6153846
                                                                   0.9562130
   [11] {domestic=FALSE} => {aquatic=FALSE} 0.5247525 0.6022727
                                                                   0.9358392
   [12] {catsize=FALSE}
                          => {aquatic=FALSE} 0.3366337 0.5964912
                                                                   0.9268556
##
   [13] {eggs=TRUE}
                          => {aquatic=FALSE} 0.2871287 0.4915254
                                                                   0.7637549
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
##
   [1] {predator=TRUE,toothed=FALSE} => {aquatic=TRUE} 0.1089109 0.5789474
##
       lift
##
   [1] 1.624269
##
       lhs
                                                         support
                                                                   confidence
##
   [1] {hair=FALSE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1980198 0.8695652
   [2] {milk=FALSE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1782178 0.8571429
   [3] {eggs=TRUE,toothed=TRUE}
                                      => {aquatic=TRUE} 0.1683168 0.8500000
   [4] {toothed=TRUE,catsize=FALSE}
                                      => {aquatic=TRUE} 0.1386139 0.5384615
   [5] {toothed=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2178218 0.4230769
##
##
       lift.
## [1] 2.439614
   [2] 2.404762
   [3] 2.384722
   [4] 1.510684
##
   [5] 1.186966
##
       lhs
                                           rhs
                                                           support
                                                                     confidence
  [1] {hair=FALSE,domestic=FALSE}
##
                                           {aquatic=TRUE} 0.3069307 0.5740741
  [2] {predator=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
   [3] {eggs=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5370370
   [4] {milk=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.5272727
   [5] {airborne=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2970297 0.4411765
   [6] {domestic=FALSE,catsize=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4400000
   [7] {toothed=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2178218 0.4230769
   [8] {feathers=FALSE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.4084507
##
   [9] {backbone=TRUE,domestic=FALSE}
                                        => {aquatic=TRUE} 0.2871287 0.4084507
##
       lift
## [1] 1.610597
```

```
## [2] 1.506687
##
  [3] 1.506687
  [4] 1.479293
##
  [5] 1.237745
##
   [6] 1.234444
   [7] 1.186966
##
  [8] 1.145931
##
  [9] 1.145931
##
       lhs
                                          rhs
                                                          support
                                                                    confidence
##
  [1] {predator=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1683168 0.6071429
  [2] {toothed=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1386139 0.5384615
   [3] {airborne=FALSE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1881188 0.5277778
  [4] {backbone=TRUE, catsize=FALSE}
                                       => {aquatic=TRUE} 0.1782178 0.4500000
   [5] {feathers=FALSE,catsize=FALSE} =>
                                          {aquatic=TRUE} 0.1881188 0.4418605
  [6] {domestic=FALSE,catsize=FALSE} => {aquatic=TRUE} 0.2178218 0.4400000
   [7] {tail=TRUE,catsize=FALSE}
                                       => {aquatic=TRUE} 0.1485149 0.4054054
##
##
       lift
  [1] 1.703373
##
##
   [2] 1.510684
   [3] 1.480710
##
  [4] 1.262500
##
  [5] 1.239664
  [6] 1.234444
##
##
   [7] 1.137387
##
       lhs
                                      rhs
                                                      support
                                                                confidence
  [1] {eggs=TRUE,toothed=TRUE}
                                   => {aquatic=TRUE} 0.1683168 0.8500000
   [2] {eggs=TRUE,predator=TRUE}
                                   => {aquatic=TRUE} 0.2277228 0.6969697
   [3] {eggs=TRUE,airborne=FALSE} => {aquatic=TRUE} 0.2475248 0.6756757
   [4] {feathers=FALSE,eggs=TRUE} => {aquatic=TRUE} 0.2376238 0.6153846
                                   => {aquatic=TRUE} 0.2376238 0.5714286
   [5] {eggs=TRUE,backbone=TRUE}
   [6] {eggs=TRUE,tail=TRUE}
                                   => {aquatic=TRUE} 0.2079208 0.5384615
##
   [7] {eggs=TRUE,domestic=FALSE} => {aquatic=TRUE} 0.2871287 0.5370370
##
       lift
  [1] 2.384722
##
   [2] 1.955387
   [3] 1.895646
##
   [4] 1.726496
  [5] 1.603175
##
##
   [6] 1.510684
   [7] 1.506687
##
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
##
  [1]
        {type=bird}
                                            {toothed=FALSE} 0.1980198
##
   [2]
        {feathers=TRUE}
                                         => {toothed=FALSE} 0.1980198
##
  [3]
        {hair=FALSE,airborne=TRUE}
                                         => {toothed=FALSE} 0.1782178
  [4]
##
        {eggs=TRUE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
##
   [5]
        {milk=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
##
   [6]
        {milk=FALSE, aquatic=FALSE}
                                            {toothed=FALSE} 0.2673267
##
   [7]
        {eggs=TRUE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2574257
   [8]
        {hair=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2277228
##
        {eggs=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
##
   [9]
  [10] {milk=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
## [11] {hair=FALSE,legs=TRUE}
                                         => {toothed=FALSE} 0.3069307
## [12] {eggs=TRUE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
```

```
## [13] {milk=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   [14] {eggs=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
  [15] {milk=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
                                            {toothed=FALSE} 0.3168317
   [16] {eggs=TRUE,breathes=TRUE}
   [17] {milk=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
##
  [18] {hair=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3465347
  [19] {hair=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1287129
  [20] {eggs=TRUE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
   [21] {milk=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
   [22] {tail=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1584158
   [23] {hair=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.1683168
   [24] {hair=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.2772277
   [25] {tail=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.1584158
   [26] {aquatic=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1089109
                                            {toothed=FALSE} 0.1287129
  [27] {aquatic=TRUE,fins=FALSE}
   [28]
        {fins=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1683168
   [29]
                                            {toothed=FALSE} 0.3564356
        {eggs=TRUE, venomous=FALSE}
   [30] {milk=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3465347
   [31] {aquatic=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.1188119
   [32] {legs=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
##
   [33] {tail=FALSE}
                                            {toothed=FALSE} 0.1683168
  [34] {milk=FALSE}
                                            {toothed=FALSE} 0.3861386
   [35] {aquatic=FALSE, catsize=FALSE}
                                            {toothed=FALSE} 0.2178218
##
   [36]
       {fins=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
##
   [37]
       {hair=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3267327
   [38]
       {hair=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
   [39]
       {breathes=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2475248
##
   [40]
       {predator=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1683168
  [41]
       {catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
                                            {toothed=FALSE} 0.2079208
  [42] {predator=FALSE,fins=FALSE}
   [43]
        {predator=FALSE,domestic=FALSE} =>
                                            {toothed=FALSE} 0.1683168
##
   [44]
        {fins=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.3564356
   [45] {predator=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.1881188
   [46] {legs=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.3168317
        {aquatic=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.2277228
##
   [48]
       {breathes=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.2871287
##
   [49] {predator=TRUE}
                                            {toothed=FALSE} 0.1881188
##
        confidence lift
   [1]
        1.0000000
                   2.5250000
##
   [2]
##
        1.0000000
                   2.5250000
   [3]
        1.0000000
                   2.5250000
   [4]
##
        1.0000000
                   2.5250000
##
   [5]
        1.0000000
                   2.5250000
##
   [6]
        0.9000000
                   2.2725000
##
   [7]
        0.8965517
                   2.2637931
   [8]
##
        0.8846154
                   2.2336538
##
   [9]
        0.8750000
                   2.2093750
   [10] 0.8750000
                   2.2093750
   [11] 0.8611111
                   2.1743056
   [12]
        0.8500000
                   2.1462500
##
   [13] 0.8500000
                   2.1462500
  [14] 0.8478261
                   2.1407609
## [15] 0.8297872
                   2.0952128
## [16] 0.8205128
                   2.0717949
```

```
## [17] 0.8205128
                   2.0717949
   [18] 0.8139535
                   2.0552326
   [19] 0.8125000
                    2.0515625
   [20] 0.8076923
                    2.0394231
   [21] 0.8076923
                    2.0394231
   [22] 0.8000000
                    2.0200000
   [23] 0.7727273
                    1.9511364
   [24] 0.7567568
                    1.9108108
   [25] 0.6956522
                    1.7565217
   [26] 0.6875000
                    1.7359375
   [27] 0.6842105
                    1.7276316
   [28] 0.6800000
                    1.7170000
   [29] 0.6792453
                    1.7150943
   [30] 0.6730769
                    1.6995192
   [31] 0.6666667
                    1.6833333
   [32] 0.6585366
                    1.6628049
##
   [33] 0.6538462
                    1.6509615
   [34] 0.6500000
                    1.6412500
   [35] 0.6470588
                    1.6338235
   [36] 0.6458333
                    1.6307292
##
   [37] 0.6346154
                    1.6024038
   [38] 0.6136364
                    1.5494318
   [39] 0.6097561
                    1.5396341
##
   [40] 0.5862069
                    1.4801724
   [41] 0.5438596
                    1.3732456
   [42] 0.5121951
                    1.2932927
   [43] 0.5000000
                    1.2625000
   [44] 0.5000000
                    1.2625000
   [45] 0.4871795
                    1.2301282
   [46] 0.4848485
                    1.2242424
   [47] 0.4339623
                    1.0957547
##
   [48]
       0.4264706
                    1.0768382
##
   [49]
        0.3392857
                   0.8566964
##
                                                       confidence lift
        lhs
                                             support
##
   [1]
        {type=fish}
                          => {toothed=TRUE} 0.1287129 1.0000000
##
   [2]
        {fins=TRUE}
                          => {toothed=TRUE} 0.1683168 1.0000000
                                                                   1.6557377
##
   [3]
        {eggs=FALSE}
                          => {toothed=TRUE} 0.4059406 0.9761905
##
   [4]
        {legs=FALSE}
                          => {toothed=TRUE} 0.1881188 0.8260870
                                                                   1.3677833
   [5]
        {catsize=TRUE}
                             {toothed=TRUE} 0.3465347 0.7954545
##
                                                                   1.3170641
##
   [6]
        {feathers=FALSE} => {toothed=TRUE} 0.6039604 0.7530864
                                                                   1.2469136
                          => {toothed=TRUE} 0.5148515 0.6933333
   [7]
        {tail=TRUE}
                                                                   1.1479781
   [8]
        {breathes=FALSE} => {toothed=TRUE} 0.1386139 0.6666667
##
                                                                   1.1038251
##
   [9]
        {predator=TRUE}
                          => {toothed=TRUE} 0.3663366 0.6607143
                                                                   1.0939696
##
                          => {toothed=TRUE} 0.2277228 0.6388889
   [10]
       {aquatic=TRUE}
                                                                   1.0578324
  [11]
       {domestic=FALSE} => {toothed=TRUE} 0.5148515 0.5909091
                                                                   0.9783905
   [12]
        {breathes=TRUE}
                          => {toothed=TRUE} 0.4653465 0.5875000
                                                                   0.9727459
   [13]
       {predator=FALSE} => {toothed=TRUE} 0.2376238 0.5333333
                                                                   0.8830601
   [14] {catsize=FALSE}
                          => {toothed=TRUE} 0.2574257 0.4561404
                                                                   0.7552488
   [15] {hair=FALSE}
                          => {toothed=TRUE} 0.2277228 0.3965517
                                                                   0.6565856
##
   [16] {eggs=TRUE}
                          => {toothed=TRUE} 0.1980198 0.3389831
                                                                   0.5612670
##
       lhs
                                     rhs
                                                      support
                                                                 confidence
  [1] {aquatic=TRUE,fins=FALSE} => {toothed=FALSE} 0.1287129 0.6842105
##
  [2] {aquatic=TRUE,legs=TRUE} => {toothed=FALSE} 0.1188119 0.6666667
##
       lift
```

```
## [1] 1.727632
##
  [2] 1.683333
##
       lhs
                                                           support
  [1] {tail=FALSE,domestic=FALSE}
##
                                        => {toothed=FALSE} 0.1584158
##
   [2] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
   [3] {fins=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3564356
  [4] {legs=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3168317
   [5] {aquatic=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2277228
##
   [6] {breathes=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2871287
##
       confidence lift
  [1] 0.6956522
                 1.756522
##
   [2] 0.5000000
                  1.262500
   [3] 0.5000000
                  1.262500
  [4] 0.4848485
                  1.224242
## [5] 0.4339623
                  1.095755
##
   [6] 0.4264706
                  1.076838
##
       lhs
                                          rhs
                                                          support
                                                                     confidence
  [1] {eggs=TRUE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
  [2] {milk=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
   [3] {hair=FALSE, breathes=TRUE}
                                       => {toothed=FALSE} 0.2772277 0.7567568
  [4] {breathes=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2475248 0.6097561
   [5] {breathes=TRUE,domestic=FALSE} => {toothed=FALSE} 0.2871287 0.4264706
##
       lift.
  [1] 2.071795
##
  [2] 2.071795
  [3] 1.910811
  [4] 1.539634
##
   [5] 1.076838
##
       lhs
                                           rhs
                                                           support
                                        => {toothed=FALSE} 0.2079208
  [1] {eggs=TRUE,predator=FALSE}
   [2] {milk=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
   [3] {hair=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.1683168
  [4] {predator=FALSE, catsize=FALSE}
                                        => {toothed=FALSE} 0.1683168
  [5] {predator=FALSE,fins=FALSE}
                                        => {toothed=FALSE} 0.2079208
   [6] {predator=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.1683168
                                        => {toothed=FALSE} 0.1881188
##
   [7] {predator=FALSE,legs=TRUE}
##
       confidence lift
## [1] 0.8076923 2.039423
   [2] 0.8076923
                  2.039423
  [3] 0.7727273
                  1.951136
  [4] 0.5862069
                  1.480172
   [5] 0.5121951
                  1.293293
##
   [6] 0.5000000
                  1.262500
##
   [7] 0.4871795
                  1.230128
##
       lhs
                                                          support
                                                                     confidence
  [1] {tail=FALSE,catsize=FALSE}
##
                                       => {toothed=FALSE} 0.1584158 0.8000000
   [2] {legs=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6585366
   [3] {aquatic=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2178218 0.6470588
  [4] {fins=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.3069307 0.6458333
   [5] {hair=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6136364
   [6] {breathes=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2475248 0.6097561
##
   [7] {predator=FALSE, catsize=FALSE} => {toothed=FALSE} 0.1683168 0.5862069
##
       lift
## [1] 2.020000
```

```
[2] 1.662805
   [3] 1.633824
   [4] 1.630729
   [5] 1.549432
##
##
   [6] 1.539634
   [7] 1.480172
##
##
       lhs
                                       rhs
                                                        support
                                                                  confidence
                                    => {toothed=FALSE} 0.1782178 1.0000000
##
  [1] {hair=FALSE,airborne=TRUE}
   [2] {hair=FALSE,aquatic=FALSE}
                                       {toothed=FALSE} 0.2277228 0.8846154
   [3] {hair=FALSE,legs=TRUE}
                                    => {toothed=FALSE} 0.3069307 0.8611111
  [4] {hair=FALSE,fins=FALSE}
                                       {toothed=FALSE} 0.3465347 0.8139535
   [5] {hair=FALSE,tail=FALSE}
                                       {toothed=FALSE} 0.1287129 0.8125000
   [6] {hair=FALSE, predator=FALSE} =>
                                       {toothed=FALSE} 0.1683168 0.7727273
   [7] {hair=FALSE,breathes=TRUE}
                                    => {toothed=FALSE} 0.2772277 0.7567568
  [8] {hair=FALSE, venomous=FALSE} => {toothed=FALSE} 0.3267327 0.6346154
   [9] {hair=FALSE, catsize=FALSE}
                                    => {toothed=FALSE} 0.2673267 0.6136364
##
##
       lift
  [1] 2.525000
##
   [2] 2.233654
##
   [3] 2.174306
##
   [4] 2.055233
  [5] 2.051563
   [6] 1.951136
##
##
   [7] 1.910811
   [8] 1.602404
##
   [9] 1.549432
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
##
   [1] {eggs=TRUE,airborne=TRUE}
                                      {toothed=FALSE} 0.2178218 1.0000000
   [2] {eggs=TRUE,aquatic=FALSE}
                                   => {toothed=FALSE} 0.2574257 0.8965517
  [3] {eggs=TRUE,legs=TRUE}
                                   => {toothed=FALSE} 0.3465347 0.8750000
   [4] {eggs=TRUE,tail=FALSE}
                                      {toothed=FALSE} 0.1683168 0.8500000
##
   [5] {eggs=TRUE,fins=FALSE}
                                   => {toothed=FALSE} 0.3861386 0.8478261
   [6] {eggs=TRUE,breathes=TRUE}
                                   => {toothed=FALSE} 0.3168317 0.8205128
   [7] {eggs=TRUE,predator=FALSE} => {toothed=FALSE} 0.2079208 0.8076923
       {eggs=TRUE, venomous=FALSE} => {toothed=FALSE} 0.3564356 0.6792453
##
##
       lift
##
  [1] 2.525000
  [2] 2.263793
##
   [3] 2.209375
##
  [4] 2.146250
  [5] 2.140761
   [6] 2.071795
##
##
   [7] 2.039423
##
   [8] 1.715094
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {domestic=TRUE}
                                        => {predator=FALSE} 0.1089109
##
   [2]
        {hair=TRUE,catsize=FALSE}
                                        => {predator=FALSE} 0.1089109
        {airborne=TRUE,aquatic=FALSE}
##
   [3]
                                        => {predator=FALSE} 0.1485149
##
   [4]
        {airborne=TRUE}
                                        => {predator=FALSE} 0.1683168
##
   [5]
        {aquatic=FALSE, toothed=FALSE}
                                        => {predator=FALSE} 0.1881188
##
   [6]
        {aquatic=FALSE,tail=FALSE}
                                        => {predator=FALSE} 0.1089109
##
  [7]
        {aquatic=FALSE, catsize=FALSE}
                                        => {predator=FALSE} 0.2277228
## [8]
        {eggs=TRUE,aquatic=FALSE}
                                        => {predator=FALSE} 0.1881188
```

```
{toothed=FALSE,breathes=TRUE}
                                        => {predator=FALSE} 0.2079208
   [10] {milk=FALSE, aquatic=FALSE}
                                         => {predator=FALSE} 0.1881188
                                         => {predator=FALSE} 0.1188119
   [11] {breathes=TRUE,tail=FALSE}
   [12] {breathes=TRUE,catsize=FALSE}
                                        => {predator=FALSE} 0.2475248
   [13] {aquatic=FALSE, venomous=FALSE}
                                        => {predator=FALSE} 0.3564356
   [14] {eggs=TRUE,breathes=TRUE}
                                         => {predator=FALSE} 0.2178218
   [15] {milk=FALSE,breathes=TRUE}
                                         => {predator=FALSE} 0.2178218
                                        => {predator=FALSE} 0.2277228
   [16] {legs=TRUE,catsize=FALSE}
##
   [17] {type=bird}
                                         => {predator=FALSE} 0.1089109
   [18] {feathers=TRUE}
                                         => {predator=FALSE} 0.1089109
   [19] {toothed=FALSE,backbone=TRUE}
                                        => {predator=FALSE} 0.1188119
   [20] {venomous=FALSE, catsize=FALSE}
                                            {predator=FALSE} 0.2673267
   [21] {toothed=FALSE, venomous=FALSE}
                                        => {predator=FALSE} 0.1881188
   [22] {toothed=FALSE}
                                           {predator=FALSE} 0.2079208
   [23] {fins=FALSE,catsize=FALSE}
                                        => {predator=FALSE} 0.2475248
        {breathes=TRUE, venomous=FALSE}
                                           {predator=FALSE} 0.3861386
   [25]
       {catsize=FALSE}
                                         => {predator=FALSE} 0.2871287
   [26] {legs=TRUE,tail=TRUE}
                                         => {predator=FALSE} 0.2871287
   [27] {venomous=FALSE,fins=FALSE}
                                         => {predator=FALSE} 0.3861386
   [28] {fins=FALSE,tail=TRUE}
                                         => {predator=FALSE} 0.2871287
##
   [29] {milk=TRUE}
                                        => {predator=FALSE} 0.1881188
   [30] {type=mammal}
                                         => {predator=FALSE} 0.1881188
   [31] {tail=FALSE}
                                        => {predator=FALSE} 0.1188119
##
   [32]
       {eggs=FALSE}
                                         => {predator=FALSE} 0.1881188
   [33]
       {eggs=TRUE}
                                        => {predator=FALSE} 0.2574257
   Γ341
       {milk=FALSE}
                                         => {predator=FALSE} 0.2574257
   [35] {domestic=FALSE}
                                        => {predator=FALSE} 0.3366337
   [36]
       {hair=FALSE}
                                        => {predator=FALSE} 0.2178218
                                        => {predator=FALSE} 0.1584158
##
   [37] {catsize=TRUE}
        confidence lift
##
##
   [1]
        0.8461538
                   1.8991453
##
   [2]
        0.8461538
                   1.8991453
##
   [3]
        0.7894737
                   1.7719298
   [4]
##
        0.7083333
                   1.5898148
   [5]
        0.7037037
##
                   1.5794239
##
   [6]
        0.6875000
                   1.5430556
   [7]
        0.6764706
                   1.5183007
   [8]
        0.6551724
                   1.4704981
##
   [9]
        0.6363636
                   1.4282828
##
   [10] 0.6333333
                   1.4214815
   [11] 0.6315789
                   1.4175439
   [12] 0.6097561
                   1.3685637
   [13] 0.5901639
                   1.3245902
   [14] 0.5641026
                   1.2660969
   [15] 0.5641026
                   1.2660969
   [16] 0.5609756
                   1.2590786
   [17] 0.5500000
                   1.2344444
   [18] 0.5500000
                   1.2344444
   [19] 0.5454545
                   1.2242424
   [20] 0.5400000
                   1.2120000
   [21] 0.5277778
                   1.1845679
## [22] 0.5250000
                   1.1783333
## [23] 0.5208333
                   1.1689815
## [24] 0.5200000
                   1.1671111
```

```
## [25] 0.5087719 1.1419103
## [26] 0.5087719
                   1.1419103
## [27] 0.5064935
                   1.1367965
## [28] 0.4915254
                   1.1032015
## [29] 0.4634146
                   1.0401084
## [30] 0.4634146
                  1.0401084
## [31] 0.4615385
                   1.0358974
## [32] 0.4523810
                   1.0153439
## [33] 0.4406780
                   0.9890772
## [34] 0.4333333
                   0.9725926
## [35] 0.3863636
                   0.8671717
  [36] 0.3793103
                   0.8513410
   [37] 0.3636364
                   0.8161616
##
       lhs
                                            support
                                                      confidence lift
## [1] {breathes=FALSE} => {predator=TRUE} 0.1683168 0.8095238 1.4600340
  [2] {aquatic=TRUE}
                        => {predator=TRUE} 0.2871287 0.8055556
                                                                 1.4528770
## [3] {fins=TRUE}
                        => {predator=TRUE} 0.1287129 0.7647059
                                                                 1.3792017
## [4] {catsize=TRUE}
                        => {predator=TRUE} 0.2772277 0.6363636
## [5] {backbone=TRUE}
                        => {predator=TRUE} 0.4653465 0.5662651
                                                                 1.0212995
## [6] {eggs=FALSE}
                        => {predator=TRUE} 0.2277228 0.5476190
## [7] {legs=TRUE}
                        => {predator=TRUE} 0.3861386 0.5000000
                                                                 0.9017857
## [8] {hair=TRUE}
                        => {predator=TRUE} 0.1980198 0.4651163
                                                                 0.8388704
                        => {predator=TRUE} 0.2673267 0.4153846 0.7491758
##
  [9] {aquatic=FALSE}
                                                                    confidence
##
                                         rhs
                                                          support
##
  [1] {toothed=FALSE,backbone=TRUE} => {predator=FALSE} 0.1188119 0.5454545
       lift
##
  [1] 1.224242
##
                                    rhs
                                                      support
                                                                confidence
  [1] {legs=TRUE,catsize=FALSE} => {predator=FALSE} 0.2277228 0.5609756
##
   [2] {legs=TRUE,tail=TRUE}
                                 => {predator=FALSE} 0.2871287 0.5087719
##
       lift
## [1] 1.259079
##
   [2] 1.141910
##
       lhs
                                                      support
                                                                confidence
                                    rhs
   [1] {hair=TRUE,catsize=FALSE} => {predator=FALSE} 0.1089109 0.8461538
##
       lift
##
  [1] 1.899145
##
       lhs
                                          rhs
                                                           support
  [1] {airborne=TRUE, aquatic=FALSE}
                                      => {predator=FALSE} 0.1485149
  [2] {aquatic=FALSE, toothed=FALSE}
                                       => {predator=FALSE} 0.1881188
## [3] {aquatic=FALSE,tail=FALSE}
                                       => {predator=FALSE} 0.1089109
  [4] {aquatic=FALSE,catsize=FALSE}
                                      => {predator=FALSE} 0.2277228
## [5] {eggs=TRUE,aquatic=FALSE}
                                       => {predator=FALSE} 0.1881188
## [6] {milk=FALSE,aquatic=FALSE}
                                       => {predator=FALSE} 0.1881188
  [7] {aquatic=FALSE, venomous=FALSE} => {predator=FALSE} 0.3564356
##
       confidence lift
## [1] 0.7894737 1.771930
## [2] 0.7037037
                  1.579424
## [3] 0.6875000
                  1.543056
## [4] 0.6764706
                  1.518301
## [5] 0.6551724
                  1.470498
## [6] 0.6333333
                  1.421481
## [7] 0.5901639
                  1.324590
## [1] "Número de reglas con consecuente negado"
```

```
##
                                                        support
                                                                   confidence
##
   [1]
        {milk=TRUE, predator=FALSE}
                                            {hair=TRUE} 0.1881188 1.0000000
        {milk=TRUE, aquatic=FALSE}
   [2]
                                            {hair=TRUE} 0.3465347 1.0000000
                                            {hair=TRUE} 0.3762376 1.0000000
   [3]
        {milk=TRUE,legs=TRUE}
##
##
   [4]
        {milk=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.3663366 1.0000000
##
   [5]
        {predator=FALSE, type=mammal}
                                            {hair=TRUE} 0.1881188 1.0000000
        {aquatic=FALSE, type=mammal}
##
   [6]
                                            {hair=TRUE} 0.3465347 1.0000000
##
   [7]
        {legs=TRUE, type=mammal}
                                            {hair=TRUE} 0.3762376 1.0000000
##
   [8]
        {fins=FALSE,type=mammal}
                                            fhair=TRUE   0.3663366   1.0000000
##
   [9]
        {eggs=FALSE,predator=FALSE}
                                            {hair=TRUE} 0.1881188 1.0000000
   [10] {eggs=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3663366 0.9736842
   [11] {eggs=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3465347 0.9722222
##
   [12] {milk=TRUE}
                                            {hair=TRUE} 0.3861386 0.9512195
  [13] {type=mammal}
                                            {hair=TRUE} 0.3861386 0.9512195
                                            {hair=TRUE} 0.3762376 0.9500000
  [14] {eggs=FALSE, venomous=FALSE}
   [15] {eggs=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3564356 0.9473684
       {eggs=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.9268293
   [16]
   [17] {aquatic=FALSE,toothed=TRUE}
                                            {hair=TRUE} 0.3465347 0.9210526
                                            {hair=TRUE} 0.3762376 0.9047619
   [18] {eggs=FALSE}
   [19] {toothed=TRUE,legs=TRUE}
                                            {hair=TRUE} 0.3663366 0.8809524
##
  [20] {aquatic=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2574257 0.8387097
  [21] {toothed=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2871287 0.8285714
  [22] {toothed=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.3564356 0.8181818
   [23] {toothed=TRUE,breathes=TRUE}
                                            {hair=TRUE} 0.3762376 0.8085106
   [24] {predator=FALSE, toothed=TRUE}
                                            {hair=TRUE} 0.1881188 0.7916667
   [25] {feathers=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2970297 0.7894737
   [26] {legs=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2871287 0.7837838
  [27] {fins=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.2772277 0.7777778
  [28] {breathes=TRUE,catsize=TRUE}
                                            {hair=TRUE} 0.2970297 0.7692308
  [29] {feathers=FALSE, aquatic=FALSE}
                                            {hair=TRUE} 0.3861386 0.7647059
   [30] {predator=FALSE,catsize=TRUE}
                                            {hair=TRUE} 0.1188119 0.7500000
##
   [31] {feathers=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.4158416 0.7241379
   [32] {airborne=FALSE,aquatic=FALSE}
                                            {hair=TRUE} 0.3267327 0.7173913
   [33] {feathers=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.4257426 0.7166667
   [34] {feathers=FALSE, predator=FALSE}
                                            {hair=TRUE} 0.2277228 0.6764706
##
   [35] {toothed=TRUE, venomous=FALSE}
                                            {hair=TRUE} 0.3762376 0.6666667
  [36] {airborne=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3564356 0.6666667
  [37] {airborne=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3663366 0.6607143
       {aquatic=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3465347 0.6603774
##
   [38]
   [39]
##
       {aquatic=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.3861386 0.6500000
  [40] {feathers=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.4059406 0.6406250
   [41] {toothed=TRUE}
                                            {hair=TRUE} 0.3762376 0.6229508
  [42] {feathers=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3861386 0.6190476
  [43] {aquatic=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.2970297 0.6122449
## [44] {aquatic=FALSE,breathes=TRUE}
                                            {hair=TRUE} 0.3861386 0.6093750
  [45]
        {airborne=FALSE, predator=FALSE} =>
                                            {hair=TRUE} 0.1683168 0.6071429
   [46]
        {aquatic=FALSE, venomous=FALSE}
                                            {hair=TRUE} 0.3663366 0.6065574
  [47]
       {feathers=FALSE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.6000000
  [48] {backbone=TRUE,legs=TRUE}
                                           {hair=TRUE} 0.3762376 0.5937500
   [49] {predator=FALSE,legs=TRUE}
                                            {hair=TRUE} 0.2277228 0.5897436
##
  [50] {airborne=FALSE,fins=FALSE}
                                            {hair=TRUE} 0.3465347 0.5833333
## [51] {legs=TRUE,tail=TRUE}
                                            {hair=TRUE} 0.3267327 0.5789474
## [52] {breathes=TRUE,legs=TRUE}
                                           {hair=TRUE} 0.4158416 0.5753425
## [53] {airborne=FALSE,backbone=TRUE}
                                            {hair=TRUE} 0.3663366 0.5692308
```

```
## [54] {backbone=TRUE,breathes=TRUE}
                                         => {hair=TRUE} 0.3861386 0.5652174
  [55] {feathers=FALSE, venomous=FALSE} =>
                                           {hair=TRUE} 0.4059406 0.5616438
  [56] {predator=FALSE,breathes=TRUE}
                                           {hair=TRUE} 0.2277228 0.5609756
  [57] {predator=FALSE,fins=FALSE}
                                         => {hair=TRUE} 0.2277228 0.5609756
  [58] {backbone=TRUE,fins=FALSE}
                                            {hair=TRUE} 0.3663366 0.5606061
  [59] {breathes=TRUE, venomous=FALSE}
                                         => {hair=TRUE} 0.4059406 0.5466667
  [60] {airborne=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.3069307 0.5438596
  [61] {fins=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.3168317 0.5423729
   [62] {breathes=TRUE,tail=TRUE}
                                         => {hair=TRUE} 0.3267327 0.5409836
  [63] {venomous=FALSE,legs=TRUE}
                                         => {hair=TRUE} 0.3960396 0.5405405
  [64] {breathes=TRUE,fins=FALSE}
                                         => {hair=TRUE} 0.4059406 0.5394737
   [65] {predator=FALSE,backbone=TRUE}
                                         => {hair=TRUE} 0.1881188 0.5277778
   [66] {airborne=FALSE,venomous=FALSE} => {hair=TRUE} 0.3663366 0.5211268
  [67] {predator=FALSE,tail=TRUE}
                                         => {hair=TRUE} 0.1683168 0.5151515
                                         => {hair=TRUE} 0.2277228 0.5111111
  [68] {predator=FALSE}
   [69]
        {venomous=FALSE,fins=FALSE}
                                         => {hair=TRUE} 0.3861386 0.5064935
                                         => {hair=TRUE} 0.3861386 0.4936709
  [70] {backbone=TRUE, venomous=FALSE}
  [71] {backbone=TRUE}
                                         => {hair=TRUE} 0.3861386 0.4698795
                                         => {hair=TRUE} 0.3267327 0.4647887
  [72] {venomous=FALSE,tail=TRUE}
   [73] {domestic=FALSE}
                                         => {hair=TRUE} 0.3366337 0.3863636
##
        lift
## [1]
        2.3488372
       2.3488372
  [2]
##
  [3]
##
        2.3488372
##
  [4]
       2.3488372
  [5]
        2.3488372
   [6]
##
        2.3488372
##
   [7]
        2.3488372
  [8]
##
       2.3488372
## [9]
       2.3488372
## [10] 2.2870257
  [11] 2.2835917
  [12] 2.2342598
## [13] 2.2342598
   [14] 2.2313953
## [15] 2.2252142
## [16] 2.1769711
## [17] 2.1634027
## [18] 2.1251384
## [19] 2.0692137
  [20] 1.9699925
## [21] 1.9461794
## [22] 1.9217759
## [23] 1.8990599
## [24] 1.8594961
## [25] 1.8543452
  [26] 1.8409805
## [27] 1.8268734
## [28] 1.8067979
## [29] 1.7961696
## [30] 1.7616279
## [31] 1.7008821
## [32] 1.6850354
```

## [33] 1.6833333

```
## [34] 1.5889193
   [35] 1.5658915
   [36] 1.5658915
   [37] 1.5519103
   [38] 1.5511189
##
   [39] 1.5267442
   [40] 1.5047238
  [41] 1.4632101
   [42] 1.4540421
   [43] 1.4380636
   [44] 1.4313227
   [45] 1.4260797
   [46] 1.4247045
   [47] 1.4093023
   [48] 1.3946221
   [49] 1.3852117
   [50] 1.3701550
   [51] 1.3598531
   [52] 1.3513858
   [53] 1.3370304
##
   [54] 1.3276036
   [55] 1.3192099
   [56] 1.3176404
   [57] 1.3176404
##
   [58] 1.3167724
   [59] 1.2840310
   [60] 1.2774378
##
   [61] 1.2739456
   [62] 1.2706824
   [63] 1.2696417
   [64] 1.2671359
##
   [65] 1.2396641
   [66] 1.2240419
   [67] 1.2100070
   [68]
       1.2005168
##
   [69] 1.1896708
   [70] 1.1595525
   [71] 1.1036705
   [72] 1.0917131
##
   [73] 0.9075053
##
        lhs
                             rhs
                                           support
                                                     confidence lift
##
   [1]
                          => {hair=FALSE} 0.1287129 1.0000000
                                                                 1.7413793
        {type=fish}
##
   [2]
        {breathes=FALSE} => {hair=FALSE} 0.2079208 1.0000000
                                                                 1.7413793
   [3]
##
        {legs=FALSE}
                             {hair=FALSE} 0.2178218 0.9565217
                                                                 1.6656672
   [4]
        {aquatic=TRUE}
                             {hair=FALSE} 0.3168317 0.8888889
                                                                 1.5478927
   [5]
                             {hair=FALSE} 0.3465347 0.8750000
##
        {toothed=FALSE}
                          =>
                                                                 1.5237069
##
   [6]
        {backbone=FALSE}
                         =>
                             {hair=FALSE} 0.1386139 0.7777778
                                                                 1.3544061
   [7]
##
        {catsize=FALSE}
                             {hair=FALSE} 0.4356436 0.7719298
                                                                 1.3442226
   [8]
        {airborne=TRUE}
                          => {hair=FALSE} 0.1782178 0.7500000
                                                                 1.3060345
##
   [9]
        {predator=TRUE}
                             {hair=FALSE} 0.3564356 0.6428571
                                                                 1.1194581
                          => {hair=FALSE} 0.1584158 0.6153846
##
   [10]
       {tail=FALSE}
                                                                 1.0716180
## [11] {backbone=TRUE}
                          => {hair=FALSE} 0.4356436 0.5301205
                                                                 0.9231408
## [12] {breathes=TRUE}
                          => {hair=FALSE} 0.3663366 0.4625000
                                                                 0.8053879
## [13] {legs=TRUE}
                          => {hair=FALSE} 0.3564356 0.4615385
                                                                0.8037135
```

```
[14] {aquatic=FALSE} => {hair=FALSE} 0.2574257 0.4000000 0.6965517
##
       lhs
                                          rhs
                                                       support
                                                                 confidence
##
  [1] {aquatic=FALSE,backbone=TRUE} => {hair=TRUE} 0.3465347 0.6603774
   [2] {feathers=FALSE,backbone=TRUE} => {hair=TRUE} 0.3861386 0.6190476
   [3] {backbone=TRUE,legs=TRUE}
                                       => {hair=TRUE} 0.3762376 0.5937500
  [4] {airborne=FALSE,backbone=TRUE} => {hair=TRUE} 0.3663366 0.5692308
##
  [5] {backbone=TRUE,breathes=TRUE} => {hair=TRUE} 0.3861386 0.5652174
   [6] {backbone=TRUE,fins=FALSE}
                                       => {hair=TRUE} 0.3663366 0.5606061
   [7] {predator=FALSE,backbone=TRUE} => {hair=TRUE} 0.1881188 0.5277778
##
   [8] {backbone=TRUE, venomous=FALSE} => {hair=TRUE} 0.3861386 0.4936709
##
       lift
##
   [1] 1.551119
##
   [2] 1.454042
##
   [3] 1.394622
  [4] 1.337030
##
   [5] 1.327604
##
##
   [6] 1.316772
   [7] 1.239664
   [8] 1.159553
##
##
        lhs
                                                        support
                                                                  confidence
##
  [1]
        {eggs=FALSE,breathes=TRUE}
                                        => {hair=TRUE} 0.3762376 0.9268293
        {toothed=TRUE,breathes=TRUE}
                                        => {hair=TRUE} 0.3762376 0.8085106
  [2]
  [3]
##
        {breathes=TRUE, catsize=TRUE}
                                        => {hair=TRUE} 0.2970297 0.7692308
##
   [4]
        {feathers=FALSE.breathes=TRUE} => {hair=TRUE} 0.4257426 0.7166667
##
  [5]
        {airborne=FALSE,breathes=TRUE} => {hair=TRUE} 0.3663366 0.6607143
   [6]
        {aquatic=FALSE, breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.6093750
   [7]
##
        {breathes=TRUE,legs=TRUE}
                                        => {hair=TRUE} 0.4158416 0.5753425
##
   [8]
        {backbone=TRUE,breathes=TRUE}
                                        => {hair=TRUE} 0.3861386 0.5652174
##
  [9]
        {predator=FALSE,breathes=TRUE} => {hair=TRUE} 0.2277228 0.5609756
  [10] {breathes=TRUE, venomous=FALSE} => {hair=TRUE} 0.4059406 0.5466667
##
   [11]
        {breathes=TRUE,tail=TRUE}
                                        => {hair=TRUE} 0.3267327 0.5409836
##
   [12] {breathes=TRUE,fins=FALSE}
                                        => {hair=TRUE} 0.4059406 0.5394737
##
        lift
##
  [1]
        2.176971
##
   [2]
        1.899060
   [3]
##
        1.806798
##
  [4]
        1.683333
  [5]
##
        1.551910
   [6]
##
        1.431323
##
  [7]
        1.351386
  [8]
        1.327604
   [9]
##
        1.317640
##
   Γ10]
       1.284031
##
   [11] 1.270682
##
   [12] 1.267136
##
        lhs
                                       rhs
                                                    support
                                                              confidence
##
  [1]
        {milk=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.3762376 1.0000000
##
   [2]
        {legs=TRUE, type=mammal}
                                    => {hair=TRUE} 0.3762376 1.0000000
##
  [3]
        {eggs=FALSE,legs=TRUE}
                                    => {hair=TRUE} 0.3663366 0.9736842
##
   [4]
        {toothed=TRUE,legs=TRUE}
                                    => {hair=TRUE} 0.3663366 0.8809524
   [5]
##
        {legs=TRUE,catsize=TRUE}
                                    => {hair=TRUE} 0.2871287 0.7837838
##
  [6]
        {feathers=FALSE,legs=TRUE} => {hair=TRUE} 0.4158416 0.7241379
  [7]
##
        {airborne=FALSE,legs=TRUE} => {hair=TRUE} 0.3564356 0.6666667
## [8]
        {aquatic=FALSE,legs=TRUE} => {hair=TRUE} 0.3861386 0.6500000
```

```
{backbone=TRUE,legs=TRUE} => {hair=TRUE} 0.3762376 0.5937500
   [10] {predator=FALSE,legs=TRUE} => {hair=TRUE} 0.2277228 0.5897436
   [11] {legs=TRUE,tail=TRUE}
                                    => {hair=TRUE} 0.3267327 0.5789474
   [12] {breathes=TRUE,legs=TRUE} => {hair=TRUE} 0.4158416 0.5753425
##
       {venomous=FALSE,legs=TRUE} => {hair=TRUE} 0.3960396 0.5405405
##
        lift
##
  [1]
        2.348837
   [2]
##
        2.348837
##
   [3]
        2.287026
   [4]
##
        2.069214
   [5]
        1.840981
   [6]
##
        1.700882
##
   [7]
        1.565891
##
   [8]
        1.526744
   [9]
        1.394622
##
   [10] 1.385212
   [11] 1.359853
   [12] 1.351386
   [13] 1.269642
##
##
        lhs
                                                        support
                                                                   confidence
##
  [1]
        {milk=TRUE, aquatic=FALSE}
                                        => {hair=TRUE} 0.3465347 1.0000000
        {aquatic=FALSE, type=mammal}
                                         => {hair=TRUE} 0.3465347 1.0000000
  [2]
  [3]
                                        => {hair=TRUE} 0.3465347 0.9722222
        {eggs=FALSE,aquatic=FALSE}
##
##
   [4]
        {aquatic=FALSE, toothed=TRUE}
                                           {hair=TRUE} 0.3465347 0.9210526
##
   [5]
        {aquatic=FALSE, catsize=TRUE}
                                         => {hair=TRUE} 0.2574257 0.8387097
   [6]
        {feathers=FALSE, aquatic=FALSE} => {hair=TRUE} 0.3861386 0.7647059
   [7]
        {airborne=FALSE,aquatic=FALSE} => {hair=TRUE} 0.3267327 0.7173913
##
##
   [8]
        {aquatic=FALSE,backbone=TRUE}
                                        => {hair=TRUE} 0.3465347 0.6603774
   [9]
        {aquatic=FALSE,legs=TRUE}
##
                                        => {hair=TRUE} 0.3861386 0.6500000
   [10] {aquatic=FALSE,tail=TRUE}
                                        => {hair=TRUE} 0.2970297 0.6122449
       {aquatic=FALSE,breathes=TRUE} => {hair=TRUE} 0.3861386 0.6093750
##
   [12]
        {aquatic=FALSE, venomous=FALSE} => {hair=TRUE} 0.3663366 0.6065574
##
        lift
   [1]
        2.348837
##
##
   [2]
        2.348837
   [3]
##
        2.283592
##
   [4]
        2.163403
   [5]
        1.969992
##
   [6]
        1.796170
##
##
   [7]
        1.685035
   [8]
        1.551119
   [9]
##
        1.526744
##
   [10] 1.438064
##
   [11] 1.431323
  [12] 1.424705
##
   [1] "Número de reglas con consecuente negado"
##
        lhs
                                             rhs
                                                               support
##
   [1]
        {toothed=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
   [2]
        {feathers=FALSE, toothed=FALSE}
                                            {backbone=FALSE} 0.1782178
##
   [3]
        {eggs=TRUE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
   [4]
##
        {milk=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
##
  [5]
        {hair=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1287129
##
  [6]
        {tail=FALSE,catsize=FALSE}
                                         => {backbone=FALSE} 0.1584158
## [7]
        {tail=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
```

```
{aquatic=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1089109
##
   [9]
        {fins=FALSE,tail=FALSE}
                                            {backbone=FALSE} 0.1683168
  [10] {airborne=FALSE, toothed=FALSE}
                                             {backbone=FALSE} 0.1188119
  [11] {toothed=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
   [12] {toothed=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
##
  [13] {milk=FALSE,toothed=FALSE}
                                             {backbone=FALSE} 0.1782178
  [14] {toothed=FALSE}
                                             {backbone=FALSE} 0.1782178
  [15] {feathers=FALSE,milk=FALSE}
                                             {backbone=FALSE} 0.1782178
   [16] {feathers=FALSE,eggs=TRUE}
                                             {backbone=FALSE} 0.1683168
   [17] {milk=FALSE,aquatic=FALSE}
                                             {backbone=FALSE} 0.1188119
   [18] {feathers=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
       {milk=FALSE,fins=FALSE}
   [19]
                                             {backbone=FALSE} 0.1782178
   [20]
       {eggs=TRUE,aquatic=FALSE}
                                             {backbone=FALSE} 0.1089109
       {eggs=TRUE,fins=FALSE}
                                            {backbone=FALSE} 0.1683168
                                            {backbone=FALSE} 0.1386139
  [22]
       {hair=FALSE,feathers=FALSE}
   [23]
        {milk=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
   [24]
        {fins=FALSE,catsize=FALSE}
                                             {backbone=FALSE} 0.1683168
       {aquatic=FALSE, catsize=FALSE}
                                             {backbone=FALSE} 0.1188119
   [26] {milk=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
   [27]
       {eggs=TRUE,catsize=FALSE}
                                             {backbone=FALSE} 0.1584158
                                             {backbone=FALSE} 0.1386139
##
  [28]
       {hair=FALSE,fins=FALSE}
       {eggs=TRUE,legs=TRUE}
                                             {backbone=FALSE} 0.1287129
  [29]
       {domestic=FALSE,catsize=FALSE}
  [30]
                                             {backbone=FALSE} 0.1584158
   [31]
       {legs=TRUE,catsize=FALSE}
                                             {backbone=FALSE} 0.1287129
   [32] {milk=FALSE,airborne=FALSE}
                                             {backbone=FALSE} 0.1188119
   [33]
       {milk=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
       {airborne=FALSE, catsize=FALSE}
   [34]
                                            {backbone=FALSE} 0.1089109
##
   [35]
       {eggs=TRUE,airborne=FALSE}
                                             {backbone=FALSE} 0.1089109
       {eggs=TRUE,domestic=FALSE}
                                            {backbone=FALSE} 0.1584158
       {eggs=TRUE}
   [37]
                                            {backbone=FALSE} 0.1683168
##
   [38]
        {feathers=FALSE,fins=FALSE}
                                            {backbone=FALSE} 0.1782178
   [39]
        {hair=FALSE,domestic=FALSE}
                                            {backbone=FALSE} 0.1386139
       {feathers=FALSE,legs=TRUE}
                                            {backbone=FALSE} 0.1386139
   [41] {feathers=FALSE,domestic=FALSE} =>
                                            {backbone=FALSE} 0.1683168
        {fins=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1683168
##
   [43] {feathers=FALSE, aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
   [44] {aquatic=FALSE,domestic=FALSE}
                                             {backbone=FALSE} 0.1089109
   [45] {legs=TRUE,domestic=FALSE}
                                            {backbone=FALSE} 0.1287129
##
   [46] {aquatic=FALSE}
                                            {backbone=FALSE} 0.1188119
##
##
        confidence lift
   [1]
        1.0000000
                   5.611111
   [2]
        0.9000000
                   5.050000
##
##
   [3]
        0.8500000
                   4.769444
##
   [4]
                   4.769444
        0.8500000
##
  [5]
        0.8125000
                   4.559028
   [6]
##
        0.8000000
                   4.488889
##
   [7]
        0.6956522
                   3.903382
##
   [8]
        0.6875000
                   3.857639
   [9]
        0.6800000
                   3.815556
   [10]
        0.6666667
                   3.740741
##
        0.5483871
                   3.077061
   [11]
## [12] 0.4722222
                   2.649691
## [13] 0.4615385
                   2.589744
## [14] 0.4500000
                   2.525000
```

```
## [15] 0.4500000
                    2.525000
   [16] 0.4358974
                    2.445869
   [17] 0.4000000
                    2.244444
   [18] 0.3953488
                    2.218346
##
   [19] 0.3829787
                    2.148936
##
   [20] 0.3793103
                    2.128352
   [21] 0.3695652
                    2.073671
   [22] 0.3684211
                    2.067251
##
   [23] 0.3541667
                    1.987269
   [24] 0.3541667
                    1.987269
   [25] 0.3529412
                    1.980392
   [26] 0.3500000
                    1.963889
##
   [27] 0.3478261
                    1.951691
                    1.826873
   [28] 0.3255814
   [29] 0.3250000
                    1.823611
   [30] 0.3200000
                    1.795556
##
   [31] 0.3170732
                    1.779133
   [32] 0.3157895
                    1.771930
                    1.734343
   [33] 0.3090909
   [34] 0.3055556
                    1.714506
##
   [35] 0.2972973
                    1.668168
   [36] 0.2962963
                    1.662551
                    1.616761
   [37] 0.2881356
##
##
   [38] 0.2812500
                    1.578125
##
   [39] 0.2592593
                    1.454733
   [40] 0.2413793
                    1.354406
   [41] 0.2394366
                    1.343505
##
   [42] 0.2361111
                    1.324846
   [43] 0.2352941
                    1.320261
   [44] 0.2075472
                    1.164570
##
   [45] 0.1969697
                    1.105219
##
   [46]
       0.1846154
                    1.035897
##
        lhs
                                                         confidence lift
                                              support
##
   [1]
                             {backbone=TRUE} 0.1287129 1.0000000
                                                                    1.2168675
        {type=fish}
##
   [2]
        {fins=TRUE}
                             {backbone=TRUE} 0.1683168 1.0000000
                                                                    1.2168675
##
   [3]
        {type=bird}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                    1.2168675
##
   [4]
        {feathers=TRUE}
                             {backbone=TRUE} 0.1980198 1.0000000
                                                                    1.2168675
   [5]
        {milk=TRUE}
                             {backbone=TRUE} 0.4059406 1.0000000
##
                                                                    1.2168675
   [6]
                             {backbone=TRUE} 0.4059406 1.0000000
##
        {type=mammal}
                                                                    1.2168675
##
   [7]
        {toothed=TRUE}
                             {backbone=TRUE} 0.6039604 1.0000000
                                                                    1.2168675
   [8]
        {tail=TRUE}
                             {backbone=TRUE} 0.7326733 0.9866667
                                                                    1.2006426
   [9]
                             {backbone=TRUE} 0.4257426 0.9772727
##
        {catsize=TRUE}
                                                                    1.1892114
   Γ10]
       {domestic=TRUE}
                             {backbone=TRUE} 0.1188119 0.9230769
                                                                    1.1232623
##
       {breathes=TRUE}
                             {backbone=TRUE} 0.6831683 0.8625000
   [11]
                                                                    1.0495482
   [12]
       {legs=FALSE}
                             {backbone=TRUE} 0.1881188 0.8260870
                                                                    1.0052383
   [13]
       {legs=TRUE}
                             {backbone=TRUE} 0.6336634 0.8205128
                                                                    0.9984554
##
   [14]
       {aquatic=FALSE}
                             {backbone=TRUE} 0.5247525 0.8153846
                                                                    0.9922150
   [15] {predator=FALSE}
                             {backbone=TRUE} 0.3564356 0.8000000
                                                                    0.9734940
   [16] {feathers=FALSE} =>
                             {backbone=TRUE} 0.6237624 0.7777778
                                                                    0.9464525
       {airborne=TRUE}
                             {backbone=TRUE} 0.1782178 0.7500000
                                                                    0.9126506
   [17]
##
                          =>
                             {backbone=TRUE} 0.4158416 0.7118644
   [18]
        {eggs=TRUE}
                                                                    0.8662446
       {catsize=FALSE}
                          => {backbone=TRUE} 0.3960396 0.7017544
                                                                    0.8539421
## [20] {breathes=FALSE} => {backbone=TRUE} 0.1386139 0.6666667
                                                                    0.8112450
## [21] {toothed=FALSE} => {backbone=TRUE} 0.2178218 0.5500000
```

```
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
##
  [1] {milk=FALSE,legs=TRUE}
                                  => {backbone=FALSE} 0.1386139 0.3500000
                                  => {backbone=FALSE} 0.1287129 0.3250000
  [2] {eggs=TRUE,legs=TRUE}
   [3] {legs=TRUE,catsize=FALSE}
                                  => {backbone=FALSE} 0.1287129 0.3170732
   [4] {feathers=FALSE,legs=TRUE} => {backbone=FALSE} 0.1386139 0.2413793
   [5] {legs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1287129 0.1969697
##
       lift
## [1] 1.963889
##
   [2] 1.823611
  [3] 1.779133
  [4] 1.354406
##
  [5] 1.105219
##
       lhs
                                          rhs
                                                           support
##
  [1] {aquatic=FALSE,tail=FALSE}
                                      => {backbone=FALSE} 0.1089109
                                      => {backbone=FALSE} 0.1188119
  [2] {milk=FALSE,aquatic=FALSE}
  [3] {eggs=TRUE,aquatic=FALSE}
                                       => {backbone=FALSE} 0.1089109
  [4] {aquatic=FALSE, catsize=FALSE}
                                      => {backbone=FALSE} 0.1188119
   [5] {feathers=FALSE,aquatic=FALSE} => {backbone=FALSE} 0.1188119
   [6] {aquatic=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1089109
##
##
       confidence lift
##
  [1] 0.6875000 3.857639
  [2] 0.4000000 2.244444
## [3] 0.3793103
                  2.128352
   [4] 0.3529412
                  1.980392
  [5] 0.2352941
                  1.320261
##
   [6] 0.2075472 1.164570
##
       lhs
                                           rhs
                                                            support
##
  [1] {feathers=FALSE,toothed=FALSE}
                                          {backbone=FALSE} 0.1782178
  [2] {feathers=FALSE,milk=FALSE}
                                        => {backbone=FALSE} 0.1782178
  [3] {feathers=FALSE,eggs=TRUE}
                                        => {backbone=FALSE} 0.1683168
## [4] {feathers=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
  [5] {hair=FALSE, feathers=FALSE}
                                        => {backbone=FALSE} 0.1386139
  [6] {feathers=FALSE,fins=FALSE}
                                        => {backbone=FALSE} 0.1782178
  [7] {feathers=FALSE,legs=TRUE}
                                        => {backbone=FALSE} 0.1386139
   [8] {feathers=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
   [9] {feathers=FALSE,aquatic=FALSE}
                                       => {backbone=FALSE} 0.1188119
##
##
       confidence lift
## [1] 0.9000000 5.050000
   [2] 0.4500000
                  2.525000
                  2.445869
  [3] 0.4358974
  [4] 0.3953488
                  2.218346
  [5] 0.3684211
                  2.067251
   [6] 0.2812500
                  1.578125
  [7] 0.2413793
                  1.354406
## [8] 0.2394366
                  1.343505
## [9] 0.2352941
                  1.320261
##
       lhs
                                     rhs
                                                       support
                                                                 confidence
##
  [1] {eggs=TRUE,tail=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.8500000
  [2] {feathers=FALSE,eggs=TRUE} => {backbone=FALSE} 0.1683168 0.4358974
  [3] {eggs=TRUE,aquatic=FALSE}
                                  => {backbone=FALSE} 0.1089109 0.3793103
##
  [4] {eggs=TRUE,fins=FALSE}
                                  => {backbone=FALSE} 0.1683168 0.3695652
## [5] {eggs=TRUE,catsize=FALSE}
                                  => {backbone=FALSE} 0.1584158 0.3478261
## [6] {eggs=TRUE,legs=TRUE}
                                  => {backbone=FALSE} 0.1287129 0.3250000
## [7] {eggs=TRUE,airborne=FALSE} => {backbone=FALSE} 0.1089109 0.2972973
```

```
[8] {eggs=TRUE,domestic=FALSE} => {backbone=FALSE} 0.1584158 0.2962963
##
       lift.
##
   [1] 4.769444
   [2] 2.445869
   [3] 2.128352
   [4] 2.073671
##
   [5] 1.951691
##
   [6] 1.823611
   [7] 1.668168
##
   [8] 1.662551
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {tail=FALSE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
##
   [2]
        {toothed=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1683168
                                           {backbone=FALSE} 0.1683168
##
   [3]
        {feathers=FALSE,catsize=FALSE} =>
  [4]
                                        => {backbone=FALSE} 0.1683168
##
        {milk=FALSE,catsize=FALSE}
##
   [5]
        {fins=FALSE,catsize=FALSE}
                                           {backbone=FALSE} 0.1683168
##
   [6]
        {aquatic=FALSE, catsize=FALSE}
                                        => {backbone=FALSE} 0.1188119
        {eggs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1584158
   [7]
##
   [8]
        {domestic=FALSE, catsize=FALSE} => {backbone=FALSE} 0.1584158
##
   [9]
        {legs=TRUE,catsize=FALSE}
                                        => {backbone=FALSE} 0.1287129
##
   Γ107
       {airborne=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1089109
##
        confidence lift
        0.8000000 4.488889
##
  [1]
##
   [2]
        0.5483871
                   3.077061
##
   [3]
        0.3953488
                   2.218346
   [4]
        0.3541667
                   1.987269
   [5]
##
        0.3541667
                    1.987269
##
   [6]
        0.3529412
                   1.980392
##
   [7]
        0.3478261
                   1.951691
##
   [8]
        0.3200000
                   1.795556
##
   [9]
        0.3170732
                    1.779133
##
   [10] 0.3055556
                   1.714506
##
       lhs
                                                            support
##
  [1] {toothed=FALSE,tail=FALSE}
                                       => {backbone=FALSE} 0.1683168
   [2] {feathers=FALSE,toothed=FALSE} => {backbone=FALSE} 0.1782178
   [3] {airborne=FALSE, toothed=FALSE} => {backbone=FALSE} 0.1188119
   [4] {toothed=FALSE,catsize=FALSE} => {backbone=FALSE} 0.1683168
  [5] {toothed=FALSE,domestic=FALSE} => {backbone=FALSE} 0.1683168
   [6] {milk=FALSE,toothed=FALSE}
                                        => {backbone=FALSE} 0.1782178
##
##
       confidence lift
  [1] 1.0000000 5.611111
   [2] 0.9000000 5.050000
   [3] 0.6666667
                  3.740741
##
  [4] 0.5483871
                  3.077061
  [5] 0.4722222
                  2.649691
                  2.589744
   [6]
       0.4615385
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                             rhs
                                                              support
##
  [1]
        {type=bird}
                                            {toothed=FALSE} 0.1980198
##
   [2]
        {feathers=TRUE}
                                            {toothed=FALSE} 0.1980198
   [3]
##
        {hair=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.1782178
## [4]
        {eggs=TRUE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
## [5]
        {milk=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
                                          =>
## [6]
        {milk=FALSE, aquatic=FALSE}
                                            {toothed=FALSE} 0.2673267
```

```
{eggs=TRUE,aquatic=FALSE}
                                             {toothed=FALSE} 0.2574257
   [7]
   [8]
##
        {hair=FALSE,aquatic=FALSE}
                                             {toothed=FALSE} 0.2277228
        {eggs=TRUE,legs=TRUE}
   [9]
                                             {toothed=FALSE} 0.3465347
   [10] {milk=FALSE,legs=TRUE}
                                             {toothed=FALSE} 0.3465347
##
   [11] {hair=FALSE,legs=TRUE}
                                             {toothed=FALSE} 0.3069307
   [12] {eggs=TRUE,tail=FALSE}
                                             {toothed=FALSE} 0.1683168
##
   [13] {milk=FALSE,tail=FALSE}
                                             {toothed=FALSE} 0.1683168
   [14] {eggs=TRUE,fins=FALSE}
                                             {toothed=FALSE} 0.3861386
   Γ15]
       {milk=FALSE,fins=FALSE}
                                             {toothed=FALSE} 0.3861386
   [16] {eggs=TRUE,breathes=TRUE}
                                             {toothed=FALSE} 0.3168317
   [17] {milk=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
   [18] {hair=FALSE,fins=FALSE}
                                             {toothed=FALSE} 0.3465347
##
   Γ197
       {hair=FALSE,tail=FALSE}
                                             {toothed=FALSE} 0.1287129
       {eggs=TRUE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
   [21]
       {milk=FALSE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
        {tail=FALSE,catsize=FALSE}
                                             {toothed=FALSE} 0.1584158
##
   [23]
       {hair=FALSE, predator=FALSE}
                                             {toothed=FALSE} 0.1683168
   [24] {hair=FALSE,breathes=TRUE}
                                             {toothed=FALSE} 0.2772277
   [25] {tail=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.1584158
   [26] {aquatic=FALSE,tail=FALSE}
                                             {toothed=FALSE} 0.1089109
##
   [27]
       {aquatic=TRUE,fins=FALSE}
                                             {toothed=FALSE} 0.1287129
   [28] {fins=FALSE,tail=FALSE}
                                             {toothed=FALSE} 0.1683168
   [29] {eggs=TRUE, venomous=FALSE}
                                             {toothed=FALSE} 0.3564356
##
##
   [30]
       {milk=FALSE, venomous=FALSE}
                                             {toothed=FALSE} 0.3465347
   [31] {aquatic=TRUE,legs=TRUE}
                                             {toothed=FALSE} 0.1188119
   [32] {legs=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
##
   [33] {tail=FALSE}
                                             {toothed=FALSE} 0.1683168
##
   [34]
       {milk=FALSE}
                                             {toothed=FALSE} 0.3861386
##
   [35]
       {aquatic=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.2178218
       {fins=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
   [36]
##
   [37]
        {hair=FALSE, venomous=FALSE}
                                             {toothed=FALSE} 0.3267327
##
   [38]
        {hair=FALSE,catsize=FALSE}
                                             {toothed=FALSE} 0.2673267
   [39]
       {breathes=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2475248
   [40] {predator=FALSE, catsize=FALSE}
                                            {toothed=FALSE} 0.1683168
        {catsize=FALSE}
                                             {toothed=FALSE} 0.3069307
   Γ41]
##
   [42] {predator=FALSE,fins=FALSE}
                                             {toothed=FALSE} 0.2079208
   [43] {predator=FALSE,domestic=FALSE} =>
                                             {toothed=FALSE} 0.1683168
   [44] {fins=FALSE,domestic=FALSE}
                                             {toothed=FALSE} 0.3564356
##
       {predator=FALSE,legs=TRUE}
##
   [45]
                                             {toothed=FALSE} 0.1881188
##
   [46] {legs=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.3168317
   [47]
       {aquatic=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.2277228
       {breathes=TRUE,domestic=FALSE}
##
   [48]
                                            {toothed=FALSE} 0.2871287
##
   [49]
       {predator=TRUE}
                                          => {toothed=FALSE} 0.1881188
##
        confidence lift
##
   [1]
        1.0000000
                   2.5250000
   [2]
##
        1.0000000
                   2.5250000
##
   [3]
        1.0000000
                   2.5250000
##
   [4]
        1.0000000
                   2.5250000
##
   [5]
        1.0000000
                   2.5250000
##
   [6]
        0.9000000
                   2.2725000
##
   [7]
        0.8965517
                   2.2637931
##
   [8]
        0.8846154
                   2.2336538
##
   [9]
        0.8750000
                   2.2093750
## [10] 0.8750000
                   2.2093750
```

```
## [11] 0.8611111
                   2.1743056
   [12] 0.8500000
                   2.1462500
                   2.1462500
   [13] 0.8500000
   [14] 0.8478261
                    2.1407609
   [15] 0.8297872
                    2.0952128
##
   [16] 0.8205128
                   2.0717949
   [17] 0.8205128
                    2.0717949
   [18] 0.8139535
                    2.0552326
   [19] 0.8125000
                    2.0515625
   [20] 0.8076923
                    2.0394231
   [21] 0.8076923
                    2.0394231
   [22] 0.8000000
                    2.0200000
   [23] 0.7727273
                    1.9511364
   [24] 0.7567568
                    1.9108108
   [25] 0.6956522
                    1.7565217
   [26] 0.6875000
                    1.7359375
   [27] 0.6842105
                    1.7276316
   [28] 0.6800000
                    1.7170000
   [29] 0.6792453
                    1.7150943
   [30] 0.6730769
                    1.6995192
##
   [31] 0.6666667
                    1.6833333
   [32] 0.6585366
                    1.6628049
   [33] 0.6538462
                    1.6509615
##
##
   [34] 0.6500000
                    1.6412500
   [35] 0.6470588
                    1.6338235
   [36] 0.6458333
                    1.6307292
   [37] 0.6346154
                    1.6024038
##
   [38] 0.6136364
                    1.5494318
   [39] 0.6097561
                    1.5396341
   [40] 0.5862069
                    1.4801724
   [41] 0.5438596
                    1.3732456
##
   [42] 0.5121951
                    1.2932927
   [43] 0.5000000
                    1.2625000
   [44] 0.5000000
                    1.2625000
   [45]
        0.4871795
                    1.2301282
                    1.2242424
##
   [46] 0.4848485
   [47] 0.4339623
                    1.0957547
   [48] 0.4264706
                    1.0768382
##
   [49] 0.3392857
                   0.8566964
##
##
        lhs
                                             support
                                                       confidence lift
                          => {toothed=TRUE} 0.1287129 1.0000000
##
   [1]
        {type=fish}
                                                                   1.6557377
##
   [2]
        {fins=TRUE}
                          => {toothed=TRUE} 0.1683168 1.0000000
                                                                   1.6557377
##
   [3]
        {eggs=FALSE}
                          => {toothed=TRUE} 0.4059406 0.9761905
                                                                   1.6163154
##
   [4]
                          => {toothed=TRUE} 0.1881188 0.8260870
        {legs=FALSE}
                                                                   1.3677833
   [5]
##
        {catsize=TRUE}
                          => {toothed=TRUE} 0.3465347 0.7954545
                                                                   1.3170641
   [6]
##
        {feathers=FALSE} =>
                             {toothed=TRUE} 0.6039604 0.7530864
                                                                   1.2469136
##
   [7]
        {tail=TRUE}
                             {toothed=TRUE} 0.5148515 0.6933333
                                                                   1.1479781
##
   [8]
        {breathes=FALSE} => {toothed=TRUE} 0.1386139 0.6666667
                                                                   1.1038251
   [9]
        {predator=TRUE}
                          => {toothed=TRUE} 0.3663366 0.6607143
                                                                   1.0939696
   [10]
        {aquatic=TRUE}
                          => {toothed=TRUE} 0.2277228 0.6388889
                                                                   1.0578324
##
        {domestic=FALSE} => {toothed=TRUE} 0.5148515 0.5909091
   [11]
                                                                   0.9783905
  [12] {breathes=TRUE}
                          => {toothed=TRUE} 0.4653465 0.5875000
                                                                   0.9727459
## [13] {predator=FALSE} => {toothed=TRUE} 0.2376238 0.5333333
                                                                   0.8830601
## [14] {catsize=FALSE} => {toothed=TRUE} 0.2574257 0.4561404
```

```
## [15] {hair=FALSE}
                         => {toothed=TRUE} 0.2277228 0.3965517
                                                                 0.6565856
                         => {toothed=TRUE} 0.1980198 0.3389831
##
  [16] {eggs=TRUE}
                                                                 0.5612670
##
                                    rhs
                                                     support
                                                               confidence
  [1] {aquatic=TRUE,fins=FALSE} => {toothed=FALSE} 0.1287129 0.6842105
##
##
   [2] {aquatic=TRUE,legs=TRUE} => {toothed=FALSE} 0.1188119 0.6666667
##
       lift
## [1] 1.727632
## [2] 1.683333
                                                           support
##
       lhs
                                           rhs
## [1] {tail=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.1584158
## [2] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
## [3] {fins=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3564356
## [4] {legs=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3168317
## [5] {aquatic=FALSE,domestic=FALSE}
                                       => {toothed=FALSE} 0.2277228
## [6] {breathes=TRUE,domestic=FALSE}
                                       => {toothed=FALSE} 0.2871287
##
       confidence lift
## [1] 0.6956522 1.756522
  [2] 0.5000000
                 1.262500
## [3] 0.5000000
                 1.262500
## [4] 0.4848485
                  1.224242
## [5] 0.4339623
                  1.095755
  [6] 0.4264706
                 1.076838
##
       lhs
                                          rhs
                                                          support
                                                                    confidence
## [1] {eggs=TRUE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
  [2] {milk=FALSE,breathes=TRUE}
                                      => {toothed=FALSE} 0.3168317 0.8205128
  [3] {hair=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.2772277 0.7567568
  [4] {breathes=TRUE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2475248 0.6097561
##
   [5] {breathes=TRUE,domestic=FALSE} => {toothed=FALSE} 0.2871287 0.4264706
##
       lift
## [1] 2.071795
## [2] 2.071795
  [3] 1.910811
## [4] 1.539634
## [5] 1.076838
##
                                           rhs
                                                           support
## [1] {eggs=TRUE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
## [2] {milk=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
## [3] {hair=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.1683168
## [4] {predator=FALSE,catsize=FALSE}
                                        => {toothed=FALSE} 0.1683168
## [5] {predator=FALSE,fins=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [6] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
  [7] {predator=FALSE,legs=TRUE}
                                        => {toothed=FALSE} 0.1881188
##
       confidence lift
## [1] 0.8076923 2.039423
## [2] 0.8076923 2.039423
## [3] 0.7727273
                  1.951136
## [4] 0.5862069
                  1.480172
## [5] 0.5121951
                  1.293293
## [6] 0.5000000
                  1.262500
## [7] 0.4871795
                  1.230128
##
       lhs
                                          rhs
                                                          support
                                                                    confidence
## [1] {tail=FALSE,catsize=FALSE}
                                      => {toothed=FALSE} 0.1584158 0.8000000
## [2] {legs=TRUE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2673267 0.6585366
## [3] {aquatic=FALSE, catsize=FALSE}
                                     => {toothed=FALSE} 0.2178218 0.6470588
```

```
## [4] {fins=FALSE,catsize=FALSE}
                                      => {toothed=FALSE} 0.3069307 0.6458333
## [5] {hair=FALSE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2673267 0.6136364
## [6] {breathes=TRUE,catsize=FALSE} => {toothed=FALSE} 0.2475248 0.6097561
  [7] {predator=FALSE,catsize=FALSE} => {toothed=FALSE} 0.1683168 0.5862069
       lift.
## [1] 2.020000
## [2] 1.662805
## [3] 1.633824
## [4] 1.630729
## [5] 1.549432
## [6] 1.539634
## [7] 1.480172
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,airborne=TRUE}
                                   => {toothed=FALSE} 0.1782178 1.0000000
                                   => {toothed=FALSE} 0.2277228 0.8846154
## [2] {hair=FALSE,aquatic=FALSE}
## [3] {hair=FALSE,legs=TRUE}
                                   => {toothed=FALSE} 0.3069307 0.8611111
## [4] {hair=FALSE,fins=FALSE}
                                   => {toothed=FALSE} 0.3465347 0.8139535
## [5] {hair=FALSE,tail=FALSE}
                                   => {toothed=FALSE} 0.1287129 0.8125000
## [6] {hair=FALSE,predator=FALSE} => {toothed=FALSE} 0.1683168 0.7727273
## [7] {hair=FALSE,breathes=TRUE}
                                   => {toothed=FALSE} 0.2772277 0.7567568
## [8] {hair=FALSE, venomous=FALSE} => {toothed=FALSE} 0.3267327 0.6346154
## [9] {hair=FALSE,catsize=FALSE} => {toothed=FALSE} 0.2673267 0.6136364
##
       lift
## [1] 2.525000
## [2] 2.233654
## [3] 2.174306
## [4] 2.055233
## [5] 2.051563
## [6] 1.951136
## [7] 1.910811
## [8] 1.602404
## [9] 1.549432
##
       lhs
                                                      support
                                                                confidence
## [1] {eggs=TRUE,airborne=TRUE}
                                  => {toothed=FALSE} 0.2178218 1.0000000
  [2] {eggs=TRUE,aquatic=FALSE}
                                  => {toothed=FALSE} 0.2574257 0.8965517
## [3] {eggs=TRUE,legs=TRUE}
                                  => {toothed=FALSE} 0.3465347 0.8750000
## [4] {eggs=TRUE,tail=FALSE}
                                  => {toothed=FALSE} 0.1683168 0.8500000
                                  => {toothed=FALSE} 0.3861386 0.8478261
## [5] {eggs=TRUE,fins=FALSE}
## [6] {eggs=TRUE,breathes=TRUE}
                                  => {toothed=FALSE} 0.3168317 0.8205128
  [7] {eggs=TRUE,predator=FALSE} => {toothed=FALSE} 0.2079208 0.8076923
  [8] {eggs=TRUE, venomous=FALSE} => {toothed=FALSE} 0.3564356 0.6792453
##
       lift
## [1] 2.525000
## [2] 2.263793
## [3] 2.209375
## [4] 2.146250
## [5] 2.140761
## [6] 2.071795
## [7] 2.039423
## [8] 1.715094
##
       "Número de reglas con consecuente negado"
##
                                                         support
## [1]
        {type=fish}
                                         => {legs=FALSE} 0.1287129 1.0000000
## [2]
       {hair=FALSE,fins=TRUE}
                                         => {legs=FALSE} 0.1485149 1.0000000
```

```
[3]
        {eggs=TRUE,fins=TRUE}
                                         => {legs=FALSE} 0.1287129 1.0000000
##
   [4]
##
        {milk=FALSE,fins=TRUE}
                                           {legs=FALSE} 0.1287129 1.0000000
##
   [5]
        {toothed=TRUE, breathes=FALSE}
                                           {legs=FALSE} 0.1386139 1.0000000
   [6]
##
        {breathes=FALSE,tail=TRUE}
                                            {legs=FALSE} 0.1386139 1.0000000
##
   [7]
        {backbone=TRUE, breathes=FALSE}
                                            {legs=FALSE} 0.1386139 1.0000000
##
   [8]
                                           {legs=FALSE} 0.1584158 0.9411765
        {fins=TRUE}
##
   [9]
        {hair=FALSE,toothed=TRUE}
                                           {legs=FALSE} 0.1782178 0.7826087
##
  [10]
       {breathes=FALSE}
                                            {legs=FALSE} 0.1584158 0.7619048
##
   Γ11]
       {milk=FALSE,toothed=TRUE}
                                           {legs=FALSE} 0.1584158 0.7619048
   [12]
       {eggs=TRUE,toothed=TRUE}
                                           {legs=FALSE} 0.1485149 0.7500000
  [13] {aquatic=TRUE, toothed=TRUE}
                                           {legs=FALSE} 0.1683168 0.7391304
   [14] {aquatic=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1584158 0.6153846
   [15] {feathers=FALSE, aquatic=TRUE}
                                           {legs=FALSE} 0.1782178 0.6000000
##
   [16] {airborne=FALSE,aquatic=TRUE}
                                           {legs=FALSE} 0.1782178 0.5806452
                                           {legs=FALSE} 0.2178218 0.5789474
  [17] {hair=FALSE,feathers=FALSE}
        {hair=FALSE,airborne=FALSE}
                                            {legs=FALSE} 0.2178218 0.5500000
   Г187
                                           {legs=FALSE} 0.1683168 0.5312500
   [19]
       {hair=FALSE,aquatic=TRUE}
   [20] {milk=FALSE,airborne=FALSE}
                                           {legs=FALSE} 0.1980198 0.5263158
   [21] {eggs=TRUE,airborne=FALSE}
                                           {legs=FALSE} 0.1881188 0.5135135
   [22] {feathers=FALSE,milk=FALSE}
                                           {legs=FALSE} 0.1980198 0.5000000
##
  [23] {feathers=FALSE,eggs=TRUE}
                                           {legs=FALSE} 0.1881188 0.4871795
  [24] {toothed=TRUE,catsize=FALSE}
                                           {legs=FALSE} 0.1188119 0.4615385
   [25] {hair=FALSE,predator=TRUE}
                                            {legs=FALSE} 0.1584158 0.4444444
##
   [26] {airborne=FALSE, catsize=FALSE}
                                            {legs=FALSE} 0.1584158 0.4444444
  [27] {hair=FALSE,tail=TRUE}
                                            {legs=FALSE} 0.1782178 0.4285714
   [28] {milk=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1386139 0.4117647
       {hair=FALSE,backbone=TRUE}
   [29]
                                           {legs=FALSE} 0.1782178 0.4090909
##
   [30]
       {predator=TRUE,toothed=TRUE}
                                           {legs=FALSE} 0.1485149 0.4054054
       {milk=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1584158 0.4000000
   [32] {eggs=TRUE,predator=TRUE}
                                           {legs=FALSE} 0.1287129 0.3939394
        {hair=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.2079208 0.3888889
##
   [34]
       {eggs=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1485149 0.3846154
       {milk=FALSE,backbone=TRUE}
                                           {legs=FALSE} 0.1584158 0.3809524
   [35]
   [36] {feathers=FALSE,catsize=FALSE}
                                           {legs=FALSE} 0.1584158 0.3720930
       {feathers=FALSE,predator=TRUE}
   [37]
                                            {legs=FALSE} 0.1683168 0.3617021
##
   [38]
       {eggs=TRUE,backbone=TRUE}
                                           {legs=FALSE} 0.1485149 0.3571429
  [39] {airborne=FALSE,predator=TRUE}
                                           {legs=FALSE} 0.1683168 0.3469388
  [40] {toothed=TRUE,domestic=FALSE}
                                            {legs=FALSE} 0.1782178 0.3461538
   [41] {milk=FALSE,domestic=FALSE}
##
                                            {legs=FALSE} 0.1881188 0.3454545
   [42] {predator=TRUE,tail=TRUE}
                                           {legs=FALSE} 0.1386139 0.3333333
##
  [43] {eggs=TRUE,domestic=FALSE}
                                           {legs=FALSE} 0.1782178 0.3333333
   [44] {feathers=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1782178 0.3272727
   [45] {tail=TRUE,catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3243243
  [46] {airborne=FALSE,domestic=FALSE}
                                           {legs=FALSE} 0.2178218 0.3235294
  [47] {airborne=FALSE, toothed=TRUE}
                                           {legs=FALSE} 0.1881188 0.3220339
  [48]
       {airborne=FALSE,tail=TRUE}
                                           {legs=FALSE} 0.1782178 0.3157895
##
   [49]
       {feathers=FALSE,airborne=FALSE} =>
                                            {legs=FALSE} 0.2277228 0.3150685
   [50]
       {feathers=FALSE,domestic=FALSE}
                                            {legs=FALSE} 0.2178218 0.3098592
   [51] {predator=TRUE}
                                         => {legs=FALSE} 0.1683168 0.3035714
        {feathers=FALSE, backbone=TRUE}
                                           {legs=FALSE} 0.1881188 0.3015873
##
   [53]
       {backbone=TRUE, catsize=FALSE}
                                         => {legs=FALSE} 0.1188119 0.3000000
       {domestic=FALSE,catsize=FALSE}
                                         => {legs=FALSE} 0.1485149 0.3000000
  [55] {tail=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1683168 0.2615385
## [56] {backbone=TRUE,domestic=FALSE}
                                         => {legs=FALSE} 0.1782178 0.2535211
```

## lift ## [1] 4.391304 [2] 4.391304 [3] 4.391304 ## ## [4] 4.391304 ## [5] 4.391304 ## [6] 4.391304 ## [7] 4.391304 ## [8] 4.132992 ## [9] 3.436673 [10] 3.345756 [11] 3.345756 ## [12] 3.293478 ## [13] 3.245747 ## [14] 2.702341 ## [15] 2.634783 ## [16] 2.549790 [17] 2.542334 ## [18] 2.415217 ## [19] 2.332880 ## [20] 2.311213 ## [21] 2.254994 ## [22] 2.195652 ## [23] 2.139353 ## [24] 2.026756 [25] 1.951691 [26] 1.951691 ## [27] 1.881988 ## [28] 1.808184 ## [29] 1.796443 ## [30] 1.780259 ## [31] 1.756522 [32] 1.729908 ## [33] 1.707729 ## [34] 1.688963 ## [35] 1.672878 ## [36] 1.633974 ## [37] 1.588344 ## [38] 1.568323 ## [39] 1.523514 ## [40] 1.520067 ## [41] 1.516996 ## [42] 1.463768 ## [43] 1.463768 ## [44] 1.437154 ## [45] 1.424207 ## [46] 1.420716 ## [47] 1.414149 ## [48] 1.386728 ## [49] 1.383562 ## [50] 1.360686

## [51] 1.333075 ## [52] 1.324362 ## [53] 1.317391

```
[54] 1.317391
   [55] 1.148495
##
   [56] 1.113288
##
        lhs
                             rhs
                                          support
                                                    confidence lift
##
   [1]
        {type=bird}
                          => {legs=TRUE} 0.1980198 1.0000000
                                                               1.2948718
##
   [2]
                          => {legs=TRUE} 0.1980198 1.0000000
                                                               1.2948718
        {feathers=TRUE}
##
   [3]
        {airborne=TRUE}
                          => {legs=TRUE} 0.2376238 1.0000000
                                                               1.2948718
##
   [4]
        {hair=TRUE}
                          => {legs=TRUE} 0.4158416 0.9767442
                                                               1.2647585
##
   [5]
        {milk=TRUE}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                               1.2001251
##
   [6]
        {type=mammal}
                          => {legs=TRUE} 0.3762376 0.9268293
                                                               1.2001251
   [7]
        {domestic=TRUE}
                          => {legs=TRUE} 0.1188119 0.9230769
                                                               1.1952663
##
   [8]
        {aquatic=FALSE}
                          => {legs=TRUE} 0.5940594 0.9230769
                                                               1.1952663
        {eggs=FALSE}
##
   [9]
                          => {legs=TRUE} 0.3762376 0.9047619
                                                               1.1715507
                          => {legs=TRUE} 0.3564356 0.9000000
   [10]
       {toothed=FALSE}
                                                               1.1653846
   [11]
       {predator=FALSE} => {legs=TRUE} 0.3861386 0.8666667
                                                               1.122222
        {catsize=TRUE}
                          => {legs=TRUE} 0.3663366 0.8409091
   [12]
                                                               1.0888695
                          => {legs=TRUE} 0.2079208 0.8076923
   [13]
       {tail=FALSE}
                                                               1.0458580
                         => {legs=TRUE} 0.1386139 0.7777778
   [14] {backbone=FALSE}
                                                               1.0071225
                          => {legs=TRUE} 0.5643564 0.7600000
   [15] {tail=TRUE}
                                                               0.9841026
   [16] {catsize=FALSE}
                          => {legs=TRUE} 0.4059406 0.7192982
                                                               0.9313990
   [17] {airborne=FALSE}
                         => {legs=TRUE} 0.5346535 0.7012987
                                                               0.9080919
   [18] {toothed=TRUE}
                          => {legs=TRUE} 0.4158416 0.6885246
                                                               0.8915511
   [19] {eggs=TRUE}
                          => {legs=TRUE} 0.3960396 0.6779661
##
                                                               0.8778792
##
   [20] {milk=FALSE}
                          => {legs=TRUE} 0.3960396 0.6666667
                                                               0.8632479
##
   [21] {aquatic=TRUE}
                          => {legs=TRUE} 0.1782178 0.5000000
                                                               0.6474359
##
        lhs
                                       rhs
                                                     support
                                                               confidence
##
                                       {legs=FALSE} 0.1386139 1.0000000
   [1]
        {breathes=FALSE,tail=TRUE} =>
##
   [2]
        {aquatic=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.6153846
   [3]
##
        {hair=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1782178 0.4285714
                                    => {legs=FALSE} 0.1584158 0.4000000
##
   [4]
        {milk=FALSE,tail=TRUE}
##
   [5]
        {eggs=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1485149 0.3846154
##
   [6]
        {predator=TRUE,tail=TRUE}
                                    => {legs=FALSE} 0.1386139 0.3333333
##
   [7]
        {feathers=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3272727
        {tail=TRUE,catsize=FALSE}
##
   [8]
                                    => {legs=FALSE} 0.1188119 0.3243243
        {airborne=FALSE,tail=TRUE} => {legs=FALSE} 0.1782178 0.3157895
       {tail=TRUE,domestic=FALSE} => {legs=FALSE} 0.1683168 0.2615385
##
   Γ10]
##
        lift
##
  [1]
        4.391304
   [2]
        2.702341
##
   [3]
##
        1.881988
   [4]
        1.756522
   [5]
##
        1.688963
##
   [6]
        1.463768
##
   [7]
        1.437154
##
   [8]
        1.424207
   [9]
##
        1.386728
##
   [10] 1.148495
##
       lhs
                                          rhs
                                                        support
                                                                   confidence
                                       => {legs=FALSE} 0.1188119 0.4615385
   [1] {toothed=TRUE,catsize=FALSE}
   [2] {airborne=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.4444444
   [3] {feathers=FALSE,catsize=FALSE} => {legs=FALSE} 0.1584158 0.3720930
   [4] {tail=TRUE,catsize=FALSE}
                                       => {legs=FALSE} 0.1188119 0.3243243
  [5] {backbone=TRUE,catsize=FALSE} => {legs=FALSE} 0.1188119 0.3000000
## [6] {domestic=FALSE, catsize=FALSE} => {legs=FALSE} 0.1485149 0.3000000
```

```
##
       lift
## [1] 2.026756
   [2] 1.951691
   [3] 1.633974
##
   [4] 1.424207
   [5] 1.317391
##
##
   [6] 1.317391
##
        lhs
                                             rhs
                                                          support
                                                                     confidence
                                         => {legs=FALSE} 0.1782178 0.5806452
##
   [1]
        {airborne=FALSE, aquatic=TRUE}
##
   [2]
        {hair=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.2178218 0.5500000
   [3]
        {milk=FALSE,airborne=FALSE}
                                         => {legs=FALSE} 0.1980198 0.5263158
   [4]
        {eggs=TRUE,airborne=FALSE}
##
                                          => {legs=FALSE} 0.1881188 0.5135135
##
   [5]
        {airborne=FALSE, catsize=FALSE}
                                         => {legs=FALSE} 0.1584158 0.4444444
                                         => {legs=FALSE} 0.1683168 0.3469388
##
   [6]
        {airborne=FALSE, predator=TRUE}
   [7]
        {airborne=FALSE,domestic=FALSE} => {legs=FALSE} 0.2178218 0.3235294
##
##
   [8]
        {airborne=FALSE, toothed=TRUE}
                                            {legs=FALSE} 0.1881188 0.3220339
##
   [9]
        {airborne=FALSE,tail=TRUE}
                                         => {legs=FALSE} 0.1782178 0.3157895
       {feathers=FALSE,airborne=FALSE} => {legs=FALSE} 0.2277228 0.3150685
##
        lift
##
   [1]
        2.549790
##
   [2]
        2.415217
   [3]
##
        2.311213
   [4]
##
        2.254994
##
   [5]
        1.951691
##
   [6]
        1.523514
   [7]
        1.420716
   [8]
##
        1.414149
##
   [9]
        1.386728
##
   [10] 1.383562
##
       lhs
                                          rhs
                                                       support
                                                                  confidence
##
   [1] {toothed=TRUE,breathes=FALSE} => {legs=FALSE} 0.1386139 1.0000000
   [2] {hair=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1782178 0.7826087
   [3] {milk=FALSE,toothed=TRUE}
                                      => {legs=FALSE} 0.1584158 0.7619048
   [4] {eggs=TRUE,toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.7500000
   [5] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
##
   [6] {toothed=TRUE,catsize=FALSE}
                                      => {legs=FALSE} 0.1188119 0.4615385
   [7] {predator=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1485149 0.4054054
  [8] {toothed=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3461538
   [9] {airborne=FALSE,toothed=TRUE} => {legs=FALSE} 0.1881188 0.3220339
##
##
       lift
  [1] 4.391304
   [2] 3.436673
##
   [3] 3.345756
##
   [4] 3.293478
  [5] 3.245747
##
   [6] 2.026756
##
   [7] 1.780259
   [8] 1.520067
   [9] 1.414149
##
##
       lhs
                                                    support
                                                              confidence
##
   [1] {eggs=TRUE,fins=TRUE}
                                   => {legs=FALSE} 0.1287129 1.0000000
  [2] {eggs=TRUE,toothed=TRUE}
                                   => {legs=FALSE} 0.1485149 0.7500000
## [3] {eggs=TRUE,airborne=FALSE} => {legs=FALSE} 0.1881188 0.5135135
## [4] {feathers=FALSE,eggs=TRUE} => {legs=FALSE} 0.1881188 0.4871795
```

```
=> {legs=FALSE} 0.1287129 0.3939394
## [5] {eggs=TRUE,predator=TRUE}
                                   => {legs=FALSE} 0.1485149 0.3846154
  [6] {eggs=TRUE,tail=TRUE}
  [7] {eggs=TRUE,backbone=TRUE} => {legs=FALSE} 0.1485149 0.3571429
   [8] {eggs=TRUE,domestic=FALSE} => {legs=FALSE} 0.1782178 0.3333333
##
       lift.
## [1] 4.391304
## [2] 3.293478
## [3] 2.254994
##
  [4] 2.139353
  [5] 1.729908
  [6] 1.688963
##
  [7] 1.568323
##
   [8] 1.463768
##
       lhs
                                                    support
                                                               confidence
## [1] {milk=FALSE,fins=TRUE}
                                      {legs=FALSE} 0.1287129 1.0000000
   [2] {milk=FALSE,toothed=TRUE}
                                    => {legs=FALSE} 0.1584158 0.7619048
  [3] {milk=FALSE,airborne=FALSE} => {legs=FALSE} 0.1980198 0.5263158
  [4] {feathers=FALSE,milk=FALSE} => {legs=FALSE} 0.1980198 0.5000000
  [5] {milk=FALSE,predator=TRUE}
                                   => {legs=FALSE} 0.1386139 0.4117647
  [6] {milk=FALSE,tail=TRUE}
                                    => {legs=FALSE} 0.1584158 0.4000000
## [7] {milk=FALSE,backbone=TRUE}
                                   => {legs=FALSE} 0.1584158 0.3809524
  [8] {milk=FALSE,domestic=FALSE} => {legs=FALSE} 0.1881188 0.3454545
##
       lift.
## [1] 4.391304
## [2] 3.345756
## [3] 2.311213
  [4] 2.195652
## [5] 1.808184
## [6] 1.756522
## [7] 1.672878
##
  [8] 1.516996
##
       lhs
                                         rhs
                                                      support
                                                                 confidence
  [1] {aquatic=TRUE, toothed=TRUE}
                                      => {legs=FALSE} 0.1683168 0.7391304
  [2] {aquatic=TRUE,tail=TRUE}
                                      => {legs=FALSE} 0.1584158 0.6153846
   [3] {feathers=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.6000000
##
  [4] {airborne=FALSE,aquatic=TRUE} => {legs=FALSE} 0.1782178 0.5806452
##
   [5] {hair=FALSE,aquatic=TRUE}
                                      => {legs=FALSE} 0.1683168 0.5312500
       lift
##
  [1] 3.245747
##
##
  [2] 2.702341
  [3] 2.634783
  [4] 2.549790
##
   [5]
       2.332880
##
       "Número de reglas con consecuente negado"
##
                                                                   confidence
        lhs
                                                        support
## [1]
        {type=fish}
                                           {fins=TRUE} 0.1287129 1.0000000
##
   [2]
        {toothed=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
##
  [3]
        {breathes=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.9285714
##
  [4]
        {backbone=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.9285714
   [5]
        {aquatic=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8888889
##
##
   [6]
        {toothed=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
##
  [7]
        {backbone=TRUE,legs=FALSE}
                                         => {fins=TRUE} 0.1584158 0.8421053
## [8]
        {legs=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1485149 0.8333333
## [9]
        {breathes=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1287129 0.8125000
```

```
## [10] {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
  [11] {aquatic=TRUE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.7391304
                                           {fins=TRUE} 0.1188119 0.7058824
  [12] {predator=TRUE,legs=FALSE}
  [13] {breathes=FALSE, venomous=FALSE} =>
                                           {fins=TRUE} 0.1188119 0.6666667
  [14] {hair=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1485149 0.6521739
  [15] {aquatic=TRUE, breathes=FALSE}
                                         => {fins=TRUE} 0.1287129 0.6500000
##
  [16] {eggs=TRUE,toothed=TRUE}
                                         => {fins=TRUE} 0.1287129 0.6500000
  [17] {breathes=FALSE}
                                           {fins=TRUE} 0.1287129 0.6190476
  Г187
       {milk=FALSE,toothed=TRUE}
                                           {fins=TRUE} 0.1287129 0.6190476
  [19] {aquatic=TRUE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.6153846
  [20] {feathers=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
                                           {fins=TRUE} 0.1683168 0.5666667
  [21] {aquatic=TRUE,backbone=TRUE}
  [22] {airborne=FALSE,aquatic=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5483871
  [23] {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
                                         => {fins=TRUE} 0.1485149 0.3947368
## [24] {hair=FALSE,feathers=FALSE}
  [25]
        {hair=FALSE,airborne=FALSE}
                                           {fins=TRUE} 0.1485149 0.3750000
                                        => {fins=TRUE} 0.1485149 0.3571429
  [26]
       {hair=FALSE,tail=TRUE}
   [27] {predator=TRUE,toothed=TRUE}
                                        => {fins=TRUE} 0.1287129 0.3513514
                                         => {fins=TRUE} 0.1287129 0.3513514
  [28] {eggs=TRUE,airborne=FALSE}
  [29] {milk=FALSE,airborne=FALSE}
                                           {fins=TRUE} 0.1287129 0.3421053
##
  [30] {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
  [31] {eggs=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1287129 0.3333333
                                         => {fins=TRUE} 0.1287129 0.3333333
  [32] {feathers=FALSE,eggs=TRUE}
       {milk=FALSE,tail=TRUE}
  [33]
                                           {fins=TRUE} 0.1287129 0.3250000
  [34] {feathers=FALSE,milk=FALSE}
                                           {fins=TRUE} 0.1287129 0.3250000
  [35] {eggs=TRUE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.3095238
   [36] {milk=FALSE,backbone=TRUE}
                                           {fins=TRUE} 0.1287129 0.3095238
  [37] {toothed=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.3076923
  [38] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
  [39] {hair=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1089109 0.3055556
  [40] {feathers=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.2909091
  [41] {airborne=FALSE,toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
  [42] {predator=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1188119 0.2857143
                                         => {fins=TRUE} 0.1584158 0.2807018
  [43] {toothed=TRUE, venomous=FALSE}
   [44] {airborne=FALSE,tail=TRUE}
                                           {fins=TRUE} 0.1584158 0.2807018
  [45] {feathers=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2765957
  [46] {predator=TRUE,backbone=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
## [47] {feathers=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2698413
  [48] {hair=FALSE, venomous=FALSE}
                                           {fins=TRUE} 0.1386139 0.2692308
  [49] {airborne=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2653061
  [50] {airborne=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.2615385
  [51] {hair=FALSE,domestic=FALSE}
                                           {fins=TRUE} 0.1386139 0.2592593
##
  [52] {hair=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2586207
                                         => {fins=TRUE} 0.1188119 0.2400000
  [53] {predator=TRUE, venomous=FALSE}
## [54] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
                                           {fins=TRUE} 0.1683168 0.2328767
       {feathers=FALSE,airborne=FALSE}
                                        =>
   [56]
       {milk=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2307692
  [57]
       {tail=TRUE,domestic=FALSE}
                                         => {fins=TRUE} 0.1485149 0.2307692
  [58] {eggs=TRUE, venomous=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2264151
   [59] {airborne=FALSE, venomous=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
                                        => {fins=TRUE} 0.1584158 0.2253521
  [60] {feathers=FALSE,domestic=FALSE}
## [61] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
## [62] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
## [63] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
```

```
## [64] {milk=FALSE,domestic=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2181818
   [65] {backbone=TRUE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2162162
   [66] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
## [1]
        5.941176
##
  [2]
        5.516807
  [3]
        5.516807
## [4]
        5.516807
## [5]
        5.281046
  [6]
##
        5.003096
## [7]
        5.003096
   [8]
        4.950980
##
##
   [9]
        4.827206
## [10] 4.690402
## [11] 4.391304
## [12] 4.193772
## [13] 3.960784
## [14] 3.874680
## [15] 3.861765
## [16] 3.861765
## [17] 3.677871
## [18] 3.677871
## [19] 3.656109
## [20] 3.366667
## [21] 3.366667
## [22] 3.258065
## [23] 2.970588
## [24] 2.345201
## [25] 2.227941
## [26] 2.121849
## [27] 2.087440
## [28] 2.087440
## [29] 2.032508
## [30] 2.025401
## [31] 1.980392
## [32] 1.980392
## [33] 1.930882
## [34] 1.930882
## [35] 1.838936
## [36] 1.838936
## [37] 1.828054
## [38] 1.828054
## [39] 1.815359
## [40] 1.728342
## [41] 1.711864
## [42] 1.697479
## [43] 1.667699
## [44] 1.667699
## [45] 1.643304
## [46] 1.643304
## [47] 1.603175
## [48] 1.599548
## [49] 1.576230
## [50] 1.553846
```

```
## [51] 1.540305
   [52] 1.536511
   [53] 1.425882
   [54] 1.397924
##
##
   [55] 1.383562
   [56] 1.371041
##
   [57] 1.371041
   [58] 1.345172
##
   [59] 1.338857
##
   [60] 1.338857
   [61] 1.338857
##
   [62] 1.320261
##
   [63] 1.302176
##
   [64] 1.296257
##
   [65] 1.284579
##
   [66] 1.100218
##
        lhs
                             rhs
                                           support
                                                     confidence lift
##
   [1]
        {backbone=FALSE} => {fins=FALSE} 0.1782178 1.0000000
        {type=bird}
                          => {fins=FALSE} 0.1980198 1.0000000
##
   [2]
                                                                1.2023810
##
   [3]
        {feathers=TRUE}
                          => {fins=FALSE} 0.1980198 1.0000000
                                                                1.2023810
##
   [4]
        {airborne=TRUE}
                          => {fins=FALSE} 0.2376238 1.0000000
                                                                1.2023810
   [5]
                          => {fins=FALSE} 0.3960396 1.0000000
##
        {toothed=FALSE}
                                                                 1.2023810
   [6]
##
        {legs=TRUE}
                          => {fins=FALSE} 0.7623762 0.9871795
                                                                 1.1869658
##
   [7]
        {hair=TRUE}
                          => {fins=FALSE} 0.4059406 0.9534884
                                                                 1.1464563
##
   [8]
        {breathes=TRUE}
                          => {fins=FALSE} 0.7524752 0.9500000
                                                                 1.1422619
   [9]
        {domestic=TRUE}
                          => {fins=FALSE} 0.1188119 0.9230769
                                                                 1.1098901
                         => {fins=FALSE} 0.4059406 0.9111111
   [10]
       {predator=FALSE}
                                                                 1.0955026
##
   [11] {eggs=FALSE}
                          => {fins=FALSE} 0.3762376 0.9047619
                                                                 1.0878685
##
   [12]
       {milk=TRUE}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                 1.0850755
  [13] {type=mammal}
                          => {fins=FALSE} 0.3663366 0.9024390
                                                                 1.0850755
   [14]
       {catsize=FALSE}
                          => {fins=FALSE} 0.4752475 0.8421053
                                                                 1.0125313
   [15]
       {venomous=FALSE} => {fins=FALSE} 0.7623762 0.8279570
                                                                 0.9955197
   [16] {catsize=TRUE}
                          => {fins=FALSE} 0.3564356 0.8181818
                                                                 0.9837662
   [17] {domestic=FALSE} => {fins=FALSE} 0.7128713 0.8181818
                                                                0.9837662
        {backbone=TRUE}
                          => {fins=FALSE} 0.6534653 0.7951807
                                                                 0.9561102
##
   [19] {feathers=FALSE} => {fins=FALSE} 0.6336634 0.7901235
                                                                0.9500294
  [20] {tail=TRUE}
                          => {fins=FALSE} 0.5841584 0.7866667
                                                                 0.9458730
                          => {fins=FALSE} 0.4554455 0.7796610
  [21] {eggs=TRUE}
                                                                0.9374496
       {airborne=FALSE} => {fins=FALSE} 0.5940594 0.7792208
   [22]
                                                                 0.9369202
##
   [23] {predator=TRUE}
                          => {fins=FALSE} 0.4257426 0.7678571
                                                                0.9232568
   [24] {hair=FALSE}
                          => {fins=FALSE} 0.4257426 0.7413793
                                                                0.8914204
   [25] {toothed=TRUE}
                          => {fins=FALSE} 0.4356436 0.7213115
##
                                                                0.8672912
##
   [26]
        {aquatic=TRUE}
                          => {fins=FALSE} 0.1881188 0.5277778
                                                                0.6345899
##
        lhs
                                             rhs
                                                         support
                                                                    confidence
##
  [1]
        {venomous=FALSE,legs=FALSE}
                                         => {fins=TRUE} 0.1485149 0.7894737
   [2]
                                            {fins=TRUE} 0.1188119 0.6666667
##
        {breathes=FALSE, venomous=FALSE} =>
##
   [3]
        {aquatic=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.5000000
##
   [4]
        {toothed=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1584158 0.2807018
##
   [5]
        {hair=FALSE, venomous=FALSE}
                                         => {fins=TRUE} 0.1386139 0.2692308
##
   [6]
        {predator=TRUE, venomous=FALSE}
                                         => {fins=TRUE} 0.1188119 0.2400000
                                          => {fins=TRUE} 0.1188119 0.2307692
##
   [7]
        {milk=FALSE, venomous=FALSE}
   [8]
        {eggs=TRUE, venomous=FALSE}
                                          => {fins=TRUE} 0.1188119 0.2264151
        {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [9]
## [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
```

```
## [11] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
        lift
##
  [1]
        4.690402
  [2]
##
        3.960784
##
   [3]
        2.970588
##
  [4]
        1.667699
##
  [5]
        1.599548
##
  [6]
        1.425882
##
  [7]
        1.371041
##
  [8]
        1.345172
  [9]
        1.338857
##
  [10] 1.302176
##
   [11] 1.100218
##
       lhs
                                           rhs
                                                        support
                                                                  confidence
## [1] {toothed=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.3076923
## [2] {hair=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1386139 0.2592593
## [3] {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [4] {tail=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1485149 0.2307692
## [5] {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
## [6] {backbone=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1584158 0.2253521
## [7] {eggs=TRUE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2222222
## [8] {milk=FALSE,domestic=FALSE}
                                        => {fins=TRUE} 0.1188119 0.2181818
## [9] {venomous=FALSE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.1851852
##
       lift
## [1] 1.828054
## [2] 1.540305
## [3] 1.397924
## [4] 1.371041
## [5] 1.338857
## [6] 1.338857
## [7] 1.320261
##
  [8] 1.296257
##
  [9] 1.100218
##
                                                                  confidence
        lhs
                                           rhs
                                                        support
        {backbone=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
##
  [1]
                                        => {fins=TRUE} 0.1584158 0.8421053
##
  [2]
        {backbone=TRUE,legs=FALSE}
  [3]
        {aquatic=TRUE, backbone=TRUE}
                                        => {fins=TRUE} 0.1683168 0.5666667
## [4]
        {hair=FALSE,backbone=TRUE}
                                        => {fins=TRUE} 0.1485149 0.3409091
        {eggs=TRUE,backbone=TRUE}
  [5]
                                        => {fins=TRUE} 0.1287129 0.3095238
##
  [6]
                                        => {fins=TRUE} 0.1287129 0.3095238
##
        {milk=FALSE,backbone=TRUE}
  [7]
        {predator=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.2765957
        {feathers=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2698413
  [8]
   [9]
        {airborne=FALSE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.2615385
  [10] {backbone=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
##
  [11] {backbone=TRUE,tail=TRUE}
                                        => {fins=TRUE} 0.1584158 0.2162162
##
        lift
## [1]
        5.516807
  [2]
##
        5.003096
##
  [3]
        3.366667
##
   [4]
        2.025401
   [5]
##
        1.838936
## [6]
        1.838936
## [7]
        1.643304
## [8]
        1.603175
```

```
## [9]
        1.553846
  [10] 1.338857
  [11] 1.284579
##
                                                                    confidence
        lhs
                                            rhs
                                                         support
##
  [1]
        {feathers=FALSE, aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5666667
        {hair=FALSE, feathers=FALSE}
##
  [2]
                                         => {fins=TRUE} 0.1485149 0.3947368
        {feathers=FALSE,eggs=TRUE}
  [3]
                                         => {fins=TRUE} 0.1287129 0.3333333
## [4]
        {feathers=FALSE,milk=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3250000
##
  [5]
        {feathers=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2909091
##
  [6]
        {feathers=FALSE,predator=TRUE}
                                         => {fins=TRUE} 0.1287129 0.2765957
  [7]
        {feathers=FALSE,backbone=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2698413
        {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
##
   [8]
   [9]
        {feathers=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2253521
  [10] {feathers=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2191781
##
##
        lift.
## [1]
        3.366667
##
   [2]
        2.345201
##
  [3]
        1.980392
  [4]
##
        1.930882
##
   [5]
        1.728342
##
  [6]
        1.643304
  [7]
        1.603175
  [8]
##
        1.383562
  [9]
##
        1.338857
##
  [10] 1.302176
                                       rhs
                                                    support
                                                              confidence
##
  [1]
        {breathes=FALSE, tail=TRUE} => {fins=TRUE} 0.1287129 0.9285714
##
   [2]
        {legs=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.8333333
##
  [3]
        {aquatic=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.6153846
## [4]
        {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
## [5]
        {eggs=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3333333
##
  [6]
        {milk=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1287129 0.3250000
##
  [7]
        {toothed=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1584158 0.3076923
  [8]
##
        {feathers=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2909091
   [9]
        {predator=TRUE,tail=TRUE}
                                    => {fins=TRUE} 0.1188119 0.2857143
  [10] {airborne=FALSE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2807018
  [11] {tail=TRUE,domestic=FALSE} => {fins=TRUE} 0.1485149 0.2307692
##
  [12] {backbone=TRUE,tail=TRUE} => {fins=TRUE} 0.1584158 0.2162162
##
        lift
## [1]
        5.516807
  [2]
        4.950980
  [3]
        3.656109
##
##
   [4]
        2.121849
##
  [5]
        1.980392
##
  [6]
        1.930882
## [7]
        1.828054
##
  [8]
        1.728342
##
  [9]
        1.697479
  [10] 1.667699
##
  [11] 1.371041
##
  [12] 1.284579
##
       lhs
                                      rhs
                                                   support
## [1] {eggs=TRUE,toothed=TRUE}
                                   => {fins=TRUE} 0.1287129 0.6500000
## [2] {eggs=TRUE,airborne=FALSE} => {fins=TRUE} 0.1287129 0.3513514
```

```
## [3] {eggs=TRUE,tail=TRUE}
                                  => {fins=TRUE} 0.1287129 0.3333333
## [4] {feathers=FALSE,eggs=TRUE} => {fins=TRUE} 0.1287129 0.3333333
## [5] {eggs=TRUE,backbone=TRUE} => {fins=TRUE} 0.1287129 0.3095238
## [6] {eggs=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2264151
##
   [7] {eggs=TRUE,domestic=FALSE} => {fins=TRUE} 0.1188119 0.2222222
##
       lift
## [1] 3.861765
## [2] 2.087440
## [3] 1.980392
## [4] 1.980392
## [5] 1.838936
## [6] 1.345172
##
  [7] 1.320261
##
        lhs
                                                        support
                                                                   confidence
## [1]
        {airborne=FALSE,aquatic=TRUE}
                                         => {fins=TRUE} 0.1683168 0.5483871
## [2]
        {hair=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1485149 0.3750000
## [3]
        {eggs=TRUE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3513514
## [4]
        {milk=FALSE,airborne=FALSE}
                                         => {fins=TRUE} 0.1287129 0.3421053
## [5]
        {airborne=FALSE, toothed=TRUE}
                                         => {fins=TRUE} 0.1683168 0.2881356
  [6]
        {airborne=FALSE,tail=TRUE}
                                         => {fins=TRUE} 0.1584158 0.2807018
## [7]
        {airborne=FALSE,predator=TRUE}
                                        => {fins=TRUE} 0.1287129 0.2653061
                                        => {fins=TRUE} 0.1683168 0.2615385
        {airborne=FALSE,backbone=TRUE}
        {airborne=FALSE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.2352941
## [10] {feathers=FALSE,airborne=FALSE} => {fins=TRUE} 0.1683168 0.2328767
  [11] {airborne=FALSE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2253521
        lift
## [1]
       3.258065
##
  [2]
        2.227941
## [3]
       2.087440
## [4]
        2.032508
## [5]
        1.711864
##
  [6]
        1.667699
##
  [7]
        1.576230
  [8]
##
        1.553846
   [9]
        1.397924
## [10] 1.383562
## [11] 1.338857
##
       lhs
                                                      support
                                                                confidence
                                          rhs
## [1] {predator=TRUE,legs=FALSE}
                                       => {fins=TRUE} 0.1188119 0.7058824
  [2] {predator=TRUE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
## [3] {hair=FALSE,predator=TRUE}
                                       => {fins=TRUE} 0.1089109 0.3055556
## [4] {predator=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1188119 0.2857143
## [5] {feathers=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2765957
## [6] {predator=TRUE,backbone=TRUE}
                                      => {fins=TRUE} 0.1287129 0.2765957
## [7] {airborne=FALSE,predator=TRUE} => {fins=TRUE} 0.1287129 0.2653061
## [8] {predator=TRUE, venomous=FALSE} => {fins=TRUE} 0.1188119 0.2400000
##
       lift
## [1] 4.193772
## [2] 2.087440
## [3] 1.815359
## [4] 1.697479
## [5] 1.643304
## [6] 1.643304
## [7] 1.576230
```

```
## [8] 1.425882
##
       lhs
                                                   support
                                       rhs
                                                              confidence
                                    => {fins=TRUE} 0.1485149 0.6521739
  [1] {hair=FALSE,toothed=TRUE}
  [2] {hair=FALSE, feathers=FALSE} => {fins=TRUE} 0.1485149 0.3947368
  [3] {hair=FALSE,airborne=FALSE} => {fins=TRUE} 0.1485149 0.3750000
## [4] {hair=FALSE,tail=TRUE}
                                    => {fins=TRUE} 0.1485149 0.3571429
  [5] {hair=FALSE,backbone=TRUE} => {fins=TRUE} 0.1485149 0.3409091
  [6] {hair=FALSE,predator=TRUE} => {fins=TRUE} 0.1089109 0.3055556
   [7] {hair=FALSE, venomous=FALSE} => {fins=TRUE} 0.1386139 0.2692308
##
   [8] {hair=FALSE,domestic=FALSE} => {fins=TRUE} 0.1386139 0.2592593
##
       lift
##
  [1] 3.874680
##
  [2] 2.345201
  [3] 2.227941
## [4] 2.121849
  [5] 2.025401
##
##
  [6] 1.815359
   [7] 1.599548
   [8] 1.540305
##
##
        lhs
                                          rhs
                                                       support
                                                                 confidence
## [1]
        {toothed=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.9285714
                                       => {fins=TRUE} 0.1584158 0.8421053
  [2]
        {toothed=TRUE,legs=FALSE}
## [3]
        {aquatic=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1683168 0.7391304
##
  [4]
        {hair=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1485149 0.6521739
##
  [5]
        {eggs=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6500000
  [6]
        {milk=FALSE,toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.6190476
   [7]
##
        {predator=TRUE, toothed=TRUE}
                                       => {fins=TRUE} 0.1287129 0.3513514
##
   [8]
        {toothed=TRUE,tail=TRUE}
                                       => {fins=TRUE} 0.1584158 0.3076923
        {toothed=TRUE,domestic=FALSE} => {fins=TRUE} 0.1584158 0.3076923
##
  [9]
  [10] {airborne=FALSE,toothed=TRUE} => {fins=TRUE} 0.1683168 0.2881356
##
   [11] {toothed=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.2807018
##
        lift
##
  [1]
        5.516807
   [2]
##
        5.003096
   [3]
##
        4.391304
   [4]
##
        3.874680
##
  [5]
        3.861765
  [6]
        3.677871
##
   [7]
##
        2.087440
  [8]
##
        1.828054
  [9]
        1.828054
  [10] 1.711864
##
##
   [11] 1.667699
##
       lhs
                                         rhs
                                                      support
                                                                confidence
## [1] {aquatic=TRUE,legs=FALSE}
                                      => {fins=TRUE} 0.1584158 0.8888889
  [2] {aquatic=TRUE, toothed=TRUE}
                                      => {fins=TRUE} 0.1683168 0.7391304
  [3] {aquatic=TRUE,breathes=FALSE} => {fins=TRUE} 0.1287129 0.6500000
  [4] {aquatic=TRUE,tail=TRUE}
                                      => {fins=TRUE} 0.1584158 0.6153846
  [5] {feathers=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5666667
   [6] {aquatic=TRUE,backbone=TRUE} => {fins=TRUE} 0.1683168 0.5666667
  [7] {airborne=FALSE,aquatic=TRUE} => {fins=TRUE} 0.1683168 0.5483871
##
  [8] {aquatic=TRUE, venomous=FALSE} => {fins=TRUE} 0.1584158 0.5000000
##
       lift
## [1] 5.281046
```

```
[2] 4.391304
   [3] 3.861765
   [4] 3.656109
   [5] 3.366667
##
##
   [6]
       3.366667
##
   [7] 3.258065
   [8] 2.970588
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {type=bird}
                                            {feathers=TRUE} 0.1980198
   [2]
        {toothed=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [3]
##
        {hair=FALSE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
##
   [4]
        {airborne=TRUE, tail=TRUE}
                                            {feathers=TRUE} 0.1584158
                                            {feathers=TRUE} 0.1584158
##
   [5]
        {airborne=TRUE,backbone=TRUE}
##
   [6]
                                            {feathers=TRUE} 0.1980198
        {toothed=FALSE,tail=TRUE}
##
   [7]
        {airborne=TRUE, toothed=FALSE}
                                            {feathers=TRUE} 0.1584158
##
   [8]
                                            {feathers=TRUE} 0.1584158
        {eggs=TRUE,airborne=TRUE}
        {milk=FALSE,airborne=TRUE}
                                            {feathers=TRUE} 0.1584158
   [10] {airborne=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1584158
   [11] {toothed=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [12] {hair=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
  [13] {toothed=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [14] {toothed=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1980198
##
   [15] {hair=FALSE,legs=TRUE}
##
   [16] {hair=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
   [17] {hair=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
                                            {feathers=TRUE} 0.1089109
   [18]
       {predator=FALSE,toothed=FALSE}
   [19]
##
       {aquatic=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1386139
       {eggs=TRUE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
  [21] {milk=FALSE,toothed=FALSE}
                                            {feathers=TRUE} 0.1980198
        {eggs=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [23]
       {eggs=TRUE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
       {milk=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
   [25] {hair=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [26] {eggs=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [27]
       {milk=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
   [28] {milk=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1386139
   [29] {eggs=TRUE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1980198
   [30]
       {hair=FALSE,tail=TRUE}
##
   [31] {eggs=TRUE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [32] {milk=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1980198
   [33] {milk=FALSE,aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   Γ341
       {hair=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1980198
##
   [35]
       {hair=FALSE,backbone=TRUE}
   [36] {eggs=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [37]
        {milk=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [38]
        {eggs=TRUE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
       {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [40] {hair=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
   [41]
        {milk=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
  [42]
       {tail=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
  [43] {eggs=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
## [44] {hair=FALSE,eggs=TRUE}
                                            {feathers=TRUE} 0.1980198
## [45] {hair=FALSE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
```

```
## [46] {legs=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
   [47]
       {backbone=TRUE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
                                            {feathers=TRUE} 0.1980198
  [48] {hair=FALSE}
  [49] {eggs=TRUE,milk=FALSE}
                                            {feathers=TRUE} 0.1980198
   [50] {legs=TRUE,catsize=FALSE}
##
                                             {feathers=TRUE} 0.1386139
   [51] {breathes=TRUE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
##
       {fins=FALSE,tail=TRUE}
   [52]
                                            {feathers=TRUE} 0.1980198
   [53]
        {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   Γ541
        {breathes=TRUE,tail=TRUE}
                                             {feathers=TRUE} 0.1980198
        {backbone=TRUE,legs=TRUE}
   [55]
                                            {feathers=TRUE} 0.1980198
   [56] {predator=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1089109
   [57] {backbone=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [58]
       {fins=FALSE,catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
       {backbone=TRUE, breathes=TRUE}
                                            {feathers=TRUE} 0.1980198
                                            {feathers=TRUE} 0.1386139
   [60]
       {aquatic=FALSE,tail=TRUE}
   [61]
        {predator=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1089109
##
   [62]
        {venomous=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
        {venomous=FALSE, catsize=FALSE}
                                            {feathers=TRUE} 0.1386139
       {breathes=TRUE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
   [64]
   [65]
       {backbone=TRUE,tail=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [66]
       {venomous=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
       {predator=FALSE,breathes=TRUE}
                                            {feathers=TRUE} 0.1089109
        {predator=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [68]
        {breathes=TRUE, venomous=FALSE}
                                             {feathers=TRUE} 0.1980198
##
   [69]
   [70]
       {aquatic=FALSE,backbone=TRUE}
                                            {feathers=TRUE} 0.1386139
   [71] {breathes=TRUE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [72] {fins=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1980198
##
   [73] {venomous=FALSE,fins=FALSE}
                                            {feathers=TRUE} 0.1980198
   [74] {legs=TRUE,domestic=FALSE}
                                            {feathers=TRUE} 0.1683168
       {predator=FALSE, venomous=FALSE} =>
                                            {feathers=TRUE} 0.1089109
   [75]
        {backbone=TRUE, venomous=FALSE}
                                            {feathers=TRUE} 0.1980198
##
   [77]
        {aquatic=FALSE, venomous=FALSE}
                                            {feathers=TRUE} 0.1386139
   [78]
       {aquatic=FALSE}
                                            {feathers=TRUE} 0.1386139
##
   [79]
       {venomous=FALSE}
                                         => {feathers=TRUE} 0.1980198
   [80]
        {domestic=FALSE}
                                            {feathers=TRUE} 0.1683168
##
##
        confidence lift
##
   [1]
        1.0000000
                   5.0500000
##
   [2]
        0.9090909
                   4.5909091
   [3]
        0.888889
##
                   4.4888889
   [4]
##
        0.888889
                   4.4888889
   [5]
        0.888889
                   4.4888889
   [6]
##
        0.8695652
                   4.3913043
##
   [7]
        0.7272727
                   3.6727273
##
   [8]
        0.7272727
                   3.6727273
   [9]
        0.7272727
                   3.6727273
   [10] 0.7272727
                   3.6727273
##
   [11] 0.6060606
                   3.0606061
   [12] 0.5714286
                   2.8857143
   [13] 0.5555556
                   2.8055556
   [14]
        0.555556
                   2.8055556
##
  [15] 0.5555556
                   2.8055556
## [16] 0.5405405
                   2.7297297
## [17] 0.5384615
                   2.7192308
## [18] 0.5238095
                   2.6452381
```

```
## [19] 0.5185185
                   2.6185185
   [20] 0.5128205
                   2.5897436
   [21] 0.5128205
                   2.5897436
   [22] 0.5128205
                   2.5897436
   [23] 0.5128205
                   2.5897436
##
  [24] 0.5128205
                   2.5897436
   [25] 0.5000000
                   2.5250000
   [26] 0.5000000
                   2.5250000
   [27] 0.5000000
                   2.5250000
   [28] 0.5000000
                   2.5250000
   [29] 0.4827586
                   2.4379310
   [30] 0.4761905
                   2.4047619
                   2.4047619
##
   [31] 0.4761905
   [32] 0.4761905
                    2.4047619
   [33] 0.4666667
                    2.3566667
   [34] 0.4651163
                    2.3488372
##
   [35] 0.4545455
                   2.2954545
   [36] 0.4347826
                   2.1956522
   [37] 0.4255319
                   2.1489362
   [38] 0.4230769
                   2.1365385
##
  [39] 0.4230769
                   2.1365385
  [40] 0.3846154
                    1.9423077
  [41] 0.3846154
                    1.9423077
   [42] 0.3783784
##
                    1.9108108
   [43] 0.3773585
                    1.9056604
   [44] 0.3703704
                    1.8703704
   [45] 0.3571429
                    1.8035714
##
   [46] 0.3508772
                   1.7719298
   [47] 0.3500000
                    1.7675000
  [48] 0.3448276
                    1.7413793
   [49] 0.3448276
                    1.7413793
##
   [50] 0.3414634
                    1.7243902
   [51] 0.3414634
                    1.7243902
   [52] 0.3389831
                    1.7118644
   [53] 0.3333333
                    1.6833333
##
   [54] 0.3278689
                    1.6557377
   [55] 0.3125000
                    1.5781250
   [56] 0.3055556
##
                    1.5430556
   [57] 0.3030303
##
                    1.5303030
##
   [58] 0.2916667
                    1.4729167
   [59] 0.2898551
                    1.4637681
   [60] 0.2857143
                    1.4428571
##
   [61] 0.2820513
                    1.4243590
##
   [62] 0.2816901
                    1.4225352
   [63] 0.2800000
                    1.4140000
   [64] 0.2739726
                    1.3835616
                    1.3648649
##
   [65] 0.2702703
   [66] 0.2702703
                    1.3648649
   [67] 0.2682927
                    1.3548780
   [68] 0.2682927
                    1.3548780
##
   [69] 0.2666667
                    1.3466667
## [70] 0.2641509
                    1.3339623
## [71] 0.2631579
                   1.3289474
## [72] 0.2597403 1.3116883
```

```
[73] 0.2597403
                   1.3116883
   [74] 0.2575758
                   1.3007576
   [75] 0.2558140
                   1.2918605
   [76] 0.2531646
                   1.2784810
##
   [77] 0.2295082
                   1.1590164
   [78] 0.2153846
                   1.0876923
##
   [79] 0.2150538
                   1.0860215
##
   [80] 0.1931818
                   0.9755682
##
        lhs
                                                         confidence lift
                             rhs
                                               support
##
   [1]
        {type=fish}
                          => {feathers=FALSE} 0.1287129 1.0000000
                                                                     1.2469136
   [2]
        {fins=TRUE}
                          => {feathers=FALSE} 0.1683168 1.0000000
                                                                     1.2469136
   [3]
##
        {backbone=FALSE}
                             {feathers=FALSE} 0.1782178 1.0000000
                                                                     1.2469136
##
   [4]
        {breathes=FALSE}
                             {feathers=FALSE} 0.2079208 1.0000000
                                                                     1.2469136
        {legs=FALSE}
##
   [5]
                             {feathers=FALSE} 0.2277228 1.0000000
                                                                     1.2469136
   [6]
##
        {tail=FALSE}
                             {feathers=FALSE} 0.2574257 1.0000000
                                                                     1.2469136
##
   [7]
        {eggs=FALSE}
                             {feathers=FALSE} 0.4158416 1.0000000
                                                                     1.2469136
   [8]
##
        {hair=TRUE}
                          => {feathers=FALSE} 0.4257426 1.0000000
                                                                     1.2469136
   [9]
        {airborne=FALSE}
                         => {feathers=FALSE} 0.7227723 0.9480519
##
                                                                     1.1821388
   [10] {catsize=TRUE}
                          => {feathers=FALSE} 0.3762376 0.8636364
                                                                     1.0768799
   [11] {predator=TRUE}
                             {feathers=FALSE} 0.4653465 0.8392857
                                                                     1.0465168
##
   [12] {aquatic=TRUE}
                          => {feathers=FALSE} 0.2970297 0.8333333
                                                                     1.0390947
                          => {feathers=FALSE} 0.5049505 0.7846154
   [13] {aquatic=FALSE}
                                                                     0.9783476
   [14] {predator=FALSE}
                         =>
                             {feathers=FALSE} 0.3366337 0.7555556
                                                                     0.9421125
   [15] {catsize=FALSE}
                             {feathers=FALSE} 0.4257426 0.7543860
                                                                     0.9406541
   [16] {breathes=TRUE}
##
                             {feathers=FALSE} 0.5940594 0.7500000
                                                                     0.9351852
   [17] {legs=TRUE}
                          => {feathers=FALSE} 0.5742574 0.7435897
                                                                     0.9271921
                          => {feathers=FALSE} 0.3960396 0.6666667
   [18] {milk=FALSE}
                                                                     0.8312757
##
   [19] {eggs=TRUE}
                          => {feathers=FALSE} 0.3861386 0.6610169
                                                                     0.8242310
##
   [20] {hair=FALSE}
                          => {feathers=FALSE} 0.3762376 0.6551724
                                                                     0.8169434
##
   [21] {toothed=FALSE}
                          => {feathers=FALSE} 0.1980198 0.5000000
                                                                     0.6234568
##
       lhs
                                          rhs
                                                           support
                                                                      confidence
##
   [1] {hair=FALSE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5384615
   [2] {aquatic=FALSE, toothed=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.5185185
   [3] {eggs=TRUE,aquatic=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.4827586
   [4] {milk=FALSE,aquatic=FALSE}
                                          {feathers=TRUE} 0.1386139 0.4666667
##
   [5] {aquatic=FALSE,tail=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2857143
   [6] {aquatic=FALSE,backbone=TRUE}
                                       => {feathers=TRUE} 0.1386139 0.2641509
   [7] {aquatic=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1386139 0.2295082
##
##
       lift
   [1] 2.719231
##
   [2] 2.618519
   [3] 2.437931
   [4] 2.356667
##
   [5] 1.442857
##
   [6] 1.333962
   [7] 1.159016
##
##
        lhs
                                             rhs
                                                             support
##
   [1]
        {predator=FALSE, toothed=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [2]
        {hair=FALSE, predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [3]
        {eggs=TRUE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
   [4]
##
        {milk=FALSE,predator=FALSE}
                                            {feathers=TRUE} 0.1089109
##
   [5]
        {predator=FALSE,tail=TRUE}
                                            {feathers=TRUE} 0.1089109
##
  [6]
        {predator=FALSE,backbone=TRUE}
                                          =>
                                            {feathers=TRUE} 0.1089109
  [7]
        {predator=FALSE,legs=TRUE}
                                            {feathers=TRUE} 0.1089109
```

```
{predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
        {predator=FALSE,fins=FALSE}
                                         => {feathers=TRUE} 0.1089109
##
   [9]
   [10] {predator=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1089109
##
        confidence lift
##
   [1]
        0.5238095 2.645238
##
   [2]
        0.5000000
                   2.525000
   [3]
        0.4230769
                   2.136538
##
  ۲4٦
        0.4230769
                   2.136538
##
   [5]
        0.3333333
                    1.683333
##
   [6]
        0.3055556
                    1.543056
   [7]
        0.2820513
                   1.424359
##
   [8]
        0.2682927
                    1.354878
##
   [9]
        0.2682927
                    1.354878
   [10] 0.2558140
##
                   1.291860
##
       lhs
                                           rhs
                                                           support
                                                                      confidence
##
   [1] {tail=TRUE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.3783784
   [2] {backbone=TRUE, catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3500000
   [3] {legs=TRUE,catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
   [4] {breathes=TRUE, catsize=FALSE}
                                       => {feathers=TRUE} 0.1386139 0.3414634
   [5] {fins=FALSE, catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139 0.2916667
##
   [6] {venomous=FALSE,catsize=FALSE} => {feathers=TRUE} 0.1386139 0.2800000
##
       lift.
## [1] 1.910811
   [2] 1.767500
  [3] 1.724390
  [4] 1.724390
   [5] 1.472917
##
##
   [6] 1.414000
##
        lhs
                                            rhs
                                                            support
##
  [1]
        {toothed=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
##
   [2]
        {hair=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
##
   [3]
        {eggs=TRUE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
##
   [4]
        {milk=FALSE,breathes=TRUE}
                                        => {feathers=TRUE} 0.1980198
   [5]
##
        {breathes=TRUE,catsize=FALSE}
                                        => {feathers=TRUE} 0.1386139
   [6]
        {breathes=TRUE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
        {backbone=TRUE,breathes=TRUE}
##
   [7]
                                        => {feathers=TRUE} 0.1980198
  [8]
        {breathes=TRUE,legs=TRUE}
                                         => {feathers=TRUE} 0.1980198
  [9]
        {predator=FALSE,breathes=TRUE} => {feathers=TRUE} 0.1089109
##
   [10] {breathes=TRUE, venomous=FALSE} => {feathers=TRUE} 0.1980198
   [11] {breathes=TRUE,fins=FALSE}
                                        => {feathers=TRUE} 0.1980198
##
##
        confidence lift
        0.6060606 3.060606
##
   [1]
##
   [2]
        0.5405405
                   2.729730
##
   [3]
        0.5128205
                   2.589744
##
  [4]
        0.5128205
                   2.589744
  [5]
##
        0.3414634
                    1.724390
##
   [6]
        0.3278689
                    1.655738
##
   [7]
        0.2898551
                    1.463768
##
   [8]
        0.2739726
                    1.383562
##
   [9]
        0.2682927
                    1.354878
##
   [10]
       0.2666667
                    1.346667
##
  [11] 0.2631579
                    1.328947
##
        lhs
                                       rhs
                                                        support
                                                                   confidence
## [1] {toothed=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.5555556
```

```
## [2]
        {hair=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5555556
##
   [3]
                                    => {feathers=TRUE} 0.1980198 0.5000000
        {eggs=TRUE,legs=TRUE}
        {milk=FALSE,legs=TRUE}
   [4]
                                    => {feathers=TRUE} 0.1980198 0.5000000
   [5]
        {legs=TRUE,tail=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.3508772
##
##
   [6]
        {legs=TRUE,catsize=FALSE}
                                    => {feathers=TRUE} 0.1386139 0.3414634
##
   [7]
        {backbone=TRUE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.3125000
   [8]
        {predator=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1089109 0.2820513
##
   [9]
        {breathes=TRUE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.2739726
   [10] {venomous=FALSE,legs=TRUE} => {feathers=TRUE} 0.1980198 0.2702703
   [11] {fins=FALSE,legs=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.2597403
   [12]
       {legs=TRUE,domestic=FALSE} => {feathers=TRUE} 0.1683168 0.2575758
##
        lift
##
   [1]
        2.805556
##
   [2]
        2.805556
   [3]
        2.525000
##
##
   [4]
        2.525000
   [5]
##
        1.771930
   [6]
        1.724390
   [7]
##
        1.578125
##
   [8]
        1.424359
##
   [9]
        1.383562
  [10] 1.364865
  [11] 1.311688
##
   [12] 1.300758
##
        lhs
                                        rhs
                                                         support
                                                                    confidence
  [1]
        {milk=FALSE,airborne=TRUE}
                                     => {feathers=TRUE} 0.1584158 0.7272727
   [2]
                                     => {feathers=TRUE} 0.1980198 0.5128205
        {milk=FALSE,toothed=FALSE}
   [3]
        {milk=FALSE,breathes=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5128205
##
   [4]
                                     => {feathers=TRUE} 0.1980198 0.5000000
        {milk=FALSE,tail=TRUE}
   [5]
        {milk=FALSE,legs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [6]
        {milk=FALSE,backbone=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.4761905
##
   [7]
        {milk=FALSE,aquatic=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.4666667
   [8]
        {milk=FALSE,fins=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.4255319
                                     => {feathers=TRUE} 0.1089109 0.4230769
   [9]
        {milk=FALSE,predator=FALSE}
       {milk=FALSE,venomous=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3846154
                                     => {feathers=TRUE} 0.1980198 0.3571429
##
   [11]
       {hair=FALSE,milk=FALSE}
##
   [12] {eggs=TRUE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3448276
##
        lift
   [1]
        3.672727
##
   [2]
##
        2.589744
   [3]
        2.589744
   [4]
        2.525000
##
##
   [5]
        2.525000
##
   [6]
        2.404762
   [7]
        2.356667
  [8]
        2.148936
##
##
   [9]
        2.136538
   [10] 1.942308
   [11] 1.803571
##
   [12]
       1.741379
##
        lhs
                                       rhs
                                                        support
                                                                   confidence
## [1]
        {eggs=TRUE,airborne=TRUE}
                                       {feathers=TRUE} 0.1584158 0.7272727
## [2]
        {eggs=TRUE,toothed=FALSE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
## [3]
        {eggs=TRUE,tail=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
```

```
{eggs=TRUE,breathes=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.5128205
                                     => {feathers=TRUE} 0.1980198 0.5000000
##
   [5]
        {eggs=TRUE,legs=TRUE}
   [6]
        {eggs=TRUE,aquatic=FALSE}
                                     => {feathers=TRUE} 0.1386139 0.4827586
   [7]
        {eggs=TRUE,backbone=TRUE}
                                    => {feathers=TRUE} 0.1980198 0.4761905
##
##
   [8]
        {eggs=TRUE,fins=FALSE}
                                       {feathers=TRUE} 0.1980198 0.4347826
##
   [9]
        {eggs=TRUE,predator=FALSE} => {feathers=TRUE} 0.1089109 0.4230769
   [10] {eggs=TRUE, venomous=FALSE} =>
                                       {feathers=TRUE} 0.1980198 0.3773585
   [11] {hair=FALSE,eggs=TRUE}
                                     => {feathers=TRUE} 0.1980198 0.3703704
##
   [12] {eggs=TRUE,milk=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3448276
##
        lift
##
   [1]
        3.672727
   [2]
        2.589744
##
##
   [3]
        2.589744
##
   [4]
        2.589744
   [5]
        2.525000
##
##
   [6]
        2.437931
##
   [7]
        2.404762
   [8]
        2.195652
##
   [9]
        2.136538
   [10]
       1.905660
##
   [11] 1.870370
##
   [12] 1.741379
##
        lhs
                                         rhs
                                                          support
                                                                    confidence
##
   [1]
        {hair=FALSE,airborne=TRUE}
                                      => {feathers=TRUE} 0.1584158 0.8888889
   [2]
        {hair=FALSE, toothed=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.5714286
   [3]
        {hair=FALSE,legs=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.5555556
   [4]
                                      => {feathers=TRUE} 0.1980198 0.5405405
##
        {hair=FALSE,breathes=TRUE}
##
   [5]
        {hair=FALSE,aquatic=FALSE}
                                      => {feathers=TRUE} 0.1386139 0.5384615
   [6]
                                     => {feathers=TRUE} 0.1089109 0.5000000
##
        {hair=FALSE,predator=FALSE}
##
   [7]
        {hair=FALSE,tail=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4761905
##
   [8]
        {hair=FALSE,fins=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.4651163
##
   [9]
        {hair=FALSE,backbone=TRUE}
                                      => {feathers=TRUE} 0.1980198 0.4545455
   [10] {hair=FALSE, venomous=FALSE}
                                     => {feathers=TRUE} 0.1980198 0.3846154
                                      => {feathers=TRUE} 0.1980198 0.3703704
   [11] {hair=FALSE,eggs=TRUE}
        {hair=FALSE,milk=FALSE}
                                      => {feathers=TRUE} 0.1980198 0.3571429
##
   [12]
##
        lift
##
  [1]
        4.488889
##
   [2]
        2.885714
   [3]
        2.805556
##
   [4]
##
        2.729730
   [5]
        2.719231
   [6]
##
        2.525000
##
   [7]
        2.404762
   [8]
##
        2.348837
   [9]
        2.295455
   [10] 1.942308
##
   [11] 1.870370
##
   [12] 1.803571
##
        lhs
                                            rhs
                                                             support
##
   [1]
        {toothed=FALSE,backbone=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [2]
        {toothed=FALSE,tail=TRUE}
                                         => {feathers=TRUE} 0.1980198
##
   [3]
        {airborne=TRUE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1584158
##
  [4]
        {toothed=FALSE,breathes=TRUE}
                                         => {feathers=TRUE} 0.1980198
## [5]
        {hair=FALSE, toothed=FALSE}
                                         => {feathers=TRUE} 0.1980198
```

```
{toothed=FALSE,legs=TRUE}
                                        => {feathers=TRUE} 0.1980198
##
  [7]
        {toothed=FALSE, venomous=FALSE} => {feathers=TRUE} 0.1980198
        {predator=FALSE, toothed=FALSE} => {feathers=TRUE} 0.1089109
  [8]
   [9]
        {aquatic=FALSE, toothed=FALSE}
                                        => {feathers=TRUE} 0.1386139
##
##
   [10] {eggs=TRUE,toothed=FALSE}
                                        => {feathers=TRUE} 0.1980198
                                        => {feathers=TRUE} 0.1980198
##
   [11] {milk=FALSE,toothed=FALSE}
##
        confidence lift
## [1]
        0.9090909
                   4.590909
##
   [2]
        0.8695652
                   4.391304
##
   [3]
        0.7272727
                   3.672727
   [4]
        0.6060606
                   3.060606
   [5]
##
        0.5714286
                   2.885714
##
   [6]
        0.555556
                   2.805556
##
   [7]
        0.555556
                   2.805556
  [8]
##
        0.5238095
                   2.645238
##
   [9]
        0.5185185
                   2.618519
##
   [10] 0.5128205
                   2.589744
   [11] 0.5128205
                   2.589744
##
   [1]
       "Número de reglas con consecuente negado"
##
                                                             support
##
  [1]
        {catsize=FALSE, type=bird}
                                           {airborne=TRUE} 0.1287129
  [2]
        {feathers=TRUE, catsize=FALSE}
                                           {airborne=TRUE} 0.1287129
  [3]
##
        {type=bird}
                                           {airborne=TRUE} 0.1584158
   [4]
##
        {feathers=TRUE}
                                            {airborne=TRUE} 0.1584158
##
  [5]
        {toothed=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [6]
        {predator=FALSE, toothed=FALSE}
                                           {airborne=TRUE} 0.1485149
   [7]
        {toothed=FALSE,tail=TRUE}
##
                                            {airborne=TRUE} 0.1584158
##
   [8]
        {toothed=FALSE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
##
  [9]
        {aquatic=FALSE, toothed=FALSE}
                                         => {airborne=TRUE} 0.1683168
  [10] {toothed=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1881188
  [11]
        {toothed=FALSE,legs=TRUE}
                                           {airborne=TRUE} 0.2178218
##
  [12]
       {eggs=TRUE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
  [13] {eggs=TRUE,predator=FALSE}
                                         => {airborne=TRUE} 0.1485149
  [14] {milk=FALSE,predator=FALSE}
                                         => {airborne=TRUE} 0.1485149
   [15] {milk=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1683168
  [16] {eggs=TRUE,breathes=TRUE}
                                            {airborne=TRUE} 0.2178218
  [17] {milk=FALSE,breathes=TRUE}
                                           {airborne=TRUE} 0.2178218
## [18] {toothed=FALSE, venomous=FALSE}
                                           {airborne=TRUE} 0.1980198
  [19] {toothed=FALSE}
                                            {airborne=TRUE} 0.2178218
  [20] {eggs=TRUE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
  [21] {milk=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.2178218
  [22] {predator=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
  [23] {legs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.2079208
  [24] {breathes=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.2079208
  [25] {hair=FALSE,predator=FALSE}
                                         => {airborne=TRUE} 0.1089109
  [26] {aquatic=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1683168
  [27] {hair=FALSE,aquatic=FALSE}
                                            {airborne=TRUE} 0.1287129
  [28] {hair=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.1782178
  [29] {hair=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.1782178
  [30] {eggs=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2178218
##
  [31] {milk=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.2178218
## [32] {fins=FALSE,catsize=FALSE}
                                         => {airborne=TRUE} 0.2079208
## [33] {predator=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.1683168
## [34] {hair=FALSE,fins=FALSE}
                                           {airborne=TRUE} 0.1782178
```

```
## [35] {predator=FALSE,breathes=TRUE}
                                         => {airborne=TRUE} 0.1683168
   [36] {predator=FALSE,fins=FALSE}
                                            {airborne=TRUE} 0.1683168
  [37] {eggs=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [38] {eggs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
   [39] {tail=TRUE,catsize=FALSE}
                                            {airborne=TRUE} 0.1485149
  [40] {milk=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [41] {milk=FALSE,catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
  [42] {milk=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
  Γ437
       {predator=FALSE,domestic=FALSE} =>
                                            {airborne=TRUE} 0.1287129
  [44]
       {hair=FALSE,tail=TRUE}
                                            {airborne=TRUE} 0.1584158
  [45] {eggs=TRUE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [46] {milk=FALSE,backbone=TRUE}
                                            {airborne=TRUE} 0.1584158
  [47]
       {venomous=FALSE, catsize=FALSE}
                                            {airborne=TRUE} 0.1881188
       {eggs=TRUE, venomous=FALSE}
                                            {airborne=TRUE} 0.1980198
       {backbone=TRUE,catsize=FALSE}
                                         => {airborne=TRUE} 0.1485149
  [49]
   [50]
        {hair=FALSE, venomous=FALSE}
                                            {airborne=TRUE} 0.1782178
        {breathes=TRUE,legs=TRUE}
   [51]
                                            {airborne=TRUE} 0.2376238
       {aquatic=FALSE,legs=TRUE}
                                            {airborne=TRUE} 0.1881188
   [52]
   [53] {legs=TRUE,tail=TRUE}
                                            {airborne=TRUE} 0.1782178
   [54] {breathes=TRUE,fins=FALSE}
                                            {airborne=TRUE} 0.2376238
##
  [55] {fins=FALSE,legs=TRUE}
                                         => {airborne=TRUE} 0.2376238
  [56] {fins=FALSE,tail=TRUE}
                                         => {airborne=TRUE} 0.1782178
   [57] {aquatic=FALSE}
                                         => {airborne=TRUE} 0.1881188
                                         => {airborne=TRUE} 0.2178218
##
   [58] {venomous=FALSE}
##
        confidence lift
  [1]
        0.9285714
                   3.9077381
   [2]
        0.9285714
                   3.9077381
##
##
   [3]
        0.8000000
                   3.3666667
##
   [4]
        0.8000000
                   3.3666667
##
  [5]
        0.7272727
                   3.0606061
##
   [6]
        0.7142857
                   3.0059524
##
   [7]
        0.6956522
                   2.9275362
   [8]
        0.6666667
                   2.8055556
##
  [9]
        0.6296296
                   2.6496914
   [10]
       0.6129032
                   2.5793011
##
  [11] 0.6111111
                   2.5717593
  [12] 0.5862069
                   2.4669540
## [13] 0.5769231
                   2.4278846
  [14] 0.5769231
                   2.4278846
  [15] 0.5666667
                   2.3847222
  [16] 0.5641026
                   2.3739316
  [17] 0.5641026
                   2.3739316
   [18] 0.5555556
                   2.3379630
  [19] 0.5500000
                   2.3145833
  [20] 0.5500000
                   2.3145833
  [21] 0.5500000
                   2.3145833
   [22] 0.5172414
                   2.1767241
  [23] 0.5121951
                   2.1554878
  [24] 0.5121951
                   2.1554878
   [25] 0.5000000
                   2.1041667
##
  [26] 0.5000000
                   2.1041667
## [27] 0.5000000
                   2.1041667
## [28] 0.5000000
                   2.1041667
                   2.0472973
## [29] 0.4864865
```

```
## [30] 0.4782609
                   2.0126812
   [31] 0.4680851
                    1.9698582
   [32] 0.4375000
                    1.8411458
   [33] 0.4358974
                    1.8344017
##
   [34] 0.4186047
                    1.7616279
                    1.7449187
##
   [35] 0.4146341
   [36] 0.4146341
                    1.7449187
   [37] 0.4130435
                    1.7382246
   [38] 0.4102564
                    1.7264957
   [39] 0.4054054
                    1.7060811
   [40] 0.4000000
                    1.6833333
   [41] 0.3958333
                    1.6657986
                    1.6185897
##
   [42] 0.3846154
   [43] 0.3823529
                    1.6090686
   [44] 0.3809524
                    1.6031746
   [45]
        0.3809524
                    1.6031746
##
   [46] 0.3809524
                    1.6031746
   [47] 0.3800000
                    1.5991667
   [48] 0.3773585
                    1.5880503
   [49] 0.3750000
                    1.5781250
##
   [50] 0.3461538
                    1.4567308
   [51] 0.3287671
                    1.3835616
##
   [52] 0.3166667
                    1.3326389
##
   [53] 0.3157895
                    1.3289474
##
   [54] 0.3157895
                    1.3289474
   [55] 0.3116883
                    1.3116883
##
   [56] 0.3050847
                    1.2838983
##
   [57] 0.2923077
                    1.2301282
   [58] 0.2365591
                   0.9955197
##
##
        lhs
                             rhs
                                               support
                                                         confidence lift
##
   [1]
        {type=fish}
                          => {airborne=FALSE} 0.1287129 1.0000000
                                                                     1.3116883
##
   [2]
        {fins=TRUE}
                             {airborne=FALSE} 0.1683168 1.0000000
                                                                     1.3116883
##
   [3]
        {breathes=FALSE}
                             {airborne=FALSE} 0.2079208 1.0000000
   [4]
##
        {legs=FALSE}
                          => {airborne=FALSE} 0.2277228 1.0000000
                                                                     1.3116883
##
   [5]
        {toothed=TRUE}
                             {airborne=FALSE} 0.5841584 0.9672131
                                                                     1.2686821
##
   [6]
        {eggs=FALSE}
                          => {airborne=FALSE} 0.3960396 0.9523810
                                                                     1.2492270
##
   [7]
        {milk=TRUE}
                             {airborne=FALSE} 0.3861386 0.9512195
                                                                     1.2477035
   [8]
                          => {airborne=FALSE} 0.3861386 0.9512195
##
        {type=mammal}
                                                                     1.2477035
        {catsize=TRUE}
                             {airborne=FALSE} 0.4059406 0.9318182
   [9]
                                                                     1.2222550
##
   [10] {predator=TRUE}
                             {airborne=FALSE} 0.4851485 0.8750000
                                                                     1.1477273
   [11] {aquatic=TRUE}
                             {airborne=FALSE} 0.3069307 0.8611111
                                                                     1.1295094
   [12] {hair=TRUE}
                             {airborne=FALSE} 0.3663366 0.8604651
                                                                     1.1286620
   [13] {backbone=TRUE}
                             {airborne=FALSE} 0.6435644 0.7831325
                                                                     1.0272258
##
                             {airborne=FALSE} 0.1980198 0.7692308
   [14] {tail=FALSE}
                                                                     1.0089910
   [15] {tail=TRUE}
                          => {airborne=FALSE} 0.5643564 0.7600000
                                                                     0.9968831
   [16]
       {aquatic=FALSE}
                          =>
                             {airborne=FALSE} 0.4554455 0.7076923
                                                                     0.9282717
##
   [17]
       {hair=FALSE}
                             {airborne=FALSE} 0.3960396 0.6896552
                                                                     0.9046126
   [18] {backbone=FALSE}
                             {airborne=FALSE} 0.1188119 0.6666667
                                                                     0.8744589
   [19] {milk=FALSE}
                          => {airborne=FALSE} 0.3762376 0.6333333
                                                                     0.8307359
   [20] {eggs=TRUE}
                             {airborne=FALSE} 0.3663366 0.6271186
                                                                     0.8225842
   [21] {predator=FALSE}
##
                          => {airborne=FALSE} 0.2772277 0.6222222
                                                                     0.8161616
##
   [22] {toothed=FALSE}
                          => {airborne=FALSE} 0.1782178 0.4500000
                                                                     0.5902597
##
       lhs
                                          rhs
                                                           support
                                                                     confidence
## [1] {toothed=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.7272727
```

```
## [2] {eggs=TRUE,backbone=TRUE}
                                      => {airborne=TRUE} 0.1584158 0.3809524
                                      => {airborne=TRUE} 0.1584158 0.3809524
  [3] {milk=FALSE,backbone=TRUE}
  [4] {backbone=TRUE, catsize=FALSE} => {airborne=TRUE} 0.1485149 0.3750000
##
       lift
##
  [1] 3.060606
##
  [2] 1.603175
## [3] 1.603175
## [4] 1.578125
##
       lhs
                                     rhs
                                                     support
                                                               confidence
## [1] {toothed=FALSE,tail=TRUE} => {airborne=TRUE} 0.1584158 0.6956522
## [2] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
## [3] {tail=TRUE,catsize=FALSE} => {airborne=TRUE} 0.1485149 0.4054054
## [4] {milk=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.4000000
## [5] {hair=FALSE,tail=TRUE}
                                 => {airborne=TRUE} 0.1584158 0.3809524
                                 => {airborne=TRUE} 0.1782178 0.3157895
## [6] {legs=TRUE,tail=TRUE}
##
  [7] {fins=FALSE,tail=TRUE}
                                  => {airborne=TRUE} 0.1782178 0.3050847
##
       lift
## [1] 2.927536
## [2] 1.726496
## [3] 1.706081
## [4] 1.683333
## [5] 1.603175
## [6] 1.328947
##
  [7] 1.283898
##
       lhs
                                         rhs
                                                         support
                                                                   confidence
## [1] {aquatic=FALSE,toothed=FALSE} => {airborne=TRUE} 0.1683168 0.6296296
                                      => {airborne=TRUE} 0.1683168 0.5862069
  [2] {eggs=TRUE,aquatic=FALSE}
## [3] {milk=FALSE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1683168 0.5666667
## [4] {aquatic=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1683168 0.5000000
## [5] {hair=FALSE,aquatic=FALSE}
                                      => {airborne=TRUE} 0.1287129 0.5000000
##
  [6] {aquatic=FALSE,legs=TRUE}
                                      => {airborne=TRUE} 0.1881188 0.3166667
##
       lift
## [1] 2.649691
## [2] 2.466954
  [3] 2.384722
## [4] 2.104167
## [5] 2.104167
## [6] 1.332639
##
       lhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,predator=FALSE} => {airborne=TRUE} 0.1089109 0.5000000
## [2] {hair=FALSE,aquatic=FALSE}
                                   => {airborne=TRUE} 0.1287129 0.5000000
## [3] {hair=FALSE,legs=TRUE}
                                    => {airborne=TRUE} 0.1782178 0.5000000
## [4] {hair=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.1782178 0.4864865
## [5] {hair=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.1782178 0.4186047
## [6] {hair=FALSE,tail=TRUE}
                                    => {airborne=TRUE} 0.1584158 0.3809524
## [7] {hair=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1782178 0.3461538
##
       lift
## [1] 2.104167
## [2] 2.104167
## [3] 2.104167
## [4] 2.047297
## [5] 1.761628
## [6] 1.603175
## [7] 1.456731
```

```
##
                                                       support
                                                                 confidence
## [1] {milk=FALSE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
                                   => {airborne=TRUE} 0.1683168 0.5666667
  [2] {milk=FALSE,aquatic=FALSE}
  [3] {milk=FALSE,breathes=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5641026
  [4] {milk=FALSE,legs=TRUE}
                                   => {airborne=TRUE} 0.2178218 0.5500000
  [5] {milk=FALSE,fins=FALSE}
                                   => {airborne=TRUE} 0.2178218 0.4680851
## [6] {milk=FALSE,tail=TRUE}
                                   => {airborne=TRUE} 0.1584158 0.4000000
## [7] {milk=FALSE,catsize=FALSE} => {airborne=TRUE} 0.1881188 0.3958333
  [8] {milk=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3846154
##
  [9] {milk=FALSE,backbone=TRUE} => {airborne=TRUE} 0.1584158 0.3809524
##
       lift
## [1] 2.427885
## [2] 2.384722
## [3] 2.373932
## [4] 2.314583
## [5] 1.969858
##
  [6] 1.683333
  [7] 1.665799
## [8] 1.618590
## [9] 1.603175
##
       lhs
                                     rhs
                                                                confidence
                                                      support
                                  => {airborne=TRUE} 0.1683168 0.5862069
## [1] {eggs=TRUE,aquatic=FALSE}
## [2] {eggs=TRUE,predator=FALSE} => {airborne=TRUE} 0.1485149 0.5769231
## [3] {eggs=TRUE,breathes=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5641026
## [4] {eggs=TRUE,legs=TRUE}
                                  => {airborne=TRUE} 0.2178218 0.5500000
## [5] {eggs=TRUE,fins=FALSE}
                                  => {airborne=TRUE} 0.2178218 0.4782609
                                  => {airborne=TRUE} 0.1881188 0.4130435
  [6] {eggs=TRUE,catsize=FALSE}
## [7] {eggs=TRUE,tail=TRUE}
                                  => {airborne=TRUE} 0.1584158 0.4102564
                                  => {airborne=TRUE} 0.1584158 0.3809524
  [8] {eggs=TRUE,backbone=TRUE}
  [9] {eggs=TRUE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.3773585
##
       lift
## [1] 2.466954
  [2] 2.427885
## [3] 2.373932
   [4] 2.314583
##
  [5] 2.012681
## [6] 1.738225
## [7] 1.726496
## [8] 1.603175
  [9] 1.588050
##
##
       lhs
                                           rhs
                                                           support
## [1] {predator=FALSE, toothed=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [2] {eggs=TRUE,predator=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [3] {milk=FALSE,predator=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [4] {predator=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1485149
## [5] {hair=FALSE, predator=FALSE}
                                       => {airborne=TRUE} 0.1089109
## [6] {predator=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.1683168
  [7] {predator=FALSE,breathes=TRUE}
                                       => {airborne=TRUE} 0.1683168
  [8] {predator=FALSE,fins=FALSE}
                                       => {airborne=TRUE} 0.1683168
   [9] {predator=FALSE,domestic=FALSE} => {airborne=TRUE} 0.1287129
       confidence lift
##
## [1] 0.7142857 3.005952
## [2] 0.5769231 2.427885
## [3] 0.5769231 2.427885
```

```
[4] 0.5172414
                  2.176724
   [5] 0.5000000
                  2.104167
   [6] 0.4358974
                  1.834402
##
   [7] 0.4146341
                  1.744919
   [8] 0.4146341
                  1.744919
##
   [9] 0.3823529
                  1.609069
##
       lhs
                                          rhs
                                                           support
                                                                     confidence
                                       => {airborne=TRUE} 0.1584158 0.7272727
## [1] {toothed=FALSE,backbone=TRUE}
   [2] {predator=FALSE,toothed=FALSE} =>
                                          {airborne=TRUE} 0.1485149 0.7142857
   [3] {toothed=FALSE,tail=TRUE}
                                       => {airborne=TRUE} 0.1584158 0.6956522
   [4] {toothed=FALSE,breathes=TRUE}
                                          {airborne=TRUE} 0.2178218 0.6666667
   [5] {aquatic=FALSE,toothed=FALSE}
                                       => {airborne=TRUE} 0.1683168 0.6296296
   [6] {toothed=FALSE,catsize=FALSE}
                                       => {airborne=TRUE} 0.1881188 0.6129032
   [7] {toothed=FALSE,legs=TRUE}
                                       => {airborne=TRUE} 0.2178218 0.6111111
   [8] {toothed=FALSE, venomous=FALSE} => {airborne=TRUE} 0.1980198 0.5555556
##
##
       lift
##
   [1] 3.060606
   [2] 3.005952
   [3] 2.927536
   [4] 2.805556
##
   [5] 2.649691
  [6] 2.579301
##
  [7] 2.571759
##
   [8] 2.337963
##
   [1] "Número de reglas con consecuente negado"
##
                                                         support
                                                                   confidence
##
   [1]
                                            {milk=TRUE} 0.3762376 1.0000000
        {hair=TRUE,eggs=FALSE}
##
   [2]
        {eggs=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3069307 1.0000000
   [3]
##
        {eggs=FALSE,predator=FALSE}
                                            {milk=TRUE} 0.1881188 1.0000000
##
   [4]
        {eggs=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3960396 1.0000000
##
   [5]
        {hair=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2970297 1.0000000
##
   [6]
        {hair=TRUE, predator=TRUE}
                                            {milk=TRUE} 0.1980198 1.0000000
##
   [7]
        {hair=TRUE, toothed=TRUE}
                                            {milk=TRUE} 0.3762376 1.0000000
   [8]
##
        {hair=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 1.0000000
   [9]
        {hair=TRUE,airborne=FALSE}
                                            {milk=TRUE} 0.3663366 1.0000000
##
##
  Γ107
       {hair=TRUE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 1.0000000
  [11] {eggs=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.3960396 0.9756098
                                            {milk=TRUE} 0.3960396 0.9756098
  [12] {eggs=FALSE,backbone=TRUE}
  [13] {eggs=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3663366 0.9736842
##
  [14] {hair=TRUE, venomous=FALSE}
                                            {milk=TRUE} 0.3861386 0.9512195
  [15] {aquatic=FALSE, toothed=TRUE}
                                            {milk=TRUE} 0.3465347 0.9210526
   [16] {hair=TRUE,domestic=FALSE}
                                            {milk=TRUE} 0.3069307 0.9117647
   [17] {toothed=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.3069307 0.8857143
  [18] {toothed=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3663366 0.8809524
  [19] {toothed=TRUE,breathes=TRUE}
                                         => {milk=TRUE} 0.3960396 0.8510638
  [20] {feathers=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.8421053
  [21] {aquatic=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.2574257 0.8387097
  [22]
       {breathes=TRUE,catsize=TRUE}
                                           {milk=TRUE} 0.3168317 0.8205128
  [23] {toothed=TRUE,fins=FALSE}
                                           {milk=TRUE} 0.3564356 0.8181818
  [24] {predator=FALSE, toothed=TRUE}
                                            {milk=TRUE} 0.1881188 0.7916667
##
  [25] {legs=TRUE,catsize=TRUE}
                                            {milk=TRUE} 0.2871287 0.7837838
## [26] {airborne=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.3168317 0.7804878
## [27] {fins=FALSE,catsize=TRUE}
                                           {milk=TRUE} 0.2772277 0.7777778
## [28] {predator=FALSE,catsize=TRUE}
                                            {milk=TRUE} 0.1188119 0.7500000
```

```
[29] {backbone=TRUE,catsize=TRUE}
                                         => {milk=TRUE} 0.3168317 0.7441860
                                           {milk=TRUE} 0.3168317 0.7441860
   [30] {venomous=FALSE,catsize=TRUE}
  [31] {airborne=FALSE,aquatic=FALSE}
                                            {milk=TRUE} 0.3267327 0.7173913
                                            {milk=TRUE} 0.3960396 0.7017544
  [32] {toothed=TRUE, venomous=FALSE}
##
   [33] {airborne=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.3861386 0.6964286
  [34] {feathers=FALSE,aquatic=FALSE}
                                            {milk=TRUE} 0.3465347 0.6862745
##
  [35] {feathers=FALSE,breathes=TRUE}
                                            {milk=TRUE} 0.4059406 0.6833333
   [36] {airborne=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3564356 0.6666667
##
   [37]
       {aquatic=FALSE,backbone=TRUE}
                                            fmilk=TRUE} 0.3465347 0.6603774
   [38]
       {toothed=TRUE}
                                            {milk=TRUE} 0.3960396 0.6557377
   [39] {feathers=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.6551724
   [40] {feathers=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.4059406 0.6507937
   [41] {feathers=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.3465347 0.6363636
  [42] {aquatic=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.2970297 0.6122449
  [43] {airborne=FALSE,predator=FALSE} => {milk=TRUE} 0.1683168 0.6071429
   [44]
        {airborne=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.3861386 0.6000000
   [45]
       {backbone=TRUE, breathes=TRUE}
                                            {milk=TRUE} 0.4059406 0.5942029
   [46] {backbone=TRUE,legs=TRUE}
                                           {milk=TRUE} 0.3762376 0.5937500
   [47] {aquatic=FALSE,predator=TRUE}
                                           {milk=TRUE} 0.1584158 0.5925926
   [48] {aquatic=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3465347 0.5833333
##
  [49] {airborne=FALSE,fins=FALSE}
                                            {milk=TRUE} 0.3465347 0.5833333
  [50] {airborne=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 0.5789474
  [51] {legs=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3267327 0.5789474
##
   [52]
       {feathers=FALSE,fins=FALSE}
                                            {milk=TRUE} 0.3663366 0.5781250
   [53]
       {aquatic=FALSE, venomous=FALSE}
                                            {milk=TRUE} 0.3465347 0.5737705
   [54] {breathes=TRUE,tail=TRUE}
                                            {milk=TRUE} 0.3465347 0.5737705
   [55] {predator=TRUE,breathes=TRUE}
                                            {milk=TRUE} 0.2178218 0.5641026
   [56] {feathers=FALSE, venomous=FALSE} =>
                                            {milk=TRUE} 0.4059406 0.5616438
   [57] {backbone=TRUE,fins=FALSE}
                                           {milk=TRUE} 0.3663366 0.5606061
   [58] {feathers=FALSE,predator=FALSE} =>
                                            {milk=TRUE} 0.1881188 0.5588235
   [59]
       {airborne=FALSE, venomous=FALSE} =>
                                            {milk=TRUE} 0.3861386 0.5492958
##
   [60]
       {aquatic=FALSE, breathes=TRUE}
                                            {milk=TRUE} 0.3465347 0.5468750
   [61] {breathes=TRUE, venomous=FALSE}
                                            {milk=TRUE} 0.4059406 0.5466667
   [62] {fins=FALSE,tail=TRUE}
##
                                           {milk=TRUE} 0.3168317 0.5423729
       {feathers=FALSE,airborne=FALSE}
                                            {milk=TRUE} 0.3861386 0.5342466
##
   [64] {predator=FALSE,backbone=TRUE}
                                            {milk=TRUE} 0.1881188 0.5277778
   [65] {breathes=TRUE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.5205479
       {backbone=TRUE, venomous=FALSE}
                                            {milk=TRUE} 0.4059406 0.5189873
##
   [66]
        {predator=FALSE,tail=TRUE}
                                            {milk=TRUE} 0.1683168 0.5151515
##
   [67]
##
   [68]
       {venomous=FALSE,legs=TRUE}
                                            {milk=TRUE} 0.3762376 0.5135135
   [69] {feathers=FALSE}
                                            {milk=TRUE} 0.4059406 0.5061728
   [70] {venomous=FALSE,tail=TRUE}
                                           {milk=TRUE} 0.3465347 0.4929577
   [71] {venomous=FALSE,fins=FALSE}
                                         => {milk=TRUE} 0.3663366 0.4805195
   [72] {predator=FALSE, venomous=FALSE}
                                        => {milk=TRUE} 0.1881188 0.4418605
##
   [73] {predator=TRUE}
                                         => {milk=TRUE} 0.2178218 0.3928571
##
        lift
##
   [1]
        2.463415
##
   [2]
        2.463415
##
   [3]
        2.463415
##
   [4]
        2.463415
   [5]
##
        2.463415
##
  [6]
        2.463415
## [7]
        2.463415
## [8]
        2.463415
```

- ## [9] 2.463415
- ## [10] 2.463415
- ## [11] 2.403331
- ## [12] 2.403331
- ## [13] 2.398588
- ## [14] 2.343248
- ## [15] 2.268935
- ## [16] 2.246055
- ## [17] 2.181882
- ## [18] 2.170151
- ## [19] 2.096523
- ## [20] 2.074454
- ## [21] 2.066090
- ## [22] 2.021263
- ## [23] 2.015521
- ## [24] 1.950203
- [25] 1.930784
- [26] 1.922665
- [27] 1.915989
- ## [28] 1.847561
- ## [29] 1.833239
- ## [30] 1.833239
- ## [31] 1.767232
- ## [32] 1.728712
- ## [33] 1.715592
- ## [34] 1.690579
- ## [35] 1.683333
- ## [36] 1.642276
- ## [37] 1.626783
- ## [38] 1.615354
- ## [39] 1.613961
- ## [40] 1.603175
- ## [41] 1.567627 ## [42] 1.508213
- ## [43] 1.495645
- ## [44] 1.478049
- ## [45] 1.463768
- ## [46] 1.462652
- ## [47] 1.459801
- ## [48] 1.436992
- ## [49] 1.436992
- ## [50] 1.426187
- ## [51] 1.426187
- ## [52] 1.424162
- ## [53] 1.413435
- ## [54] 1.413435
- ## [55] 1.389619
- ## [56] 1.383562 ## [57] 1.381005
- ## [58] 1.376614
- ## [59] 1.353143
- ## [60] 1.347180
- ## [61] 1.346667
- ## [62] 1.336089

```
## [63] 1.316071
   [64] 1.300136
  [65] 1.282325
  [66] 1.278481
   [67] 1.269032
##
  [68] 1.264997
  [69] 1.246914
##
  [70] 1.214359
  [71] 1.183719
  [72] 1.088486
   [73] 0.967770
##
        lhs
                                          support
                                                    confidence lift
##
  [1]
                         => {milk=FALSE} 0.1287129 1.0000000 1.6833333
        {type=fish}
##
  [2]
        {backbone=FALSE} => {milk=FALSE} 0.1782178 1.0000000
                                                               1.6833333
  [3]
                         => {milk=FALSE} 0.1980198 1.0000000
##
        {type=bird}
                                                                1.6833333
## [4]
        {feathers=TRUE}
                         => {milk=FALSE} 0.1980198 1.0000000
                                                                1.6833333
  [5]
        {breathes=FALSE} => {milk=FALSE} 0.2079208 1.0000000
##
                                                                1.6833333
##
  [6]
                         => {milk=FALSE} 0.5742574 0.9830508
        {eggs=TRUE}
                                                                1.6548023
                         => {milk=FALSE} 0.5544554 0.9655172
##
  [7]
        {hair=FALSE}
                                                                1.6252874
##
  [8]
        {airborne=TRUE}
                            {milk=FALSE} 0.2178218 0.9166667
                                                                1.5430556
##
  [9]
        {legs=FALSE}
                         => {milk=FALSE} 0.1980198 0.8695652
                                                                1.4637681
                         => {milk=FALSE} 0.2970297 0.8333333
  [10] {aquatic=TRUE}
                                                                1.4027778
## [11] {tail=FALSE}
                         => {milk=FALSE} 0.1980198 0.7692308
                                                                1.2948718
                         => {milk=FALSE} 0.1287129 0.7647059
  [12] {fins=TRUE}
                                                                1.2872549
  [13] {predator=TRUE}
                         => {milk=FALSE} 0.3366337 0.6071429
                                                                1.0220238
  [14] {fins=FALSE}
                         => {milk=FALSE} 0.4653465 0.5595238
                                                                0.9418651
                         => {milk=FALSE} 0.3960396 0.5333333
  [15] {tail=TRUE}
                                                                0.8977778
  [16] {backbone=TRUE}
                         => {milk=FALSE} 0.4158416 0.5060241
                                                                0.8518072
  [17] {aquatic=FALSE}
                         => {milk=FALSE} 0.2970297 0.4615385
                                                                0.7769231
                                                                0.5795082
##
  [18] {toothed=TRUE}
                         => {milk=FALSE} 0.2079208 0.3442623
##
       lhs
                                         rhs
                                                     support
                                                                confidence
##
  [1] {hair=TRUE,predator=TRUE}
                                      => {milk=TRUE} 0.1980198 1.0000000
   [2] {aquatic=FALSE,predator=TRUE} => {milk=TRUE} 0.1584158 0.5925926
   [3] {predator=TRUE,breathes=TRUE} => {milk=TRUE} 0.2178218 0.5641026
##
       lift
## [1] 2.463415
  [2] 1.459801
##
  [3] 1.389619
##
       lhs
                                       rhs
                                                   support
                                                              confidence
  [1] {toothed=TRUE,fins=FALSE}
                                    => {milk=TRUE} 0.3564356 0.8181818
  [2] {fins=FALSE,catsize=TRUE}
                                    => {milk=TRUE} 0.2772277 0.7777778
  [3] {airborne=FALSE,fins=FALSE} => {milk=TRUE} 0.3465347 0.5833333
   [4] {feathers=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5781250
  [5] {backbone=TRUE,fins=FALSE} => {milk=TRUE} 0.3663366 0.5606061
## [6] {fins=FALSE,tail=TRUE}
                                    => {milk=TRUE} 0.3168317 0.5423729
  [7] {venomous=FALSE,fins=FALSE} => {milk=TRUE} 0.3663366 0.4805195
##
##
       lift
## [1] 2.015521
## [2] 1.915989
## [3] 1.436992
##
  [4] 1.424162
## [5] 1.381005
## [6] 1.336089
## [7] 1.183719
```

```
##
                                      rhs
                                                   support
                                                             confidence
##
  [1] {hair=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 1.0000000
   [2] {feathers=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.6363636
  [3] {aquatic=FALSE,tail=TRUE} => {milk=TRUE} 0.2970297 0.6122449
   [4] {airborne=FALSE,tail=TRUE} => {milk=TRUE} 0.3267327 0.5789474
  [5] {legs=TRUE,tail=TRUE}
                                   => {milk=TRUE} 0.3267327 0.5789474
  [6] {breathes=TRUE.tail=TRUE}
                                   => {milk=TRUE} 0.3465347 0.5737705
   [7] {fins=FALSE,tail=TRUE}
                                   => {milk=TRUE} 0.3168317 0.5423729
   [8] {predator=FALSE,tail=TRUE} => {milk=TRUE} 0.1683168 0.5151515
##
   [9] {venomous=FALSE,tail=TRUE} => {milk=TRUE} 0.3465347 0.4929577
##
       lift
##
   [1] 2.463415
##
   [2] 1.567627
  [3] 1.508213
  [4] 1.426187
   [5] 1.426187
##
   [6] 1.413435
   [7] 1.336089
  [8] 1.269032
##
   [9] 1.214359
##
        lhs
                                                                  confidence
                                           rhs
                                                        support
  [1]
##
        {hair=TRUE,backbone=TRUE}
                                        => {milk=TRUE} 0.3861386 1.0000000
  [2]
                                        => {milk=TRUE} 0.3960396 0.9756098
##
        {eggs=FALSE,backbone=TRUE}
        {backbone=TRUE, catsize=TRUE}
##
   [3]
                                        => {milk=TRUE} 0.3168317 0.7441860
##
  [4]
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
  [5]
        {feathers=FALSE,backbone=TRUE} => {milk=TRUE} 0.4059406 0.6507937
   [6]
        {airborne=FALSE,backbone=TRUE} => {milk=TRUE} 0.3861386 0.6000000
##
##
   [7]
        {backbone=TRUE,breathes=TRUE}
                                        => {milk=TRUE} 0.4059406 0.5942029
        {backbone=TRUE,legs=TRUE}
  [8]
##
                                        => {milk=TRUE} 0.3762376 0.5937500
  [9]
        {backbone=TRUE,fins=FALSE}
                                        => {milk=TRUE} 0.3663366 0.5606061
   [10] {predator=FALSE,backbone=TRUE} => {milk=TRUE} 0.1881188 0.5277778
##
   [11]
       {backbone=TRUE, venomous=FALSE} => {milk=TRUE} 0.4059406 0.5189873
##
        lift
        2.463415
##
  [1]
##
   [2]
        2.403331
   [3]
##
        1.833239
##
  [4]
        1.626783
##
  [5]
        1.603175
   [6]
##
        1.478049
##
   [7]
        1.463768
   [8]
        1.462652
   [9]
        1.381005
##
##
   Γ10]
       1.300136
##
   [11] 1.278481
##
        lhs
                                           rhs
                                                        support
                                                                  confidence
  [1]
                                        => {milk=TRUE} 0.3465347 0.9210526
##
        {aquatic=FALSE, toothed=TRUE}
##
   [2]
        {aquatic=FALSE, catsize=TRUE}
                                        => {milk=TRUE} 0.2574257 0.8387097
##
  [3]
        {airborne=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3267327 0.7173913
        {feathers=FALSE,aquatic=FALSE} => {milk=TRUE} 0.3465347 0.6862745
##
  [4]
##
   [5]
        {aquatic=FALSE,backbone=TRUE}
                                        => {milk=TRUE} 0.3465347 0.6603774
##
   [6]
        {aquatic=FALSE,tail=TRUE}
                                        => {milk=TRUE} 0.2970297 0.6122449
##
  [7]
        {aquatic=FALSE, predator=TRUE}
                                        => {milk=TRUE} 0.1584158 0.5925926
##
  [8]
        {aquatic=FALSE,legs=TRUE}
                                        => {milk=TRUE} 0.3465347 0.5833333
## [9]
        {aquatic=FALSE, venomous=FALSE} => {milk=TRUE} 0.3465347 0.5737705
```

```
[10] {aquatic=FALSE,breathes=TRUE} => {milk=TRUE} 0.3465347 0.5468750
##
        lift
##
  [1]
        2.268935
  [2]
##
        2.066090
   [3]
        1.767232
##
   [4]
        1.690579
##
   [5]
        1.626783
##
  [6]
        1.508213
##
   [7]
        1.459801
##
   [8]
        1.436992
   [9]
        1.413435
##
   [10] 1.347180
##
       lhs
                                         rhs
                                                      support
                                                                confidence
##
  [1] {hair=TRUE,toothed=TRUE}
                                      => {milk=TRUE} 0.3762376 1.0000000
  [2] {aquatic=FALSE,toothed=TRUE}
                                      => {milk=TRUE} 0.3465347 0.9210526
   [3] {toothed=TRUE,catsize=TRUE}
                                      => {milk=TRUE} 0.3069307 0.8857143
  [4] {toothed=TRUE,legs=TRUE}
                                      => {milk=TRUE} 0.3663366 0.8809524
  [5] {toothed=TRUE,breathes=TRUE}
                                      => {milk=TRUE} 0.3960396 0.8510638
  [6] {toothed=TRUE,fins=FALSE}
                                      => {milk=TRUE} 0.3564356 0.8181818
   [7] {predator=FALSE,toothed=TRUE} => {milk=TRUE} 0.1881188 0.7916667
   [8] {toothed=TRUE, venomous=FALSE} => {milk=TRUE} 0.3960396 0.7017544
##
##
       lift.
  [1] 2.463415
##
   [2] 2.268935
  [3] 2.181882
  [4] 2.170151
   [5] 2.096523
##
   [6] 2.015521
   [7] 1.950203
   [8] 1.728712
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                            rhs
                                                             support
##
  [1]
        {type=bird}
                                            {toothed=FALSE} 0.1980198
   [2]
##
        {feathers=TRUE}
                                            {toothed=FALSE} 0.1980198
   [3]
        {hair=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.1782178
##
   [4]
##
        {eggs=TRUE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
  [5]
        {milk=FALSE,airborne=TRUE}
                                            {toothed=FALSE} 0.2178218
  [6]
        {milk=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2673267
##
   [7]
##
        {eggs=TRUE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2574257
##
  [8]
        {hair=FALSE,aquatic=FALSE}
                                            {toothed=FALSE} 0.2277228
  [9]
        {eggs=TRUE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
  [10] {milk=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3465347
  [11] {hair=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.3069307
                                            {toothed=FALSE} 0.1683168
  [12] {eggs=TRUE,tail=FALSE}
## [13] {milk=FALSE,tail=FALSE}
                                         => {toothed=FALSE} 0.1683168
  [14] {eggs=TRUE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
  [15] {milk=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3861386
  [16] {eggs=TRUE,breathes=TRUE}
                                            {toothed=FALSE} 0.3168317
                                         => {toothed=FALSE} 0.3168317
  [17] {milk=FALSE,breathes=TRUE}
  [18] {hair=FALSE,fins=FALSE}
                                            {toothed=FALSE} 0.3465347
## [19] {hair=FALSE,tail=FALSE}
                                            {toothed=FALSE} 0.1287129
## [20] {eggs=TRUE,predator=FALSE}
                                            {toothed=FALSE} 0.2079208
## [21] {milk=FALSE,predator=FALSE}
                                         => {toothed=FALSE} 0.2079208
## [22] {tail=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.1584158
```

```
## [23] {hair=FALSE, predator=FALSE}
                                          => {toothed=FALSE} 0.1683168
   [24] {hair=FALSE,breathes=TRUE}
                                            {toothed=FALSE} 0.2772277
   [25] {tail=FALSE,domestic=FALSE}
                                             {toothed=FALSE} 0.1584158
                                             {toothed=FALSE} 0.1089109
   [26] {aquatic=FALSE,tail=FALSE}
##
   [27] {aquatic=TRUE,fins=FALSE}
                                             {toothed=FALSE} 0.1287129
   [28] {fins=FALSE,tail=FALSE}
                                             {toothed=FALSE} 0.1683168
##
   [29] {eggs=TRUE, venomous=FALSE}
                                             {toothed=FALSE} 0.3564356
   [30] {milk=FALSE, venomous=FALSE}
                                             {toothed=FALSE} 0.3465347
   [31]
       {aquatic=TRUE,legs=TRUE}
                                             {toothed=FALSE} 0.1188119
   [32]
       {legs=TRUE,catsize=FALSE}
                                            {toothed=FALSE} 0.2673267
   [33] {tail=FALSE}
                                            {toothed=FALSE} 0.1683168
##
   [34] {milk=FALSE}
                                            {toothed=FALSE} 0.3861386
   [35]
##
                                             {toothed=FALSE} 0.2178218
       {aquatic=FALSE,catsize=FALSE}
        {fins=FALSE,catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
   [37]
        {hair=FALSE, venomous=FALSE}
                                            {toothed=FALSE} 0.3267327
   [38]
        {hair=FALSE,catsize=FALSE}
                                             {toothed=FALSE} 0.2673267
   [39]
##
        {breathes=TRUE, catsize=FALSE}
                                            {toothed=FALSE} 0.2475248
   [40] {predator=FALSE, catsize=FALSE}
                                            {toothed=FALSE} 0.1683168
   [41] {catsize=FALSE}
                                            {toothed=FALSE} 0.3069307
   [42] {predator=FALSE,fins=FALSE}
                                             {toothed=FALSE} 0.2079208
##
   [43] {predator=FALSE,domestic=FALSE} =>
                                             {toothed=FALSE} 0.1683168
   [44] {fins=FALSE,domestic=FALSE}
                                             {toothed=FALSE} 0.3564356
   [45] {predator=FALSE,legs=TRUE}
                                            {toothed=FALSE} 0.1881188
##
   [46] {legs=TRUE,domestic=FALSE}
                                             {toothed=FALSE} 0.3168317
       {aquatic=FALSE,domestic=FALSE}
                                            {toothed=FALSE} 0.2277228
   Γ487
       {breathes=TRUE,domestic=FALSE}
                                            {toothed=FALSE} 0.2871287
##
   [49] {predator=TRUE}
                                         => {toothed=FALSE} 0.1881188
##
        confidence lift
##
   [1]
        1.0000000
                   2.5250000
##
   [2]
        1.0000000
                   2.5250000
##
   [3]
        1.0000000
                   2.5250000
##
   [4]
        1.0000000
                   2.5250000
##
   [5]
        1.0000000
                   2.5250000
##
   [6]
        0.9000000
                   2.2725000
   [7]
##
        0.8965517
                   2.2637931
##
   [8]
        0.8846154
                   2.2336538
   [9]
        0.8750000
                   2.2093750
   [10] 0.8750000
##
                   2.2093750
   [11] 0.8611111
                   2.1743056
   [12] 0.8500000
                   2.1462500
   [13] 0.8500000
                   2.1462500
   [14] 0.8478261
                   2.1407609
   [15] 0.8297872
                   2.0952128
   [16] 0.8205128
                   2.0717949
   [17] 0.8205128
                   2.0717949
   [18] 0.8139535
                   2.0552326
##
   [19] 0.8125000
                   2.0515625
   [20] 0.8076923
                   2.0394231
   [21] 0.8076923
                   2.0394231
   [22]
        0.8000000
                   2.0200000
##
   [23]
       0.7727273
                   1.9511364
  [24] 0.7567568
                   1.9108108
## [25] 0.6956522
                   1.7565217
## [26] 0.6875000
                   1.7359375
```

```
## [27] 0.6842105
                   1.7276316
  [28] 0.6800000
                   1.7170000
  [29] 0.6792453
                   1.7150943
  [30] 0.6730769
                   1.6995192
   [31] 0.6666667
                   1.6833333
   [32] 0.6585366
                   1.6628049
   [33] 0.6538462
                   1.6509615
  [34] 0.6500000
                   1.6412500
   [35] 0.6470588
                   1.6338235
   [36] 0.6458333
                   1.6307292
   [37] 0.6346154
                   1.6024038
   [38] 0.6136364
                   1.5494318
   [39] 0.6097561
                   1.5396341
  [40] 0.5862069
                   1.4801724
  [41] 0.5438596
                   1.3732456
   [42] 0.5121951
                   1.2932927
   [43] 0.5000000
                   1.2625000
                   1.2625000
   [44] 0.5000000
                   1.2301282
  [45] 0.4871795
   [46] 0.4848485
                   1.2242424
##
  [47] 0.4339623
                   1.0957547
                   1.0768382
  [48] 0.4264706
  [49] 0.3392857
                   0.8566964
##
##
        lhs
                                             support
                                                       confidence lift
##
  [1]
        {type=fish}
                          => {toothed=TRUE} 0.1287129 1.0000000
                                                                  1.6557377
   [2]
        {fins=TRUE}
                          => {toothed=TRUE} 0.1683168 1.0000000
                                                                  1.6557377
##
   [3]
        {eggs=FALSE}
                          => {toothed=TRUE} 0.4059406 0.9761905
                                                                  1.6163154
##
   [4]
        {legs=FALSE}
                          => {toothed=TRUE} 0.1881188 0.8260870
                                                                  1.3677833
##
  [5]
        {catsize=TRUE}
                          => {toothed=TRUE} 0.3465347 0.7954545
                                                                  1.3170641
##
  [6]
        {feathers=FALSE} => {toothed=TRUE} 0.6039604 0.7530864
                                                                  1.2469136
##
  [7]
        {tail=TRUE}
                          => {toothed=TRUE} 0.5148515 0.6933333
                                                                  1.1479781
##
  [8]
        {breathes=FALSE} => {toothed=TRUE} 0.1386139 0.6666667
                                                                  1.1038251
  [9]
        {predator=TRUE}
                          => {toothed=TRUE} 0.3663366 0.6607143
                                                                  1.0939696
       {aquatic=TRUE}
                          => {toothed=TRUE} 0.2277228 0.6388889
  [10]
                                                                  1.0578324
       {domestic=FALSE}
                         => {toothed=TRUE} 0.5148515 0.5909091
                                                                  0.9783905
                          => {toothed=TRUE} 0.4653465 0.5875000
##
  [12] {breathes=TRUE}
                                                                  0.9727459
  [13] {predator=FALSE} => {toothed=TRUE} 0.2376238 0.5333333
  [14] {catsize=FALSE}
                          => {toothed=TRUE} 0.2574257 0.4561404
                                                                  0.7552488
   [15] {hair=FALSE}
                          => {toothed=TRUE} 0.2277228 0.3965517
                                                                  0.6565856
   [16] {eggs=TRUE}
                          => {toothed=TRUE} 0.1980198 0.3389831
##
                                                                  0.5612670
##
       lhs
                                     rhs
                                                      support
                                                                confidence
   [1] {aquatic=TRUE,fins=FALSE} => {toothed=FALSE} 0.1287129 0.6842105
##
   [2] {aquatic=TRUE,legs=TRUE} => {toothed=FALSE} 0.1188119 0.6666667
##
       lift
##
  [1] 1.727632
##
  [2] 1.683333
##
       lhs
                                           rhs
                                                            support
##
  [1] {tail=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.1584158
   [2] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
   [3] {fins=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3564356
   [4] {legs=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.3168317
  [5] {aquatic=FALSE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2277228
##
  [6] {breathes=TRUE,domestic=FALSE}
                                        => {toothed=FALSE} 0.2871287
##
       confidence lift
```

```
## [1] 0.6956522 1.756522
## [2] 0.5000000
                  1.262500
  [3] 0.5000000
                  1.262500
  [4] 0.4848485
                  1.224242
  [5] 0.4339623
                  1.095755
##
   [6] 0.4264706
                  1.076838
       lhs
                                                          support
                                                                    confidence
## [1] {eggs=TRUE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
  [2] {milk=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.3168317 0.8205128
  [3] {hair=FALSE,breathes=TRUE}
                                       => {toothed=FALSE} 0.2772277 0.7567568
## [4] {breathes=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2475248 0.6097561
  [5] {breathes=TRUE,domestic=FALSE} => {toothed=FALSE} 0.2871287 0.4264706
##
##
       lift
## [1] 2.071795
## [2] 2.071795
## [3] 1.910811
  [4] 1.539634
##
  [5] 1.076838
##
       lhs
                                           rhs
                                                           support
## [1] {eggs=TRUE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
## [2] {milk=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.2079208
## [3] {hair=FALSE,predator=FALSE}
                                        => {toothed=FALSE} 0.1683168
## [4] {predator=FALSE,catsize=FALSE}
                                        => {toothed=FALSE} 0.1683168
## [5] {predator=FALSE,fins=FALSE}
                                        => {toothed=FALSE} 0.2079208
  [6] {predator=FALSE,domestic=FALSE} => {toothed=FALSE} 0.1683168
  [7] {predator=FALSE,legs=TRUE}
                                        => {toothed=FALSE} 0.1881188
##
       confidence lift
## [1] 0.8076923
                  2.039423
## [2] 0.8076923 2.039423
## [3] 0.7727273
                  1.951136
## [4] 0.5862069
                  1.480172
## [5] 0.5121951
                  1.293293
## [6] 0.5000000
                  1.262500
## [7] 0.4871795
                  1.230128
##
       lhs
                                                          support
                                                                    confidence
## [1] {tail=FALSE, catsize=FALSE}
                                       => {toothed=FALSE} 0.1584158 0.8000000
## [2] {legs=TRUE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6585366
## [3] {aquatic=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2178218 0.6470588
## [4] {fins=FALSE, catsize=FALSE}
                                       => {toothed=FALSE} 0.3069307 0.6458333
## [5] {hair=FALSE,catsize=FALSE}
                                       => {toothed=FALSE} 0.2673267 0.6136364
  [6] {breathes=TRUE,catsize=FALSE}
                                      => {toothed=FALSE} 0.2475248 0.6097561
  [7] {predator=FALSE, catsize=FALSE} => {toothed=FALSE} 0.1683168 0.5862069
##
       lift
## [1] 2.020000
## [2] 1.662805
## [3] 1.633824
## [4] 1.630729
## [5] 1.549432
## [6] 1.539634
## [7] 1.480172
##
       lhs
                                       rhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,airborne=TRUE}
                                   => {toothed=FALSE} 0.1782178 1.0000000
                                   => {toothed=FALSE} 0.2277228 0.8846154
## [2] {hair=FALSE,aquatic=FALSE}
## [3] {hair=FALSE,legs=TRUE}
                                    => {toothed=FALSE} 0.3069307 0.8611111
```

```
## [4] {hair=FALSE,fins=FALSE}
                                    => {toothed=FALSE} 0.3465347 0.8139535
                                    => {toothed=FALSE} 0.1287129 0.8125000
## [5] {hair=FALSE,tail=FALSE}
  [6] {hair=FALSE,predator=FALSE} => {toothed=FALSE} 0.1683168 0.7727273
  [7] {hair=FALSE,breathes=TRUE}
                                   => {toothed=FALSE} 0.2772277 0.7567568
   [8] {hair=FALSE, venomous=FALSE} => {toothed=FALSE} 0.3267327 0.6346154
   [9] {hair=FALSE, catsize=FALSE} => {toothed=FALSE} 0.2673267 0.6136364
##
##
       lift
## [1] 2.525000
##
  [2] 2.233654
  [3] 2.174306
  [4] 2.055233
  [5] 2.051563
  [6] 1.951136
  [7] 1.910811
## [8] 1.602404
##
   [9] 1.549432
##
       lhs
                                      rhs
                                                      support
                                                                 confidence
  [1] {eggs=TRUE,airborne=TRUE}
                                   => {toothed=FALSE} 0.2178218 1.0000000
  [2] {eggs=TRUE,aquatic=FALSE}
                                   => {toothed=FALSE} 0.2574257 0.8965517
  [3] {eggs=TRUE,legs=TRUE}
                                   => {toothed=FALSE} 0.3465347 0.8750000
## [4] {eggs=TRUE,tail=FALSE}
                                   => {toothed=FALSE} 0.1683168 0.8500000
                                   => {toothed=FALSE} 0.3861386 0.8478261
## [5] {eggs=TRUE,fins=FALSE}
  [6] {eggs=TRUE,breathes=TRUE}
                                   => {toothed=FALSE} 0.3168317 0.8205128
   [7] {eggs=TRUE,predator=FALSE} => {toothed=FALSE} 0.2079208 0.8076923
   [8] {eggs=TRUE, venomous=FALSE} => {toothed=FALSE} 0.3564356 0.6792453
       lift
  [1] 2.525000
##
##
   [2] 2.263793
  [3] 2.209375
## [4] 2.146250
## [5] 2.140761
##
  [6] 2.071795
  [7] 2.039423
   [8] 1.715094
##
   [1]
       "Número de reglas con consecuente negado"
##
        lhs
                                                            support
##
  [1]
        {breathes=TRUE,domestic=TRUE}
                                         => {aquatic=FALSE} 0.1188119
##
  [2]
        {fins=FALSE,domestic=TRUE}
                                           {aquatic=FALSE} 0.1188119
  [3]
        {backbone=FALSE, breathes=TRUE}
                                           {aquatic=FALSE} 0.1089109
  [4]
##
        {milk=TRUE, predator=FALSE}
                                         => {aquatic=FALSE} 0.1881188
  [5]
        {predator=FALSE, type=mammal}
                                           {aquatic=FALSE} 0.1881188
  [6]
        {eggs=FALSE,predator=FALSE}
                                           {aquatic=FALSE} 0.1881188
##
   [7]
        {hair=TRUE, predator=FALSE}
                                         => {aquatic=FALSE} 0.2277228
##
  [8]
        {hair=TRUE,catsize=FALSE}
                                         => {aquatic=FALSE} 0.1287129
## [9]
        {hair=TRUE,fins=FALSE}
                                         => {aquatic=FALSE} 0.3861386
## [10] {eggs=FALSE,legs=TRUE}
                                           {aquatic=FALSE} 0.3564356
## [11] {eggs=FALSE,fins=FALSE}
                                         => {aquatic=FALSE} 0.3564356
## [12] {milk=TRUE,fins=FALSE}
                                         => {aquatic=FALSE} 0.3465347
## [13] {fins=FALSE,type=mammal}
                                         => {aquatic=FALSE} 0.3465347
## [14] {predator=FALSE,catsize=TRUE}
                                         => {aquatic=FALSE} 0.1485149
## [15] {predator=FALSE,breathes=TRUE}
                                         => {aquatic=FALSE} 0.3762376
## [16] {predator=FALSE,fins=FALSE}
                                         => {aquatic=FALSE} 0.3762376
## [17] {domestic=TRUE}
                                         => {aquatic=FALSE} 0.1188119
## [18] {predator=FALSE,legs=TRUE}
                                         => {aquatic=FALSE} 0.3564356
```

```
## [19] {hair=TRUE}
                                         => {aquatic=FALSE} 0.3861386
  [20] {eggs=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.3564356
  [21] {toothed=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.3762376
  [22] {fins=FALSE,catsize=TRUE}
                                            {aquatic=FALSE} 0.3069307
##
   [23] {eggs=FALSE}
                                            {aquatic=FALSE} 0.3564356
  [24] {toothed=TRUE,legs=TRUE}
                                            {aquatic=FALSE} 0.3564356
##
  [25] {milk=TRUE}
                                            {aquatic=FALSE} 0.3465347
                                            {aquatic=FALSE} 0.3465347
  [26] {type=mammal}
   [27] {feathers=FALSE,predator=FALSE} =>
                                            {aquatic=FALSE} 0.2871287
   [28] {predator=FALSE}
                                            {aquatic=FALSE} 0.3762376
  [29] {breathes=TRUE,fins=FALSE}
                                         => {aquatic=FALSE} 0.6336634
  [30] {legs=TRUE,catsize=TRUE}
                                           {aquatic=FALSE} 0.3069307
                                           {aquatic=FALSE} 0.4950495
  [31] {feathers=FALSE, breathes=TRUE}
  [32] {fins=FALSE,tail=TRUE}
                                            {aquatic=FALSE} 0.4851485
## [33] {legs=TRUE,tail=TRUE}
                                            {aquatic=FALSE} 0.4653465
  [34]
        {breathes=TRUE,legs=TRUE}
                                            {aquatic=FALSE} 0.5940594
  [35]
        {breathes=TRUE,catsize=FALSE}
                                            {aquatic=FALSE} 0.3267327
       {airborne=FALSE,breathes=TRUE}
                                            {aquatic=FALSE} 0.4455446
  [37] {backbone=TRUE,fins=FALSE}
                                            {aquatic=FALSE} 0.5247525
   [38] {feathers=FALSE,fins=FALSE}
                                            {aquatic=FALSE} 0.5049505
  [39] {feathers=FALSE,legs=TRUE}
                                            {aquatic=FALSE} 0.4554455
  [40] {venomous=FALSE,fins=FALSE}
                                            {aquatic=FALSE} 0.6039604
  [41] {fins=FALSE,legs=TRUE}
                                            {aquatic=FALSE} 0.5940594
  [42] {fins=FALSE}
                                            {aquatic=FALSE} 0.6435644
  [43] {toothed=FALSE,tail=TRUE}
                                            {aquatic=FALSE} 0.1584158
  [44] {toothed=FALSE,backbone=TRUE}
                                            {aquatic=FALSE} 0.1485149
  [45] {toothed=FALSE}
                                            {aquatic=FALSE} 0.2673267
  [46] {toothed=TRUE}
                                           {aquatic=FALSE} 0.3762376
  [47] {tail=FALSE}
                                           {aquatic=FALSE} 0.1584158
  [48] {domestic=FALSE}
                                            {aquatic=FALSE} 0.5247525
   [49]
       {catsize=FALSE}
                                            {aquatic=FALSE} 0.3366337
##
   [50]
       {eggs=TRUE}
                                         => {aquatic=FALSE} 0.2871287
##
        confidence lift
##
   [1]
        1.0000000
                   1.5538462
   [2]
        1.0000000
                   1.5538462
##
   [3]
##
        1.0000000
                   1.5538462
  [4]
        1.0000000
                   1.5538462
  [5]
##
        1.0000000
                   1.5538462
  [6]
##
        1.0000000
                   1.5538462
##
  [7]
        1.0000000
                   1.5538462
  [8]
        1.0000000
                   1.5538462
   [9]
        0.9512195
                   1.4780488
   [10] 0.9473684
                   1.4720648
  [11] 0.9473684
                   1.4720648
  [12] 0.9459459
                   1.4698545
  [13] 0.9459459
                   1.4698545
                   1.4567308
   [14] 0.9375000
  [15] 0.9268293
                   1.4401501
  [16] 0.9268293
                   1.4401501
   [17] 0.9230769
                   1.4343195
##
                   1.4343195
  [18] 0.9230769
## [19] 0.9069767
                   1.4093023
## [20] 0.8780488
                   1.3643527
## [21] 0.8636364
                   1.3419580
```

```
## [22] 0.8611111
                   1.3380342
## [23] 0.8571429
                   1.3318681
## [24] 0.8571429
                   1.3318681
## [25] 0.8536585
                   1.3264540
## [26] 0.8536585
                   1.3264540
## [27] 0.8529412
                   1.3253394
## [28] 0.844444
                   1.3121368
## [29] 0.8421053
                   1.3085020
## [30] 0.8378378
                   1.3018711
## [31] 0.8333333
                   1.2948718
## [32] 0.8305085
                   1.2904824
## [33] 0.8245614
                   1.2812416
## [34] 0.8219178
                   1.2771338
## [35] 0.8048780
                   1.2506567
## [36] 0.8035714
                   1.2486264
## [37] 0.8030303
                   1.2477855
  [38] 0.7968750
                   1.2382212
  [39] 0.7931034
                   1.2323607
## [40] 0.7922078
                   1.2309690
## [41] 0.7792208
                   1.2107892
                   1.2023810
## [42] 0.7738095
## [43] 0.6956522
                   1.0809365
## [44] 0.6818182
                   1.0594406
## [45] 0.6750000
                   1.0488462
                   0.9679697
## [46] 0.6229508
## [47] 0.6153846
                   0.9562130
## [48] 0.6022727
                   0.9358392
## [49] 0.5964912
                   0.9268556
##
  [50] 0.4915254
                   0.7637549
##
       lhs
                           rhs
                                           support
                                                     confidence lift
## [1] {type=fish}
                        => {aquatic=TRUE} 0.1287129 1.0000000
                                                                2.8055556
   [2] {fins=TRUE}
                        => {aquatic=TRUE} 0.1683168 1.0000000
                                                                2.8055556
  [3] {breathes=FALSE} => {aquatic=TRUE} 0.1980198 0.9523810
## [4] {legs=FALSE}
                        => {aquatic=TRUE} 0.1782178 0.7826087
                                                                 2.1956522
  [5] {backbone=TRUE}
                        => {aquatic=TRUE} 0.2970297 0.3614458
                                                                 1.0140562
                        => {aquatic=TRUE} 0.2574257 0.3466667
## [6] {tail=TRUE}
                                                                 0.9725926
  [7] {venomous=FALSE} => {aquatic=TRUE} 0.3168317 0.3440860
## [8] {toothed=FALSE}
                        => {aquatic=TRUE} 0.1287129 0.3250000
                                                                 0.9118056
  [9] {breathes=TRUE} => {aquatic=TRUE} 0.1584158 0.2000000 0.5611111
##
##
       lhs
                                         rhs
                                                         support
                                                                    confidence
  [1] {backbone=TRUE,fins=FALSE}
                                      => {aquatic=FALSE} 0.5247525 0.8030303
   [2] {toothed=FALSE,backbone=TRUE} => {aquatic=FALSE} 0.1485149 0.6818182
##
       lift
##
  [1] 1.247786
  [2] 1.059441
##
##
       lhs
                                     rhs
                                                     support
                                                                confidence
## [1] {fins=FALSE,tail=TRUE}
                                  => {aquatic=FALSE} 0.4851485 0.8305085
   [2] {legs=TRUE,tail=TRUE}
                                  => {aquatic=FALSE} 0.4653465 0.8245614
##
   [3] {toothed=FALSE,tail=TRUE} => {aquatic=FALSE} 0.1584158 0.6956522
##
       lift
## [1] 1.290482
## [2] 1.281242
## [3] 1.080936
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
```

```
[1] {venomous=FALSE,fins=FALSE} => {aquatic=FALSE} 0.6039604 0.7922078
##
       lift.
   [1] 1.230969
##
##
       lhs
                                         rhs
                                                          support
                                                                    confidence
##
   [1] {toothed=FALSE,tail=TRUE}
                                      => {aquatic=FALSE} 0.1584158 0.6956522
   [2] {toothed=FALSE,backbone=TRUE} => {aquatic=FALSE} 0.1485149 0.6818182
##
##
       lift
## [1] 1.080936
##
   [2] 1.059441
##
       lhs
                                          rhs
                                                           support
                                                                     confidence
  [1] {breathes=TRUE,domestic=TRUE}
                                          {aquatic=FALSE} 0.1188119 1.0000000
   [2] {backbone=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.1089109 1.0000000
   [3] {predator=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.3762376 0.9268293
   [4] {eggs=FALSE,breathes=TRUE}
                                       => {aquatic=FALSE} 0.3564356 0.8780488
  [5] {breathes=TRUE,fins=FALSE}
                                       => {aquatic=FALSE} 0.6336634 0.8421053
## [6] {feathers=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.4950495 0.8333333
  [7] {breathes=TRUE,legs=TRUE}
                                       => {aquatic=FALSE} 0.5940594 0.8219178
  [8] {breathes=TRUE,catsize=FALSE}
                                       => {aquatic=FALSE} 0.3267327 0.8048780
   [9] {airborne=FALSE,breathes=TRUE} => {aquatic=FALSE} 0.4455446 0.8035714
##
##
       lift.
## [1] 1.553846
## [2] 1.553846
## [3] 1.440150
  [4] 1.364353
## [5] 1.308502
  [6] 1.294872
  [7] 1.277134
##
  [8] 1.250657
##
  [9] 1.248626
##
   [1] "Número de reglas con consecuente negado"
##
                                                             support
##
  [1]
        {backbone=FALSE, breathes=TRUE}
                                            {catsize=FALSE} 0.1089109
##
   [2]
        {eggs=TRUE,tail=FALSE}
                                           {catsize=FALSE} 0.1881188
  [3]
##
        {milk=FALSE,tail=FALSE}
                                         => {catsize=FALSE} 0.1881188
   [4]
        {backbone=FALSE}
                                            {catsize=FALSE} 0.1683168
##
  [5]
##
        {hair=FALSE,tail=FALSE}
                                           {catsize=FALSE} 0.1485149
  [6]
        {predator=FALSE,tail=FALSE}
                                            {catsize=FALSE} 0.1089109
  [7]
        {airborne=TRUE}
                                            {catsize=FALSE} 0.2079208
##
  [8]
        {feathers=FALSE, toothed=FALSE}
                                            {catsize=FALSE} 0.1683168
##
##
  [9]
        {feathers=FALSE,milk=FALSE}
                                           {catsize=FALSE} 0.3366337
  [10] {eggs=TRUE,predator=FALSE}
                                           {catsize=FALSE} 0.2178218
  [11] {milk=FALSE,predator=FALSE}
                                         => {catsize=FALSE} 0.2178218
## [12] {milk=FALSE,aquatic=FALSE}
                                         => {catsize=FALSE} 0.2475248
## [13] {milk=FALSE,fins=FALSE}
                                         => {catsize=FALSE} 0.3861386
## [14] {eggs=TRUE,aquatic=FALSE}
                                         => {catsize=FALSE} 0.2376238
  [15] {feathers=FALSE,eggs=TRUE}
                                         => {catsize=FALSE} 0.3168317
  [16] {milk=FALSE,breathes=TRUE}
                                           {catsize=FALSE} 0.3168317
  [17] {hair=FALSE,predator=FALSE}
                                         => {catsize=FALSE} 0.1782178
## [18] {hair=FALSE,fins=FALSE}
                                         => {catsize=FALSE} 0.3465347
## [19] {milk=FALSE,toothed=TRUE}
                                         => {catsize=FALSE} 0.1683168
## [20] {hair=FALSE,aquatic=FALSE}
                                         => {catsize=FALSE} 0.2079208
## [21] {eggs=TRUE,fins=FALSE}
                                         => {catsize=FALSE} 0.3663366
## [22] {milk=FALSE}
                                         => {catsize=FALSE} 0.4752475
## [23] {eggs=TRUE,toothed=TRUE}
                                         => {catsize=FALSE} 0.1584158
```

```
## [24] {eggs=TRUE,breathes=TRUE}
                                         => {catsize=FALSE} 0.3069307
                                         => {catsize=FALSE} 0.2970297
  [25] {hair=FALSE,feathers=FALSE}
  [26] {eggs=TRUE}
                                           {catsize=FALSE} 0.4554455
  [27] {breathes=FALSE, venomous=FALSE} => {catsize=FALSE} 0.1386139
  [28] {hair=FALSE,legs=TRUE}
                                            {catsize=FALSE} 0.2772277
## [29] {tail=FALSE}
                                            {catsize=FALSE} 0.1980198
                                            {catsize=FALSE} 0.1584158
  [30] {breathes=FALSE}
## [31] {aquatic=TRUE,fins=FALSE}
                                            {catsize=FALSE} 0.1386139
##
  [32]
       {type=bird}
                                            {catsize=FALSE} 0.1386139
  [33]
       {feathers=TRUE}
                                            {catsize=FALSE} 0.1386139
  [34] {legs=FALSE}
                                            {catsize=FALSE} 0.1584158
  [35] {aquatic=TRUE,legs=TRUE}
                                            {catsize=FALSE} 0.1188119
   [36] {predator=FALSE,domestic=FALSE} => {catsize=FALSE} 0.2178218
       {aquatic=TRUE}
                                         => {catsize=FALSE} 0.2277228
                                         => {catsize=FALSE} 0.4158416
## [38] {fins=FALSE,domestic=FALSE}
  [39]
        {predator=TRUE}
                                         => {catsize=FALSE} 0.2772277
  [40] {airborne=FALSE}
                                         => {catsize=FALSE} 0.3564356
  [41] {hair=TRUE}
                                         => {catsize=FALSE} 0.1287129
                                         => {catsize=FALSE} 0.1089109
##
   [42]
       {eggs=FALSE}
##
        confidence lift
##
  [1]
        1.0000000
                  1.7719298
  [2]
        0.9500000
                   1.6833333
## [3]
        0.9500000
                   1.6833333
  [4]
        0.944444
                   1.6734893
                   1.6611842
##
  [5]
        0.9375000
  [6]
        0.9166667
                   1.6242690
  [7]
        0.8750000
##
                   1.5504386
##
   [8]
        0.8500000
                   1.5061404
  [9]
        0.8500000
                   1.5061404
                   1.4993252
## [10] 0.8461538
## [11] 0.8461538
                   1.4993252
  [12] 0.8333333
                   1.4766082
  [13] 0.8297872
                   1.4703247
  [14] 0.8275862
                   1.4664247
                   1.4538911
   [15] 0.8205128
  [16] 0.8205128
                   1.4538911
## [17] 0.8181818
                   1.4497608
## [18] 0.8139535
                   1.4422685
  [19] 0.8095238
                   1.4344194
  [20] 0.8076923
                   1.4311741
  [21] 0.8043478
                   1.4252479
  [22] 0.8000000
                   1.4175439
## [23] 0.8000000
                   1.4175439
## [24] 0.7948718
                   1.4084570
## [25] 0.7894737
                   1.3988920
## [26] 0.7796610
                   1.3815046
                   1.3781676
  [27] 0.7777778
  [28] 0.7777778
                   1.3781676
  [29] 0.7692308
                   1.3630229
  [30] 0.7619048
                   1.3500418
##
  [31] 0.7368421
                   1.3056325
## [32] 0.7000000
                   1.2403509
## [33] 0.7000000
                   1.2403509
## [34] 0.6956522
                   1.2326468
```

```
## [35] 0.6666667
                   1.1812865
   [36] 0.6470588
                   1.1465428
  [37] 0.6388889
                   1.1320663
  [38] 0.5833333
                   1.0336257
   [39] 0.5000000
                   0.8859649
  [40] 0.4675325
                   0.8284347
  [41] 0.3023256
                   0.5356997
                   0.4640769
##
  [42] 0.2619048
##
       lhs
                          rhs
                                                    confidence lift
                                          support
##
  [1] {milk=TRUE}
                       => {catsize=TRUE} 0.3168317 0.7804878
                                                              1.7915743
   [2] {type=mammal}
                       => {catsize=TRUE} 0.3168317 0.7804878
                                                               1.7915743
                       => {catsize=TRUE} 0.3069307 0.7380952
   [3] {eggs=FALSE}
                                                               1.6942641
##
  [4] {hair=TRUE}
                       => {catsize=TRUE} 0.2970297 0.6976744
                                                               1.6014799
  [5] {aquatic=FALSE} => {catsize=TRUE} 0.3069307 0.4769231
                                                               1.0947552
                       => {catsize=TRUE} 0.1287129 0.3611111
  [6] {aquatic=TRUE}
                                                               0.8289141
   [7] {hair=FALSE}
                       => {catsize=TRUE} 0.1386139 0.2413793
                                                               0.5540752
##
   [8] {milk=FALSE}
                       => {catsize=TRUE} 0.1188119 0.2000000
                                                               0.4590909
##
       lhs
                                      rhs
                                                      support
                                                                 confidence
  [1] {milk=FALSE,aquatic=FALSE} => {catsize=FALSE} 0.2475248 0.8333333
   [2] {eggs=TRUE,aquatic=FALSE} => {catsize=FALSE} 0.2376238 0.8275862
##
   [3] {hair=FALSE,aquatic=FALSE} => {catsize=FALSE} 0.2079208 0.8076923
##
       lift.
  [1] 1.476608
##
   [2] 1.466425
##
##
  [3] 1.431174
                                    rhs
                                                     support
                                                                confidence
   [1] {aquatic=TRUE,fins=FALSE} => {catsize=FALSE} 0.1386139 0.7368421
##
##
   [2] {aquatic=TRUE,legs=TRUE} => {catsize=FALSE} 0.1188119 0.6666667
##
       lift
##
  [1] 1.305633
##
  [2] 1.181287
##
       lhs
                                       rhs
                                                                  confidence
                                                       support
  [1] {hair=FALSE,tail=FALSE}
                                    => {catsize=FALSE} 0.1485149 0.9375000
  [2] {hair=FALSE,predator=FALSE} => {catsize=FALSE} 0.1782178 0.8181818
   [3] {hair=FALSE,fins=FALSE}
                                    => {catsize=FALSE} 0.3465347 0.8139535
                                   => {catsize=FALSE} 0.2079208 0.8076923
  [4] {hair=FALSE,aquatic=FALSE}
  [5] {hair=FALSE,feathers=FALSE} => {catsize=FALSE} 0.2970297 0.7894737
  [6] {hair=FALSE,legs=TRUE}
                                    => {catsize=FALSE} 0.2772277 0.7777778
##
##
       lift
## [1] 1.661184
  [2] 1.449761
  [3] 1.442268
   [4] 1.431174
##
  [5] 1.398892
##
  [6] 1.378168
##
       lhs
                                       rhs
                                                       support
                                                                  confidence
  [1] {milk=FALSE,tail=FALSE}
                                    => {catsize=FALSE} 0.1881188 0.9500000
   [2] {feathers=FALSE,milk=FALSE} =>
                                      {catsize=FALSE} 0.3366337 0.8500000
   [3] {milk=FALSE,predator=FALSE} => {catsize=FALSE} 0.2178218 0.8461538
   [4] {milk=FALSE,aquatic=FALSE}
                                    => {catsize=FALSE} 0.2475248 0.8333333
  [5] {milk=FALSE,fins=FALSE}
                                    => {catsize=FALSE} 0.3861386 0.8297872
## [6] {milk=FALSE,breathes=TRUE}
                                   => {catsize=FALSE} 0.3168317 0.8205128
## [7] {milk=FALSE,toothed=TRUE}
                                    => {catsize=FALSE} 0.1683168 0.8095238
##
       lift
```

```
[1] 1.683333
   [2] 1.506140
   [3] 1.499325
   [4] 1.476608
##
   [5]
       1.470325
##
   [6] 1.453891
   [7] 1.434419
##
   [1]
       "Número de reglas con consecuente negado"
                                                            support
##
        lhs
                                            rhs
##
   [1]
        {milk=TRUE,predator=TRUE}
                                         => {catsize=TRUE} 0.1980198
   [2]
        {predator=TRUE, type=mammal}
                                            {catsize=TRUE} 0.1980198
   [3]
##
        {hair=TRUE, predator=TRUE}
                                            {catsize=TRUE} 0.1782178
        {eggs=FALSE,predator=TRUE}
##
   [4]
                                            {catsize=TRUE} 0.1881188
        {hair=TRUE,airborne=FALSE}
                                            {catsize=TRUE} 0.2970297
##
   [5]
   [6]
                                            {catsize=TRUE} 0.2574257
##
        {milk=TRUE,domestic=FALSE}
##
   [7]
        {domestic=FALSE, type=mammal}
                                            {catsize=TRUE} 0.2574257
   [8]
##
        {milk=TRUE}
                                            {catsize=TRUE} 0.3168317
   [9]
        {type=mammal}
                                            {catsize=TRUE} 0.3168317
##
   [10] {eggs=FALSE, venomous=FALSE}
                                            {catsize=TRUE} 0.3069307
   [11] {hair=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2970297
##
  [12] {hair=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2475248
                                            {catsize=TRUE} 0.3069307
  [13] {eggs=FALSE,backbone=TRUE}
  [14] {eggs=FALSE}
                                            {catsize=TRUE} 0.3069307
##
   [15]
       {hair=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.2970297
   [16] {hair=TRUE,domestic=FALSE}
                                            {catsize=TRUE} 0.2376238
   [17] {hair=TRUE}
                                            {catsize=TRUE} 0.2970297
   [18] {aquatic=FALSE, toothed=TRUE}
                                            {catsize=TRUE} 0.2574257
   [19] {toothed=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.2772277
   [20] {toothed=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.3069307
  [21] {airborne=FALSE,breathes=TRUE}
                                            {catsize=TRUE} 0.3564356
   [22] {airborne=FALSE,aquatic=FALSE}
                                            {catsize=TRUE} 0.2871287
   [23] {airborne=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3366337
   [24] {predator=TRUE, toothed=TRUE}
                                            {catsize=TRUE} 0.2277228
   [25] {airborne=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3960396
   [26] {airborne=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3465347
##
   [27] {toothed=TRUE,fins=FALSE}
                                            {catsize=TRUE} 0.2673267
  [28] {toothed=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.3366337
  [29] {aquatic=FALSE,predator=TRUE}
                                            {catsize=TRUE} 0.1584158
       {predator=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.2277228
##
   [30]
##
   [31] {feathers=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3663366
   [32] {aquatic=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3069307
   [33] {feathers=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3168317
   [34] {toothed=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2970297
   [35] {predator=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2673267
##
   [36] {backbone=TRUE, breathes=TRUE}
                                            {catsize=TRUE} 0.3861386
##
   [37]
        {airborne=FALSE, venomous=FALSE} =>
                                            {catsize=TRUE} 0.3960396
   [38]
##
        {backbone=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.3564356
   [39]
       {legs=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.3168317
   [40] {breathes=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.3366337
   [41] {aquatic=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.2673267
##
  [42]
       {airborne=FALSE,fins=FALSE}
                                            {catsize=TRUE} 0.3267327
  [43] {feathers=FALSE,breathes=TRUE}
                                            {catsize=TRUE} 0.3267327
## [44] {predator=TRUE,tail=TRUE}
                                         => {catsize=TRUE} 0.2277228
## [45] {predator=TRUE, venomous=FALSE}
                                         =>
                                            {catsize=TRUE} 0.2673267
```

```
## [46] {predator=TRUE,legs=TRUE}
                                          => {catsize=TRUE} 0.2079208
                                             {catsize=TRUE} 0.3069307
   [47] {feathers=FALSE,legs=TRUE}
   [48] {feathers=FALSE, predator=TRUE}
                                             {catsize=TRUE} 0.2475248
   [49] {backbone=TRUE, venomous=FALSE}
                                             {catsize=TRUE} 0.4158416
##
   [50]
       {backbone=TRUE,fins=FALSE}
                                             {catsize=TRUE} 0.3465347
##
   [51] {feathers=FALSE,aquatic=FALSE}
                                             {catsize=TRUE} 0.2673267
       {fins=FALSE,tail=TRUE}
   [52]
                                             {catsize=TRUE} 0.3069307
   [53]
        {venomous=FALSE,tail=TRUE}
                                             {catsize=TRUE} 0.3663366
##
   Γ541
        {backbone=TRUE,domestic=FALSE}
                                             {catsize=TRUE} 0.3663366
   [55]
        {breathes=TRUE, venomous=FALSE}
                                             {catsize=TRUE} 0.3861386
   [56]
       {aquatic=FALSE, venomous=FALSE}
                                             {catsize=TRUE} 0.3069307
   [57]
        {feathers=FALSE, venomous=FALSE}
                                          =>
                                             {catsize=TRUE} 0.3663366
##
   [58]
        {venomous=FALSE,legs=TRUE}
                                             {catsize=TRUE} 0.3663366
        {aquatic=FALSE}
                                            {catsize=TRUE} 0.3069307
                                          => {catsize=TRUE} 0.1287129
   [60]
        {aquatic=TRUE}
##
   [61]
        {hair=FALSE}
                                             {catsize=TRUE} 0.1386139
##
   [62]
        {milk=FALSE}
                                            {catsize=TRUE} 0.1188119
##
        confidence lift
##
   [1]
        0.9090909
                   2.0867769
                    2.0867769
##
   [2]
        0.9090909
##
   [3]
        0.9000000
                    2.0659091
   [4]
##
        0.8260870
                    1.8962451
   [5]
                    1.8611794
##
        0.8108108
##
   [6]
        0.7878788
                    1.8085399
##
   [7]
        0.7878788
                    1.8085399
   [8]
        0.7804878
                    1.7915743
   [9]
##
        0.7804878
                    1.7915743
##
   [10] 0.7750000
                    1.7789773
   [11] 0.7692308
                    1.7657343
   [12] 0.7575758
                    1.7389807
   [13] 0.7560976
                    1.7355876
##
   [14] 0.7380952
                    1.6942641
   [15] 0.7317073
                    1.6796009
   [16] 0.7058824
                    1.6203209
        0.6976744
   [17]
                    1.6014799
                    1.5705742
##
   [18] 0.6842105
   [19] 0.6666667
                    1.5303030
   [20] 0.6595745
                    1.5140232
   [21] 0.6428571
                    1.4756494
   [22] 0.6304348
                    1.4471344
   [23] 0.6296296
                    1.4452862
   [24] 0.6216216
                    1.4269042
   [25] 0.6153846
                    1.4125874
   [26] 0.6140351
                    1.4094896
   [27] 0.6136364
                    1.4085744
   [28] 0.5964912
                    1.3692185
##
   [29]
       0.5925926
                    1.3602694
   [30] 0.5897436
                    1.3537296
   [31]
        0.5873016
                    1.3481241
   [32]
        0.5849057
                    1.3426244
##
   [33]
                    1.3355372
        0.5818182
   [34] 0.5769231
                    1.3243007
  [35] 0.5744681
                    1.3186654
## [36] 0.5652174
                   1.2974308
```

```
[37] 0.5633803
                    1.2932138
   [38] 0.5625000
                    1.2911932
   [39] 0.5614035
                    1.2886762
   [40] 0.5573770
                    1.2794337
   [41] 0.5510204
                    1.2648423
   [42] 0.5500000
                    1.2625000
##
   [43] 0.5500000
                    1.2625000
   [44] 0.5476190
                    1.2570346
   [45] 0.5400000
                    1.2395455
   [46] 0.5384615
                    1.2360140
   [47] 0.5344828
                    1.2268809
   [48] 0.5319149
                    1.2209865
   [49] 0.5316456
##
                    1.2203682
   [50] 0.5303030
                    1.2172865
   [51] 0.5294118
                    1.2152406
   [52]
        0.5254237
                    1.2060863
##
   [53] 0.5211268
                    1.1962228
   [54] 0.5211268
                    1.1962228
   [55] 0.5200000
                    1.1936364
   [56] 0.5081967
                    1.1665425
##
   [57] 0.5068493
                    1.1634496
   [58] 0.5000000
                    1.1477273
   [59] 0.4769231
                    1.0947552
##
##
   [60] 0.3611111
                    0.8289141
   [61] 0.2413793
                    0.5540752
##
   [62]
        0.2000000
                    0.4590909
##
        lhs
                                              support
                                                         confidence lift
##
   [1]
        {backbone=FALSE} =>
                             {catsize=FALSE} 0.1683168 0.9444444
                                                                    1.6734893
##
   [2]
        {airborne=TRUE}
                             {catsize=FALSE} 0.2079208 0.8750000
                                                                    1.5504386
##
   [3]
        {milk=FALSE}
                          => {catsize=FALSE} 0.4752475 0.8000000
                                                                    1.4175439
##
   [4]
        {eggs=TRUE}
                             {catsize=FALSE} 0.4554455 0.7796610
                                                                    1.3815046
##
   [5]
        {tail=FALSE}
                             {catsize=FALSE} 0.1980198 0.7692308
                                                                    1.3630229
##
   [6]
        {breathes=FALSE}
                             {catsize=FALSE} 0.1584158 0.7619048
                                                                    1.3500418
   [7]
        {type=bird}
##
                          => {catsize=FALSE} 0.1386139 0.7000000
                                                                    1.2403509
   [8]
        {feathers=TRUE}
                             {catsize=FALSE} 0.1386139 0.7000000
##
                                                                    1.2403509
##
   [9]
        {legs=FALSE}
                          => {catsize=FALSE} 0.1584158 0.6956522
                                                                    1.2326468
   [10] {aquatic=TRUE}
                          => {catsize=FALSE} 0.2277228 0.6388889
                                                                    1.1320663
                             {catsize=FALSE} 0.2772277 0.5000000
##
   [11] {predator=TRUE}
                          =>
                                                                    0.8859649
                             {catsize=FALSE} 0.3564356 0.4675325
   [12]
       {airborne=FALSE}
                                                                    0.8284347
##
   [13] {hair=TRUE}
                          => {catsize=FALSE} 0.1287129 0.3023256
                                                                    0.5356997
                          => {catsize=FALSE} 0.1089109 0.2619048
   [14] {eggs=FALSE}
                                                                    0.4640769
##
        lhs
                                            rhs
                                                            support
                                                                      confidence
##
   [1]
        {milk=TRUE,predator=TRUE}
                                         => {catsize=TRUE} 0.1980198 0.9090909
##
   [2]
        {predator=TRUE, type=mammal}
                                         => {catsize=TRUE} 0.1980198 0.9090909
##
   [3]
        {hair=TRUE, predator=TRUE}
                                         => {catsize=TRUE} 0.1782178 0.9000000
   [4]
        {eggs=FALSE,predator=TRUE}
##
                                         => {catsize=TRUE} 0.1881188 0.8260870
##
   [5]
        {predator=TRUE, toothed=TRUE}
                                            {catsize=TRUE} 0.2277228 0.6216216
##
   [6]
        {aquatic=FALSE, predator=TRUE}
                                            {catsize=TRUE} 0.1584158 0.5925926
   [7]
##
        {predator=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.2277228 0.5897436
##
   [8]
        {predator=TRUE, backbone=TRUE}
                                            {catsize=TRUE} 0.2673267 0.5744681
##
   [9]
        {predator=TRUE,tail=TRUE}
                                         => {catsize=TRUE} 0.2277228 0.5476190
   [10] {predator=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2673267 0.5400000
  [11] {predator=TRUE,legs=TRUE}
                                         => {catsize=TRUE} 0.2079208 0.5384615
## [12] {feathers=FALSE,predator=TRUE} => {catsize=TRUE} 0.2475248 0.5319149
```

```
##
        lift
##
  Г17
        2.086777
   [2]
        2.086777
  [3]
        2.065909
##
##
   [4]
        1.896245
##
   [5]
        1.426904
##
  [6]
        1.360269
##
  [7]
        1.353730
##
  [8]
        1.318665
##
  [9]
        1.257035
  [10] 1.239545
##
  [11] 1.236014
##
   [12] 1.220986
##
       lhs
                                           rhs
                                                           support
                                                                     confidence
## [1] {hair=TRUE,airborne=FALSE}
                                        => {catsize=TRUE} 0.2970297 0.8108108
  [2] {airborne=FALSE,breathes=TRUE}
                                        => {catsize=TRUE} 0.3564356 0.6428571
  [3] {airborne=FALSE,aquatic=FALSE}
                                        => {catsize=TRUE} 0.2871287 0.6304348
  [4] {airborne=FALSE,legs=TRUE}
                                        => {catsize=TRUE} 0.3366337 0.6296296
                                        => {catsize=TRUE} 0.3960396 0.6153846
## [5] {airborne=FALSE,backbone=TRUE}
## [6] {airborne=FALSE,tail=TRUE}
                                        => {catsize=TRUE} 0.3465347 0.6140351
## [7] {airborne=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3960396 0.5633803
  [8] {airborne=FALSE,fins=FALSE}
                                        => {catsize=TRUE} 0.3267327 0.5500000
##
       lift
## [1] 1.861179
## [2] 1.475649
## [3] 1.447134
## [4] 1.445286
## [5] 1.412587
## [6] 1.409490
## [7] 1.293214
## [8] 1.262500
##
       lhs
                                      rhs
                                                      support
                                                                confidence
## [1] {hair=TRUE,predator=TRUE} => {catsize=TRUE} 0.1782178 0.9000000
  [2] {hair=TRUE,airborne=FALSE} => {catsize=TRUE} 0.2970297 0.8108108
  [3] {hair=TRUE,backbone=TRUE} => {catsize=TRUE} 0.2970297 0.7692308
                                   => {catsize=TRUE} 0.2475248 0.7575758
## [4] {hair=TRUE,tail=TRUE}
## [5] {hair=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2970297 0.7317073
  [6] {hair=TRUE,domestic=FALSE} => {catsize=TRUE} 0.2376238 0.7058824
##
##
       lift
## [1] 2.065909
## [2] 1.861179
## [3] 1.765734
  [4] 1.738981
##
  [5] 1.679601
##
  [6] 1.620321
##
       lhs
                                       rhs
                                                      support
                                                                 confidence
## [1] {eggs=FALSE,predator=TRUE} => {catsize=TRUE} 0.1881188 0.8260870
   [2] {eggs=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3069307 0.7750000
##
   [3] {eggs=FALSE,backbone=TRUE} => {catsize=TRUE} 0.3069307 0.7560976
##
       lift
## [1] 1.896245
## [2] 1.778977
## [3] 1.735588
## [1] "Número de reglas con consecuente negado"
```

```
##
                                                         support
                                                                   confidence
##
   [1]
        {milk=TRUE, toothed=TRUE}
                                           {eggs=FALSE} 0.3960396 1.0000000
                                           {eggs=FALSE} 0.3465347 1.0000000
##
   [2]
        {milk=TRUE, aquatic=FALSE}
   [3]
        {toothed=TRUE, type=mammal}
                                           {eggs=FALSE} 0.3960396 1.0000000
##
##
   [4]
        {aquatic=FALSE, type=mammal}
                                            {eggs=FALSE} 0.3465347 1.0000000
   [5]
        {hair=TRUE, toothed=TRUE}
##
                                            {eggs=FALSE} 0.3762376 1.0000000
##
   [6]
        {milk=TRUE}
                                            {eggs=FALSE} 0.3960396 0.9756098
   [7]
##
        {type=mammal}
                                            {eggs=FALSE} 0.3960396 0.9756098
##
   [8]
        {hair=TRUE,backbone=TRUE}
                                            {eggs=FALSE} 0.3762376 0.9743590
##
   [9]
        {hair=TRUE,airborne=FALSE}
                                           {eggs=FALSE} 0.3564356 0.9729730
   [10]
       {hair=TRUE,tail=TRUE}
                                           {eggs=FALSE} 0.3168317 0.9696970
##
   [11] {hair=TRUE,catsize=TRUE}
                                           {eggs=FALSE} 0.2871287 0.9666667
   [12] {hair=TRUE, predator=TRUE}
                                           {eggs=FALSE} 0.1881188 0.9500000
##
   [13] {aquatic=FALSE,toothed=TRUE}
                                           {eggs=FALSE} 0.3465347 0.9210526
  [14] {toothed=TRUE,catsize=TRUE}
                                           {eggs=FALSE} 0.3069307 0.8857143
   [15] {toothed=TRUE,legs=TRUE}
                                            {eggs=FALSE} 0.3663366 0.8809524
   [16] {toothed=TRUE, breathes=TRUE}
                                           {eggs=FALSE} 0.3960396 0.8510638
   [17] {toothed=TRUE,fins=FALSE}
                                           {eggs=FALSE} 0.3663366 0.8409091
   [18] {aquatic=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.2574257 0.8387097
   [19] {feathers=FALSE, catsize=TRUE}
                                           {eggs=FALSE} 0.3069307 0.8157895
##
  [20] {breathes=TRUE,catsize=TRUE}
                                           {eggs=FALSE} 0.3069307 0.7948718
  [21] {predator=FALSE,toothed=TRUE}
                                           {eggs=FALSE} 0.1881188 0.7916667
  [22] {legs=TRUE,catsize=TRUE}
                                           {eggs=FALSE} 0.2772277 0.7567568
   [23] {airborne=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.3069307 0.7560976
   [24] {predator=FALSE, catsize=TRUE}
                                           {eggs=FALSE} 0.1188119 0.7500000
   [25] {fins=FALSE,catsize=TRUE}
                                           {eggs=FALSE} 0.2673267 0.7500000
   [26] {airborne=FALSE,aquatic=FALSE}
                                           {eggs=FALSE} 0.3366337 0.7391304
   [27] {feathers=FALSE,aquatic=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.7058824
  [28] {toothed=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.7017544
  [29] {airborne=FALSE,breathes=TRUE}
                                           {eggs=FALSE} 0.3861386 0.6964286
   [30] {feathers=FALSE,breathes=TRUE}
                                           {eggs=FALSE} 0.4059406 0.6833333
   [31] {toothed=TRUE,tail=TRUE}
                                           {eggs=FALSE} 0.3465347 0.6730769
   [32] {airborne=FALSE,legs=TRUE}
                                           {eggs=FALSE} 0.3564356 0.6666667
   [33] {aquatic=FALSE,backbone=TRUE}
                                           {eggs=FALSE} 0.3465347 0.6603774
   [34] {feathers=FALSE,legs=TRUE}
                                            {eggs=FALSE} 0.3762376 0.6551724
   [35] {feathers=FALSE,tail=TRUE}
##
                                           {eggs=FALSE} 0.3564356 0.6545455
   [36] {feathers=FALSE,backbone=TRUE}
                                           {eggs=FALSE} 0.4059406 0.6507937
   [37] {aquatic=FALSE,tail=TRUE}
                                           {eggs=FALSE} 0.3069307 0.6326531
   [38] {aquatic=FALSE,predator=TRUE}
                                            {eggs=FALSE} 0.1683168 0.6296296
##
   [39] {airborne=FALSE,predator=FALSE}
                                           {eggs=FALSE} 0.1683168 0.6071429
   [40] {airborne=FALSE,backbone=TRUE}
                                           {eggs=FALSE} 0.3861386 0.6000000
   [41] {airborne=FALSE,fins=FALSE}
                                           {eggs=FALSE} 0.3564356 0.6000000
   [42] {airborne=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3366337 0.5964912
  [43] {feathers=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3762376 0.5937500
  [44] {backbone=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.3960396 0.5797101
  [45] {legs=TRUE,tail=TRUE}
                                           {eggs=FALSE} 0.3267327 0.5789474
   [46]
       {backbone=TRUE,legs=TRUE}
                                           {eggs=FALSE} 0.3663366 0.5781250
       {aquatic=FALSE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3465347 0.5737705
  [48] {breathes=TRUE,tail=TRUE}
                                         => {eggs=FALSE} 0.3465347 0.5737705
   [49] {predator=TRUE, breathes=TRUE}
                                         => {eggs=FALSE} 0.2178218 0.5641026
   [50] {backbone=TRUE,fins=FALSE}
##
                                         => {eggs=FALSE} 0.3663366 0.5606061
  [51] {fins=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.3267327 0.5593220
  [52] {feathers=FALSE,predator=FALSE} => {eggs=FALSE} 0.1881188 0.5588235
## [53] {feathers=FALSE,airborne=FALSE} => {eggs=FALSE} 0.3960396 0.5479452
```

```
## [54] {feathers=FALSE, venomous=FALSE} => {eggs=FALSE} 0.3960396 0.5479452
  [55] {airborne=FALSE,venomous=FALSE} => {eggs=FALSE} 0.3762376 0.5352113
  [56] {breathes=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5333333
  [57] {predator=FALSE,backbone=TRUE}
                                         => {eggs=FALSE} 0.1881188 0.5277778
  [58] {predator=FALSE,tail=TRUE}
                                         => {eggs=FALSE} 0.1683168 0.5151515
  [59] {backbone=TRUE, venomous=FALSE}
                                         => {eggs=FALSE} 0.3960396 0.5063291
  [60] {venomous=FALSE,legs=TRUE}
                                         => {eggs=FALSE} 0.3663366 0.5000000
  [61] {backbone=TRUE}
                                         => {eggs=FALSE} 0.4059406 0.4939759
   [62] {venomous=FALSE,fins=FALSE}
                                         => {eggs=FALSE} 0.3564356 0.4675325
##
        lift
  [1]
        2.404762
  [2]
##
        2.404762
   [3]
        2.404762
## [4]
        2.404762
## [5]
        2.404762
## [6]
        2.346109
##
  [7]
        2.346109
  [8]
        2.343101
## [9]
        2.339768
## [10] 2.331890
## [11] 2.324603
## [12] 2.284524
## [13] 2.214912
## [14] 2.129932
## [15] 2.118481
## [16] 2.046606
## [17] 2.022186
## [18] 2.016897
## [19] 1.961779
## [20] 1.911477
## [21] 1.903770
## [22] 1.819820
## [23] 1.818235
## [24] 1.803571
## [25] 1.803571
## [26] 1.777433
## [27] 1.697479
## [28] 1.687552
## [29] 1.674745
## [30] 1.643254
## [31] 1.618590
## [32] 1.603175
## [33] 1.588050
## [34] 1.575534
## [35] 1.574026
## [36] 1.565004
## [37] 1.521380
## [38] 1.514109
## [39] 1.460034
## [40] 1.442857
## [41] 1.442857
## [42] 1.434419
## [43] 1.427827
## [44] 1.394065
```

```
## [45] 1.392231
  [46] 1.390253
  [47] 1.379781
  [48] 1.379781
   [49] 1.356532
  [50] 1.348124
##
  [51] 1.345036
  [52] 1.343838
   [53] 1.317678
   [54] 1.317678
  [55] 1.287056
   [56] 1.282540
   [57] 1.269180
##
  [58] 1.238817
  [59] 1.217601
   [60] 1.202381
##
   [61] 1.187894
   [62] 1.124304
##
        lhs
                                         support
                                                   confidence lift
##
   [1]
        {type=fish}
                          => {eggs=TRUE} 0.1287129 1.0000000
                                                               1.7118644
##
  [2]
        {type=bird}
                          => {eggs=TRUE} 0.1980198 1.0000000
                                                               1.7118644
  [3]
        {feathers=TRUE}
                          => {eggs=TRUE} 0.1980198 1.0000000
                                                               1.7118644
  [4]
##
        {toothed=FALSE}
                         => {eggs=TRUE} 0.3861386 0.9750000
                                                               1.6690678
##
   [5]
        {breathes=FALSE}
                         => {eggs=TRUE} 0.1980198 0.9523810
                                                               1.6303471
##
  [6]
        {hair=FALSE}
                          => {eggs=TRUE} 0.5346535 0.9310345
                                                               1.5938048
  [7]
        {airborne=TRUE}
                         => {eggs=TRUE} 0.2178218 0.9166667
                                                               1.5692090
                          => {eggs=TRUE} 0.2970297 0.8333333
##
   [8]
        {aquatic=TRUE}
                                                               1.4265537
##
   [9]
        {legs=FALSE}
                          => {eggs=TRUE} 0.1881188 0.8260870
                                                               1.4141489
  [10] {tail=FALSE}
                          => {eggs=TRUE} 0.1980198 0.7692308
                                                               1.3168188
  [11] {fins=TRUE}
                          => {eggs=TRUE} 0.1287129 0.7647059
                                                               1.3090728
   [12] {predator=TRUE}
                         => {eggs=TRUE} 0.3267327 0.5892857
                                                               1.0087772
##
   [13] {catsize=TRUE}
                          => {eggs=TRUE} 0.1287129 0.2954545
                                                               0.5057781
##
       lhs
                                                       support
                                                                 confidence
##
  [1] {hair=TRUE,predator=TRUE}
                                      => {eggs=FALSE} 0.1881188 0.9500000
   [2] {aquatic=FALSE,predator=TRUE} => {eggs=FALSE} 0.1683168 0.6296296
   [3] {predator=TRUE,breathes=TRUE} => {eggs=FALSE} 0.2178218 0.5641026
##
##
       lift
##
  [1] 2.284524
   [2] 1.514109
   [3] 1.356532
##
##
       lhs
                                         rhs
                                                       support
                                                                 confidence
  [1] {hair=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2871287 0.9666667
   [2] {toothed=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.8857143
   [3] {aquatic=FALSE, catsize=TRUE}
                                      => {eggs=FALSE} 0.2574257 0.8387097
  [4] {feathers=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.8157895
  [5] {breathes=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.3069307 0.7948718
   [6] {legs=TRUE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2772277 0.7567568
   [7] {airborne=FALSE,catsize=TRUE} => {eggs=FALSE} 0.3069307 0.7560976
   [8] {predator=FALSE,catsize=TRUE} => {eggs=FALSE} 0.1188119 0.7500000
##
   [9] {fins=FALSE,catsize=TRUE}
                                      => {eggs=FALSE} 0.2673267 0.7500000
##
       lift
## [1] 2.324603
## [2] 2.129932
## [3] 2.016897
```

```
[4] 1.961779
   [5] 1.911477
   [6] 1.819820
##
   [7] 1.818235
   [8]
      1.803571
   [9] 1.803571
##
##
       "Número de reglas con consecuente negado"
##
                                                            support
##
   Γ17
        {milk=TRUE,predator=TRUE}
                                            {catsize=TRUE} 0.1980198
##
   [2]
        {predator=TRUE, type=mammal}
                                            {catsize=TRUE} 0.1980198
   [3]
        {hair=TRUE, predator=TRUE}
                                            {catsize=TRUE} 0.1782178
   [4]
##
        {eggs=FALSE,predator=TRUE}
                                            {catsize=TRUE} 0.1881188
##
   [5]
        {hair=TRUE,airborne=FALSE}
                                            {catsize=TRUE} 0.2970297
        {milk=TRUE,domestic=FALSE}
                                            {catsize=TRUE} 0.2574257
##
   [6]
   [7]
##
        {domestic=FALSE, type=mammal}
                                            {catsize=TRUE} 0.2574257
##
   [8]
        {milk=TRUE}
                                            {catsize=TRUE} 0.3168317
##
   [9]
                                            {catsize=TRUE} 0.3168317
        {type=mammal}
   [10] {eggs=FALSE, venomous=FALSE}
                                            {catsize=TRUE} 0.3069307
   [11] {hair=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2970297
   [12] {hair=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2475248
##
  [13] {eggs=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3069307
  [14] {eggs=FALSE}
                                            {catsize=TRUE} 0.3069307
   [15] {hair=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.2970297
   [16] {hair=TRUE.domestic=FALSE}
                                            {catsize=TRUE} 0.2376238
##
  [17] {hair=TRUE}
                                            {catsize=TRUE} 0.2970297
   [18] {aquatic=FALSE, toothed=TRUE}
                                            {catsize=TRUE} 0.2574257
   [19] {toothed=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.2772277
   [20] {toothed=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.3069307
  [21] {airborne=FALSE,breathes=TRUE}
                                            {catsize=TRUE} 0.3564356
  [22] {airborne=FALSE,aquatic=FALSE}
                                            {catsize=TRUE} 0.2871287
   [23] {airborne=FALSE,legs=TRUE}
                                            {catsize=TRUE} 0.3366337
   [24] {predator=TRUE, toothed=TRUE}
                                            {catsize=TRUE} 0.2277228
   [25] {airborne=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3960396
   [26] {airborne=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3465347
   [27] {toothed=TRUE,fins=FALSE}
                                            {catsize=TRUE} 0.2673267
##
  [28] {toothed=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.3366337
  [29] {aquatic=FALSE, predator=TRUE}
                                            {catsize=TRUE} 0.1584158
  [30] {predator=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.2277228
       {feathers=FALSE, backbone=TRUE}
                                            {catsize=TRUE} 0.3663366
   [31]
##
   [32] {aquatic=FALSE,backbone=TRUE}
                                            {catsize=TRUE} 0.3069307
   [33] {feathers=FALSE,tail=TRUE}
                                            {catsize=TRUE} 0.3168317
   [34] {toothed=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2970297
   [35] {predator=TRUE,backbone=TRUE}
                                            {catsize=TRUE} 0.2673267
   [36] {backbone=TRUE, breathes=TRUE}
                                            {catsize=TRUE} 0.3861386
   [37] {airborne=FALSE, venomous=FALSE}
                                            {catsize=TRUE} 0.3960396
   [38]
        {backbone=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.3564356
   [39]
##
        {legs=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.3168317
   [40] {breathes=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.3366337
   [41] {aquatic=FALSE,tail=TRUE}
                                         => {catsize=TRUE} 0.2673267
   [42] {airborne=FALSE,fins=FALSE}
                                            {catsize=TRUE} 0.3267327
##
  [43] {feathers=FALSE,breathes=TRUE}
                                            {catsize=TRUE} 0.3267327
## [44] {predator=TRUE,tail=TRUE}
                                            {catsize=TRUE} 0.2277228
## [45] {predator=TRUE, venomous=FALSE}
                                            {catsize=TRUE} 0.2673267
## [46] {predator=TRUE,legs=TRUE}
                                            {catsize=TRUE} 0.2079208
```

```
## [47] {feathers=FALSE,legs=TRUE}
                                          => {catsize=TRUE} 0.3069307
       {feathers=FALSE,predator=TRUE}
   [48]
                                             {catsize=TRUE} 0.2475248
   [49] {backbone=TRUE, venomous=FALSE}
                                             {catsize=TRUE} 0.4158416
   [50] {backbone=TRUE,fins=FALSE}
                                             {catsize=TRUE} 0.3465347
       {feathers=FALSE,aquatic=FALSE}
##
   [51]
                                             {catsize=TRUE} 0.2673267
       {fins=FALSE,tail=TRUE}
##
   [52]
                                             {catsize=TRUE} 0.3069307
       {venomous=FALSE,tail=TRUE}
   ſ531
                                             {catsize=TRUE} 0.3663366
   [54]
        {backbone=TRUE,domestic=FALSE}
                                             {catsize=TRUE} 0.3663366
   [55]
        {breathes=TRUE, venomous=FALSE}
                                             {catsize=TRUE} 0.3861386
        {aquatic=FALSE, venomous=FALSE}
                                             {catsize=TRUE} 0.3069307
   [57]
        {feathers=FALSE, venomous=FALSE} =>
                                             {catsize=TRUE} 0.3663366
        {venomous=FALSE,legs=TRUE}
   [58]
                                             {catsize=TRUE} 0.3663366
##
   [59]
        {aquatic=FALSE}
                                          => {catsize=TRUE} 0.3069307
##
   [60]
        {aquatic=TRUE}
                                          => {catsize=TRUE} 0.1287129
        {hair=FALSE}
                                          => {catsize=TRUE} 0.1386139
##
   [61]
##
   [62]
        {milk=FALSE}
                                          => {catsize=TRUE} 0.1188119
##
        confidence lift
##
   [1]
        0.9090909
                    2.0867769
   [2]
        0.9090909
##
                    2.0867769
##
   [3]
        0.9000000
                    2.0659091
##
   [4]
        0.8260870
                    1.8962451
   [5]
##
        0.8108108
                    1.8611794
##
   [6]
        0.7878788
                    1.8085399
##
   [7]
        0.7878788
                    1.8085399
##
   [8]
        0.7804878
                    1.7915743
   [9]
        0.7804878
                    1.7915743
        0.7750000
   [10]
                    1.7789773
##
   [11] 0.7692308
                    1.7657343
   [12] 0.7575758
                    1.7389807
                    1.7355876
   [13] 0.7560976
   [14] 0.7380952
                    1.6942641
##
   [15] 0.7317073
                    1.6796009
   [16] 0.7058824
                    1.6203209
   [17] 0.6976744
                    1.6014799
   [18]
        0.6842105
                    1.5705742
                    1.5303030
##
   [19] 0.6666667
   [20] 0.6595745
                    1.5140232
   [21] 0.6428571
                    1.4756494
   [22] 0.6304348
                    1.4471344
   [23] 0.6296296
                    1.4452862
   [24] 0.6216216
                    1.4269042
   [25] 0.6153846
                    1.4125874
   [26] 0.6140351
                    1.4094896
   [27] 0.6136364
                    1.4085744
                    1.3692185
   [28] 0.5964912
   [29] 0.5925926
                    1.3602694
                    1.3537296
##
   [30] 0.5897436
   [31] 0.5873016
                    1.3481241
   [32]
        0.5849057
                    1.3426244
   [33]
        0.5818182
                    1.3355372
   [34]
                    1.3243007
##
        0.5769231
  [35] 0.5744681
                    1.3186654
  [36] 0.5652174
                    1.2974308
## [37] 0.5633803
                   1.2932138
```

```
[38] 0.5625000
                    1.2911932
   [39] 0.5614035
                    1.2886762
   [40] 0.5573770
                    1.2794337
   [41] 0.5510204
                    1.2648423
   [42] 0.5500000
                    1.2625000
   [43] 0.5500000
                    1.2625000
##
   [44] 0.5476190
                    1.2570346
                    1.2395455
   [45] 0.5400000
   [46] 0.5384615
                    1.2360140
   [47] 0.5344828
                    1.2268809
   [48] 0.5319149
                    1.2209865
   [49] 0.5316456
                    1.2203682
   [50] 0.5303030
##
                    1.2172865
   [51] 0.5294118
                    1.2152406
   [52] 0.5254237
                    1.2060863
   [53]
        0.5211268
                    1.1962228
##
   [54] 0.5211268
                    1.1962228
   [55] 0.5200000
                    1.1936364
   [56] 0.5081967
                    1.1665425
   [57] 0.5068493
                    1.1634496
##
   [58] 0.5000000
                    1.1477273
   [59] 0.4769231
                    1.0947552
   [60] 0.3611111
                    0.8289141
##
##
   [61] 0.2413793
                    0.5540752
##
   [62] 0.2000000
                   0.4590909
##
        lhs
                                              support
                                                         confidence lift
##
   [1]
                             {catsize=FALSE} 0.1683168 0.9444444
        {backbone=FALSE} =>
                                                                    1.6734893
##
   [2]
        {airborne=TRUE}
                          => {catsize=FALSE} 0.2079208 0.8750000
                                                                    1.5504386
##
   [3]
        {milk=FALSE}
                          => {catsize=FALSE} 0.4752475 0.8000000
                                                                    1.4175439
##
   [4]
                          => {catsize=FALSE} 0.4554455 0.7796610
        {eggs=TRUE}
                                                                    1.3815046
##
   [5]
        {tail=FALSE}
                             {catsize=FALSE} 0.1980198 0.7692308
                                                                    1.3630229
##
   [6]
        {breathes=FALSE}
                         =>
                             {catsize=FALSE} 0.1584158 0.7619048
                                                                    1.3500418
##
   [7]
        {type=bird}
                             {catsize=FALSE} 0.1386139 0.7000000
                                                                    1.2403509
   [8]
##
        {feathers=TRUE}
                          => {catsize=FALSE} 0.1386139 0.7000000
                                                                    1.2403509
   [9]
        {legs=FALSE}
                             {catsize=FALSE} 0.1584158 0.6956522
##
                                                                    1.2326468
##
   [10]
       {aquatic=TRUE}
                          => {catsize=FALSE} 0.2277228 0.6388889
                                                                    1.1320663
       {predator=TRUE}
                             {catsize=FALSE} 0.2772277 0.5000000
                                                                    0.8859649
   [12] {airborne=FALSE} =>
                             {catsize=FALSE} 0.3564356 0.4675325
##
                                                                    0.8284347
        {hair=TRUE}
                             {catsize=FALSE} 0.1287129 0.3023256
   [13]
                                                                    0.5356997
                          => {catsize=FALSE} 0.1089109 0.2619048
##
   [14] {eggs=FALSE}
                                                                    0.4640769
##
        lhs
                                            rhs
                                                            support
                                                                      confidence
                                         => {catsize=TRUE} 0.1980198 0.9090909
##
   [1]
        {milk=TRUE,predator=TRUE}
##
   [2]
        {predator=TRUE, type=mammal}
                                         => {catsize=TRUE} 0.1980198 0.9090909
##
   [3]
                                         => {catsize=TRUE} 0.1782178 0.9000000
        {hair=TRUE,predator=TRUE}
##
   [4]
        {eggs=FALSE,predator=TRUE}
                                         => {catsize=TRUE} 0.1881188 0.8260870
   [5]
##
        {predator=TRUE, toothed=TRUE}
                                            {catsize=TRUE} 0.2277228 0.6216216
##
   [6]
        {aquatic=FALSE,predator=TRUE}
                                            {catsize=TRUE} 0.1584158 0.5925926
##
   [7]
        {predator=TRUE,breathes=TRUE}
                                            {catsize=TRUE} 0.2277228 0.5897436
##
   [8]
        {predator=TRUE,backbone=TRUE}
                                         => {catsize=TRUE} 0.2673267 0.5744681
##
   [9]
        {predator=TRUE,tail=TRUE}
                                         => {catsize=TRUE} 0.2277228 0.5476190
   [10] {predator=TRUE,venomous=FALSE} => {catsize=TRUE} 0.2673267 0.5400000
##
   [11] {predator=TRUE,legs=TRUE}
                                         => {catsize=TRUE} 0.2079208 0.5384615
##
   [12] {feathers=FALSE,predator=TRUE} => {catsize=TRUE} 0.2475248 0.5319149
##
        lift
```

```
## [1]
        2.086777
##
  [2]
        2.086777
  [3]
        2.065909
  [4]
##
        1.896245
##
   [5]
        1.426904
   [6]
##
        1.360269
  [7]
        1.353730
##
  [8]
        1.318665
##
  [9]
        1.257035
##
  [10] 1.239545
  [11] 1.236014
##
  [12] 1.220986
##
       lhs
                                           rhs
                                                                     confidence
                                                           support
## [1] {hair=TRUE,airborne=FALSE}
                                        => {catsize=TRUE} 0.2970297 0.8108108
## [2] {airborne=FALSE,breathes=TRUE}
                                        => {catsize=TRUE} 0.3564356 0.6428571
  [3] {airborne=FALSE,aquatic=FALSE}
                                        => {catsize=TRUE} 0.2871287 0.6304348
  [4] {airborne=FALSE,legs=TRUE}
                                        => {catsize=TRUE} 0.3366337 0.6296296
  [5] {airborne=FALSE,backbone=TRUE}
                                        => {catsize=TRUE} 0.3960396 0.6153846
  [6] {airborne=FALSE,tail=TRUE}
                                        => {catsize=TRUE} 0.3465347 0.6140351
  [7] {airborne=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3960396 0.5633803
##
  [8] {airborne=FALSE,fins=FALSE}
                                        => {catsize=TRUE} 0.3267327 0.5500000
##
       lift.
## [1] 1.861179
  [2] 1.475649
##
## [3] 1.447134
## [4] 1.445286
## [5] 1.412587
  [6] 1.409490
## [7] 1.293214
## [8] 1.262500
##
       lhs
                                      rhs
                                                     support
                                                                confidence
##
  [1] {hair=TRUE,predator=TRUE} => {catsize=TRUE} 0.1782178 0.9000000
  [2] {hair=TRUE,airborne=FALSE} => {catsize=TRUE} 0.2970297 0.8108108
  [3] {hair=TRUE,backbone=TRUE} => {catsize=TRUE} 0.2970297 0.7692308
   [4] {hair=TRUE,tail=TRUE}
                                   => {catsize=TRUE} 0.2475248 0.7575758
  [5] {hair=TRUE, venomous=FALSE} => {catsize=TRUE} 0.2970297 0.7317073
##
   [6] {hair=TRUE,domestic=FALSE} => {catsize=TRUE} 0.2376238 0.7058824
##
       lift
  [1] 2.065909
##
##
  [2] 1.861179
  [3] 1.765734
  [4] 1.738981
##
  [5] 1.679601
##
   [6] 1.620321
##
       lhs
                                       rhs
                                                                 confidence
                                                       support
   [1] {eggs=FALSE,predator=TRUE} => {catsize=TRUE} 0.1881188 0.8260870
   [2] {eggs=FALSE, venomous=FALSE} => {catsize=TRUE} 0.3069307 0.7750000
   [3] {eggs=FALSE,backbone=TRUE} => {catsize=TRUE} 0.3069307 0.7560976
##
       lift
##
  [1] 1.896245
##
  [2] 1.778977
## [3] 1.735588
## [1] "Número de reglas con consecuente negado"
##
        lhs
                                                             support
```

```
{backbone=FALSE,breathes=TRUE}
                                         => {catsize=FALSE} 0.1089109
                                            {catsize=FALSE} 0.1881188
##
   [2]
        {eggs=TRUE,tail=FALSE}
##
  [3]
        {milk=FALSE,tail=FALSE}
                                            {catsize=FALSE} 0.1881188
   [4]
##
        {backbone=FALSE}
                                            {catsize=FALSE} 0.1683168
##
   [5]
        {hair=FALSE,tail=FALSE}
                                            {catsize=FALSE} 0.1485149
   [6]
##
        {predator=FALSE,tail=FALSE}
                                            {catsize=FALSE} 0.1089109
   [7]
        {airborne=TRUE}
                                            {catsize=FALSE} 0.2079208
##
  [8]
        {feathers=FALSE, toothed=FALSE}
                                            {catsize=FALSE} 0.1683168
##
   [9]
        {feathers=FALSE, milk=FALSE}
                                            {catsize=FALSE} 0.3366337
   [10] {eggs=TRUE,predator=FALSE}
                                            {catsize=FALSE} 0.2178218
  [11] {milk=FALSE,predator=FALSE}
                                            {catsize=FALSE} 0.2178218
   [12] {milk=FALSE,aquatic=FALSE}
                                            {catsize=FALSE} 0.2475248
  [13] {milk=FALSE,fins=FALSE}
                                            {catsize=FALSE} 0.3861386
                                            {catsize=FALSE} 0.2376238
  [14] {eggs=TRUE,aquatic=FALSE}
                                            {catsize=FALSE} 0.3168317
  [15] {feathers=FALSE,eggs=TRUE}
   [16] {milk=FALSE,breathes=TRUE}
                                            {catsize=FALSE} 0.3168317
   [17] {hair=FALSE,predator=FALSE}
                                            {catsize=FALSE} 0.1782178
   [18] {hair=FALSE,fins=FALSE}
                                            {catsize=FALSE} 0.3465347
   [19] {milk=FALSE,toothed=TRUE}
                                            {catsize=FALSE} 0.1683168
   [20] {hair=FALSE,aquatic=FALSE}
                                            {catsize=FALSE} 0.2079208
##
  [21] {eggs=TRUE,fins=FALSE}
                                            {catsize=FALSE} 0.3663366
                                            {catsize=FALSE} 0.4752475
  [22] {milk=FALSE}
  [23] {eggs=TRUE,toothed=TRUE}
                                            {catsize=FALSE} 0.1584158
                                            {catsize=FALSE} 0.3069307
   [24] {eggs=TRUE,breathes=TRUE}
   [25]
       {hair=FALSE, feathers=FALSE}
                                            {catsize=FALSE} 0.2970297
   [26] {eggs=TRUE}
                                            {catsize=FALSE} 0.4554455
                                            {catsize=FALSE} 0.1386139
   [27] {breathes=FALSE, venomous=FALSE}
  [28] {hair=FALSE,legs=TRUE}
                                            {catsize=FALSE} 0.2772277
  [29] {tail=FALSE}
                                            {catsize=FALSE} 0.1980198
  [30] {breathes=FALSE}
                                            {catsize=FALSE} 0.1584158
   [31]
        {aquatic=TRUE,fins=FALSE}
                                            {catsize=FALSE} 0.1386139
##
   [32]
        {type=bird}
                                            {catsize=FALSE} 0.1386139
   [33]
       {feathers=TRUE}
                                            {catsize=FALSE} 0.1386139
##
  [34] {legs=FALSE}
                                            {catsize=FALSE} 0.1584158
       {aquatic=TRUE,legs=TRUE}
                                            {catsize=FALSE} 0.1188119
   [35]
##
   [36] {predator=FALSE,domestic=FALSE}
                                            {catsize=FALSE} 0.2178218
       {aquatic=TRUE}
                                            {catsize=FALSE} 0.2277228
  [38] {fins=FALSE,domestic=FALSE}
                                            {catsize=FALSE} 0.4158416
       {predator=TRUE}
                                            {catsize=FALSE} 0.2772277
   [39]
   [40] {airborne=FALSE}
                                            {catsize=FALSE} 0.3564356
   [41] {hair=TRUE}
                                            {catsize=FALSE} 0.1287129
   [42] {eggs=FALSE}
                                         => {catsize=FALSE} 0.1089109
##
        confidence lift
##
   [1]
        1.0000000
                  1.7719298
  [2]
        0.9500000
                   1.6833333
  [3]
        0.9500000
##
                   1.6833333
##
   [4]
        0.944444
                   1.6734893
##
   [5]
        0.9375000
                   1.6611842
##
   [6]
        0.9166667
                   1.6242690
##
   [7]
        0.8750000
                   1.5504386
##
   [8]
        0.8500000
                   1.5061404
  [9]
        0.8500000
                   1.5061404
## [10] 0.8461538
                   1.4993252
## [11] 0.8461538
                   1.4993252
```

```
## [12] 0.8333333
                   1.4766082
  [13] 0.8297872
                   1.4703247
  [14] 0.8275862
                   1.4664247
  [15] 0.8205128
                   1.4538911
  [16] 0.8205128
                   1.4538911
  [17] 0.8181818
                   1.4497608
  [18] 0.8139535
                   1.4422685
## [19] 0.8095238
                   1.4344194
  [20] 0.8076923
                   1.4311741
  [21] 0.8043478
                   1.4252479
  [22] 0.8000000
                   1.4175439
  [23] 0.8000000
                   1.4175439
                   1.4084570
## [24] 0.7948718
## [25] 0.7894737
                   1.3988920
## [26] 0.7796610
                   1.3815046
  [27] 0.7777778
                   1.3781676
  [28] 0.7777778
                   1.3781676
  [29] 0.7692308
                   1.3630229
                   1.3500418
  [30] 0.7619048
                   1.3056325
  [31] 0.7368421
##
  [32] 0.7000000
                   1.2403509
  [33] 0.7000000
                   1.2403509
  [34] 0.6956522
                   1.2326468
  [35] 0.6666667
                   1.1812865
  [36] 0.6470588
                   1.1465428
  [37] 0.6388889
                   1.1320663
  [38] 0.5833333
                   1.0336257
  [39] 0.5000000
                   0.8859649
  [40] 0.4675325
                   0.8284347
## [41] 0.3023256
                   0.5356997
##
  [42] 0.2619048
                   0.4640769
##
       lhs
                           rhs
                                                    confidence lift
                                          support
  [1] {milk=TRUE}
                       => {catsize=TRUE} 0.3168317 0.7804878
                       => {catsize=TRUE} 0.3168317 0.7804878
                                                               1.7915743
   [2] {type=mammal}
   [3] {eggs=FALSE}
                       => {catsize=TRUE} 0.3069307 0.7380952
                                                                1.6942641
                       => {catsize=TRUE} 0.2970297 0.6976744
##
  [4] {hair=TRUE}
                                                               1.6014799
  [5] {aquatic=FALSE} => {catsize=TRUE} 0.3069307 0.4769231
                       => {catsize=TRUE} 0.1287129 0.3611111
  [6] {aquatic=TRUE}
                                                                0.8289141
   [7] {hair=FALSE}
                       => {catsize=TRUE} 0.1386139 0.2413793
                                                                0.5540752
##
   [8] {milk=FALSE}
                       => {catsize=TRUE} 0.1188119 0.2000000
                                                                0.4590909
##
       lhs
                                      rhs
                                                      support
                                                                 confidence
   [1] {milk=FALSE, aquatic=FALSE} => {catsize=FALSE} 0.2475248 0.8333333
   [2] {eggs=TRUE,aquatic=FALSE} => {catsize=FALSE} 0.2376238 0.8275862
   [3] {hair=FALSE,aquatic=FALSE} => {catsize=FALSE} 0.2079208 0.8076923
##
##
       lift
  [1] 1.476608
##
##
   [2] 1.466425
##
   [3] 1.431174
##
       lhs
                                     rhs
                                                     support
                                                                confidence
##
   [1] {aquatic=TRUE,fins=FALSE} => {catsize=FALSE} 0.1386139 0.7368421
##
   [2] {aquatic=TRUE,legs=TRUE} => {catsize=FALSE} 0.1188119 0.6666667
##
       lift
## [1] 1.305633
## [2] 1.181287
```

```
##
       lhs
                                                       support
                                                                 confidence
## [1] {hair=FALSE,tail=FALSE}
                                   => {catsize=FALSE} 0.1485149 0.9375000
## [2] {hair=FALSE,predator=FALSE} => {catsize=FALSE} 0.1782178 0.8181818
## [3] {hair=FALSE,fins=FALSE}
                                   => {catsize=FALSE} 0.3465347 0.8139535
## [4] {hair=FALSE,aquatic=FALSE} => {catsize=FALSE} 0.2079208 0.8076923
## [5] {hair=FALSE,feathers=FALSE} => {catsize=FALSE} 0.2970297 0.7894737
## [6] {hair=FALSE,legs=TRUE}
                                   => {catsize=FALSE} 0.2772277 0.7777778
       lift
##
## [1] 1.661184
## [2] 1.449761
## [3] 1.442268
## [4] 1.431174
## [5] 1.398892
## [6] 1.378168
##
       lhs
                                      rhs
                                                       support
                                                                 confidence
## [1] {milk=FALSE,tail=FALSE}
                                   => {catsize=FALSE} 0.1881188 0.9500000
## [2] {feathers=FALSE,milk=FALSE} => {catsize=FALSE} 0.3366337 0.8500000
## [3] {milk=FALSE,predator=FALSE} => {catsize=FALSE} 0.2178218 0.8461538
## [4] {milk=FALSE,aquatic=FALSE} => {catsize=FALSE} 0.2475248 0.8333333
## [5] {milk=FALSE,fins=FALSE}
                                   => {catsize=FALSE} 0.3861386 0.8297872
## [6] {milk=FALSE,breathes=TRUE} => {catsize=FALSE} 0.3168317 0.8205128
## [7] {milk=FALSE,toothed=TRUE} => {catsize=FALSE} 0.1683168 0.8095238
##
       lift
## [1] 1.683333
## [2] 1.506140
## [3] 1.499325
## [4] 1.476608
## [5] 1.470325
## [6] 1.453891
## [7] 1.434419
inspect(iZoo[size(iZoo)==1][c(16,21)])
       items
                    support
## [1] {hair=TRUE}
                    0.4257426
## [2] {hair=FALSE} 0.5742574
rules1[125:127,]
##
                               lhs
                                               rhs
                                                      support confidence
## [4]7
                    {toothed=TRUE} => {hair=TRUE} 0.3762376 0.6229508
## [1]33 {eggs=TRUE,toothed=TRUE} => {hair=FALSE} 0.1980198 1.0000000
## [2]21 {milk=FALSE,toothed=TRUE} => {hair=FALSE} 0.2079208 1.0000000
##
             lift
## [4]7 1.463210
## [1]33 1.741379
## [2]21 1.741379
inspect(iZoo[size(iZoo)==1][c(13,23)])
       items
                    support
## [1] {milk=TRUE}
                    0.4059406
## [2] {milk=FALSE} 0.5940594
rules1[1726:1727,]
##
                               lhs
                                               rhs
                                                      support confidence
```

## Paquete RKeel

##		lhs		rhs	id	support	antecedent_support	consequent sup
##	Г1]	{type= fish}	=>	{fins= TRUE}	0	0.13	0.13	1 1 1 1
		{milk= NOT FALSE}		{type= NOT fish}	2	0.41	0.41	
##	[3]	{type= NOT mammal}		{milk= NOT TRUE}	3	0.60	0.60	
##		{type= NOT bird}	=>	{feathers= NOT TRUE}	4	0.81	0.81	
##	[5]	{feathers= FALSE}	=>	{type= NOT bird}	5	0.81	0.81	
##	[6]	{toothed= TRUE}	=>	{type= NOT bird}	6	0.61	0.61	
##	[7]	{fins= NOT TRUE}	=>	{type= NOT fish}	7	0.84	0.84	
##	[8]	<pre>{type= bird}</pre>	=>	{feathers= TRUE}	8	0.20	0.20	
##	[9]	{feathers= TRUE}	=>	{type= bird}	9	0.20	0.20	
##	[10]	{airborne= TRUE,						
##		backbone= NOT TRUE}	=>	{type= insect}	10	0.06	0.06	
##	[11]	{airborne= TRUE,						
##		tail= FALSE}	=>	{type= insect}	11	0.06	0.06	
##	[12]	$\{legs= NOT [0.0, 5.9999],$						
##		airborne= TRUE}	=>	{type= insect}	13	0.06	0.06	
##	[13]	{feathers= FALSE,						
##		backbone= TRUE}	=>	<pre>{type= NOT bird}</pre>	14	0.63	0.63	
	[14]	{type= NOT mammal,						
##		airborne= TRUE}	=>	{toothed= FALSE}	15	0.22	0.22	
	[15]	{airborne= TRUE,						
##		milk= FALSE}	=>	{toothed= FALSE}	16	0.22	0.22	
	[16]	{type= NOT mammal,						
##		venomous= FALSE}	=>	<pre>{eggs= NOT FALSE}</pre>	17	0.52	0.52	
	[17]	{type= NOT mammal,						
##	<b>-</b>	hair= FALSE}	=>	{milk= NOT TRUE}	18	0.56	0.56	
##	[18]	{tail= FALSE,						

##		toothed= H	FALSE}	=>	{backbo	one= FALSE}	19	0.17	0.17
##	[19]	{feathers=	FALSE,						
##		fins= NOT	TRUE}	=>	{type=	NOT fish}	20	0.64	0.64
##	[20]	{fins= NOT	TRUE,						
##		hair= NOT	TRUE}	=>	{type=	NOT mammal}	21	0.43	0.43
##	[21]	{legs= NOT	[0.0, 5.9999],						
##		tail= FALS	SE,						
##		breathes=	TRUE}	=>	{type=	insect}	23	0.08	0.08
##	[22]	{legs= NOT	[0.0, 5.9999],						
##		breathes=	TRUE}	=>	{type=	insect}	12	0.08	0.09
##	[23]	{backbone=	NOT TRUE,						
##		airborne=	FALSE}	=>	{type=	<pre>mollusc.et.al}</pre>	22	0.10	0.12
##	[24]	{legs= NOT	[0.0, 5.9999]}	=>	{type=	<pre>insect}</pre>	1	0.08	0.12
rul	.esZoo	[1:9,c(1,2	,3,5,7,8,9)]						

## ## NULL

#Donde podemos ver reglas que estas 9 primeras reglas, pasan de tener un soporte #en el consecuente de entre 0.17 a 0.88 a tener confianza 1, por lo que serán #buenas reglas, aunque habrá algunas triviales.