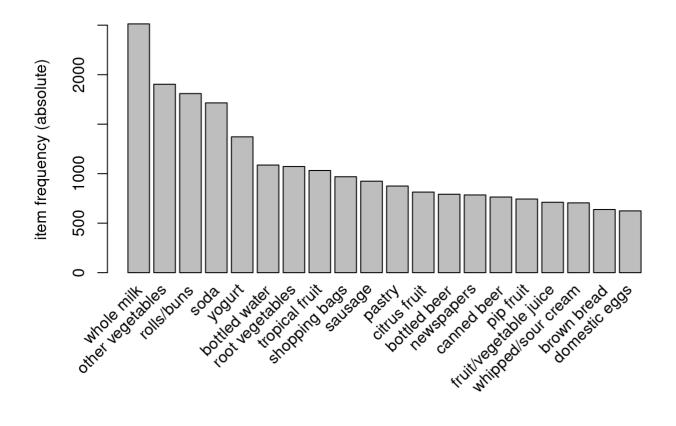
43260_Groceries.r

rstudio-user

2021-11-23

```
library("arules")
## Loading required package: Matrix
##
## Attaching package: 'arules'
## The following objects are masked from 'package:base':
##
##
       abbreviate, write
library("arulesViz")
data("Groceries")
itemFrequencyPlot(Groceries, topN=20, type="absolute")
```



association.rules <- apriori(Groceries, parameter = list(supp=0.001, conf=0.9, maxlen

```
## Apriori
##
## Parameter specification:
## confidence minval smax arem aval originalSupport maxtime support minlen
                                               TRUE 5
##
          0.9 0.1
                       1 none FALSE
                                                              0.001
## maxlen target ext
       10 rules TRUE
##
##
## Algorithmic control:
## filter tree heap memopt load sort verbose
##
      0.1 TRUE TRUE FALSE TRUE
                                2
                                        TRUE
##
## Absolute minimum support count: 9
##
## set item appearances ...[0 item(s)] done [0.00s].
## set transactions ...[169 item(s), 9835 transaction(s)] done [0.00s].
## sorting and recoding items ... [157 item(s)] done [0.00s].
## creating transaction tree ... done [0.00s].
## checking subsets of size 1 2 3 4 5 6 done [0.01s].
## writing ... [129 rule(s)] done [0.00s].
## creating S4 object ... done [0.00s].
```

inspect(association.rules)

##	lhs		rhs		support	confidence	
coverage ## [1]	<pre>lift count {liquor,</pre>						
## [1]	red/blush wine}	=>	{hottle	ed beer}	0.001931876	0 9047619	0 0
	11.235269 19		(50000	ed beer j	01001331070	013017013	0.0
## [2]							
	cereals}	=>	{whole	milk}	0.001016777	0.9090909	0.0
	3.557863 10		(,	0.0000000000000000000000000000000000000		
## [3]	{soups,						
##	bottled beer}	=>	{whole	milk}	0.001118454	0.9166667	0.0
01220132	3.587512 11			•			
## [4]	<pre>{whipped/sour cream,</pre>						
##	house keeping products}	=>	{whole	milk}	0.001220132	0.9230769	0.0
01321810	3.612599 12						
## [5]	{pastry,						
##	sweet spreads}	=>	{whole	milk}	0.001016777	0.9090909	0.0
01118454	3.557863 10						
## [6]	{rice,						
##	sugar}	=>	{whole	milk}	0.001220132	1.0000000	0.0
01220132	3.913649 12						
## [7]	{rice,						
##	bottled water}	=>	{whole	milk}	0.001220132	0.9230769	0.0
01321810	3.612599 12						
## [8]	{canned fish,						
##	hygiene articles}	=>	{whole	milk}	0.001118454	1.0000000	0.0
01118454	3.913649 11						
## [9]	{grapes,						
##	onions}	=>	{other	vegetables}	0.001118454	0.9166667	0.0
	4.737476 11						
## [10]							
##	oil}	=>	{other	vegetables}	0.001118454	0.916666/	0.0
01220132							
	{root vegetables,						
##	butter,		(, ,b a l a	m#1141	0 001016777	1 0000000	0 0
##	rice} 3.913649 10	=>	{wnote	milk}	0.001016777	1.0000000	0.0
01016777							
## [12] ##	<pre>{herbs, whole milk,</pre>						
##	fruit/vegetable juice}		Sothor	vogotables)	0 001016777	0,000000	0 0
	4.698323 10	=>	tother	vegetables}	0.001010///	0.9090909	0.0
	{citrus fruit,						
## [13]	tropical fruit,						
##	herbs}	=>	{whole	milkl	0.001118454	0 0166667	0 0
	3.587512 11		UNIOCC	mirck)	0.001110454	0.5100007	0.0
## [14]							
## [14]	whipped/sour cream,						
##	flour}	=>	{whole	milk}	0.001728521	1.0000000	0.0
	3.913649 17	-	(1.001,20021	1.000000	0.0
## [15]							
##	soft cheese,						
##	domestic eggs}	=>	{whole	milk}	0.001016777	1.0000000	0.0
	3.913649 10		-	•			-
## [16]							
##	whipped/sour cream,						
##	soft cheese}	=>	{other	vegetables}	0.001220132	0.9230769	0.0
01321810	4.770605 12			_			
## [17]	<pre>{root vegetables,</pre>						

```
##
         whipped/sour cream,
##
          soft cheese}
                                     => {whole milk}
                                                           0.001220132 0.9230769 0.0
01321810 3.612599
                      12
## [18] {citrus fruit,
##
          root vegetables,
                                     => {other vegetables} 0.001016777 1.0000000 0.0
##
          soft cheese}
01016777 5.168156
                      10
## [19] {frankfurter,
##
          tropical fruit,
##
          frozen meals}
                                     => {other vegetables} 0.001016777 0.9090909 0.0
01118454 4.698323
                      10
## [20] {frankfurter,
         tropical fruit,
##
##
          frozen meals}
                                     => {whole milk}
                                                           0.001016777 0.9090909 0.0
01118454 3.557863
## [21] {tropical fruit,
##
          butter,
##
                                     => {whole milk}
                                                           0.001016777 0.9090909 0.0
          frozen meals}
01118454 3.557863
## [22] {tropical fruit,
##
         whipped/sour cream,
          hard cheese}
                                     => {other vegetables} 0.001016777 0.9090909 0.0
##
01118454 4.698323
                      10
## [23] {pork,
##
          whole milk,
##
          butter milk}
                                     => {other vegetables} 0.001016777 0.9090909 0.0
01118454 4.698323
                      10
## [24] {pip fruit,
##
          butter milk,
##
          fruit/vegetable juice}
                                     => {other vegetables} 0.001016777 0.9090909 0.0
01118454 4.698323
## [25] {frankfurter,
##
          root vegetables,
##
          sliced cheese}
                                     => {whole milk}
                                                           0.001016777 0.9090909 0.0
01118454 3.557863
                      10
## [26] {butter,
##
          whipped/sour cream,
##
          sliced cheese}
                                     => {whole milk}
                                                           0.001220132 0.9230769 0.0
01321810 3.612599
                      12
## [27] {yogurt,
##
          oil,
##
          coffee}
                                     => {other vegetables} 0.001016777 0.9090909 0.0
01118454 4.698323
                      10
## [28] {root vegetables,
##
          onions,
##
          napkins}
                                     => {other vegetables} 0.001016777 0.9090909 0.0
01118454 4.698323
                      10
## [29]
         {sausage,
##
          berries,
##
                                     => {whole milk}
                                                           0.001016777 0.9090909 0.0
          butter}
01118454 3.557863
                      10
## [30]
         {hamburger meat,
##
          tropical fruit,
##
                                     => {other vegetables} 0.001016777 0.9090909 0.0
          whipped/sour cream}
01118454
         4.698323
                      10
## [31]
         {butter,
##
          hygiene articles,
##
          napkins}
                                     => {whole milk}
                                                           0.001016777 0.9090909 0.0
```

```
01118454 3.557863
                      10
## [32]
         {pip fruit,
##
          butter,
##
          hygiene articles}
                                     => {whole milk}
                                                            0.001016777 1.0000000 0.0
01016777 3.913649
                      10
## [33]
         {tropical fruit,
##
          butter,
##
          hygiene articles}
                                     => {whole milk}
                                                            0.001220132 0.9230769 0.0
01321810 3.612599
## [34]
         {tropical fruit,
##
          domestic eggs,
##
                                     => {whole milk}
                                                            0.001220132 0.9230769 0.0
          hygiene articles}
01321810 3.612599
                      12
## [35] {root vegetables,
##
          whipped/sour cream,
          hygiene articles}
                                     => {whole milk}
##
                                                            0.001016777 1.0000000 0.0
01016777 3.913649
                      10
## [36]
         {pip fruit,
##
          root vegetables,
##
          hygiene articles}
                                     => {whole milk}
                                                            0.001016777 1.0000000 0.0
01016777 3.913649
## [37]
         {cream cheese ,
##
          domestic eggs,
##
          sugar}
                                     => {whole milk}
                                                            0.001118454 1.0000000 0.0
01118454 3.913649
                      11
## [38]
         {other vegetables,
##
          cream cheese ,
                                     => {whole milk}
##
                                                            0.001525165 0.9375000 0.0
          sugar}
01626843 3.669046
                      15
## [39]
        {curd,
          domestic eggs,
##
                                     => {whole milk}
                                                            0.001016777 1.0000000 0.0
##
          sugar}
01016777 3.913649
                      10
## [40] {citrus fruit,
##
          domestic eggs,
##
          sugar}
                                     => {whole milk}
                                                            0.001423488 0.9333333 0.0
01525165 3.652739
                      14
## [41]
         {tropical fruit,
##
          domestic eggs,
##
          sugar}
                                     => {whole milk}
                                                            0.001118454 0.9166667 0.0
01220132 3.587512
                      11
## [42]
         {yogurt,
##
          domestic eggs,
##
          sugar}
                                     => {whole milk}
                                                            0.001423488 0.9333333 0.0
01525165 3.652739
                      14
## [43]
         {root vegetables,
##
          whipped/sour cream,
##
          sugar}
                                     => {whole milk}
                                                            0.001220132 0.9230769 0.0
01321810 3.612599
                      12
## [44]
         {pork,
##
          rolls/buns,
                                     => {whole milk}
                                                            0.001016777 0.9090909 0.0
##
          waffles}
01118454 3.557863
                      10
         {whipped/sour cream,
## [45]
##
          long life bakery product,
##
                                     => {whole milk}
                                                            0.001016777 0.9090909 0.0
          napkins}
01118454 3.557863
                      10
## [46]
         {tropical fruit,
```

```
##
         long life bakery product,
##
          napkins}
                                     => {whole milk}
                                                           0.001220132 0.9230769 0.0
01321810 3.612599
                      12
## [47] {sausage,
##
          butter,
          long life bakery product} => {whole milk}
                                                           0.001016777 0.9090909 0.0
##
01118454 3.557863
                      10
## [48] {tropical fruit,
##
         dessert,
##
         whipped/sour cream}
                                     => {other vegetables} 0.001118454 0.9166667 0.0
01220132 4.737476
                      11
## [49] {cream cheese ,
##
         domestic eggs,
                                     => {whole milk}
##
          napkins}
                                                           0.001118454 1.0000000 0.0
01118454 3.913649
                      11
## [50] {root vegetables,
##
          butter,
                                                           0.001016777 0.9090909 0.0
##
          cream cheese }
                                     => {yogurt}
01118454 6.516698
                      10
## [51] {root vegetables,
##
          butter,
                                     => {whole milk}
                                                           0.001016777 0.9090909 0.0
##
          cream cheese }
01118454 3.557863
                      10
## [52] {pip fruit,
##
         whipped/sour cream,
##
          cream cheese }
                                     => {whole milk}
                                                           0.001321810 0.9285714 0.0
01423488 3.634103
                      13
## [53] {sausage,
##
         pip fruit,
                                                           0.001016777 0.9090909 0.0
##
          cream cheese }
                                     => {whole milk}
01118454 3.557863
                      10
## [54] {citrus fruit,
##
         root vegetables,
##
          cream cheese }
                                     => {other vegetables} 0.001220132 0.9230769 0.0
01321810 4.770605
                      12
## [55] {root vegetables,
##
          butter,
##
         white bread}
                                     => {whole milk}
                                                           0.001118454 0.9166667 0.0
01220132 3.587512
                      11
## [56] {butter,
##
         whipped/sour cream,
                                     => {whole milk}
##
          coffee}
                                                           0.001220132 0.9230769 0.0
01321810 3.612599
                      12
## [57] {root vegetables,
##
          domestic eggs,
                                     => {whole milk}
##
          coffee}
                                                           0.001016777 0.9090909 0.0
01118454 3.557863
                      10
## [58]
         {butter,
##
          curd,
                                     => {whole milk}
##
                                                           0.001118454 0.9166667 0.0
          domestic eggs}
01220132 3.587512
## [59] {citrus fruit,
##
          butter,
##
                                     => {whole milk}
                                                           0.001118454 0.9166667 0.0
          curd}
01220132 3.587512
                      11
## [60]
         {domestic eggs,
##
          margarine,
##
          bottled beer}
                                     => {whole milk}
                                                           0.001016777 0.9090909 0.0
```

```
01118454 3.557863
                      10
## [61] {pip fruit,
##
         whipped/sour cream,
##
          brown bread}
                                     => {other vegetables} 0.001118454 1.0000000 0.0
01118454 5.168156
                      11
## [62] {domestic eggs,
##
          margarine,
##
          fruit/vegetable juice}
                                     => {whole milk}
                                                           0.001118454 0.9166667 0.0
01220132 3.587512
                      11
## [63] {pip fruit,
##
          butter,
##
          whipped/sour cream}
                                     => {whole milk}
                                                           0.001830198 0.9000000 0.0
02033554 3.522284
                      18
## [64] {butter,
##
          whipped/sour cream,
                                     => {other vegetables} 0.001321810 0.9285714 0.0
##
          soda}
01423488 4.799002
                      13
## [65]
       {pip fruit,
##
          butter,
##
          pastry}
                                     => {other vegetables} 0.001321810 0.9285714 0.0
01423488 4.799002
                      13
## [66] {tropical fruit,
##
         whipped/sour cream,
##
          domestic eggs}
                                     => {whole milk}
                                                           0.001830198 0.9000000 0.0
02033554 3.522284
                      18
## [67]
         {tropical fruit,
##
          whipped/sour cream,
##
          fruit/vegetable juice}
                                     => {other vegetables} 0.001931876 0.9047619 0.0
02135231 4.675950
                      19
## [68] {root vegetables,
##
         other vegetables,
##
          yogurt,
                                     => {whole milk}
                                                           0.001321810 0.9285714 0.0
##
          rice}
01423488 3.634103
                      13
## [69] {root vegetables,
##
         whole milk,
##
          yogurt,
##
          rice}
                                     => {other vegetables} 0.001321810 0.9285714 0.0
01423488 4.799002
                      13
## [70] {tropical fruit,
##
          root vegetables,
##
          herbs,
                                                           0.001016777 0.9090909 0.0
##
          other vegetables}
                                     => {whole milk}
01118454 3.557863
## [71] {tropical fruit,
##
          grapes,
##
          whole milk,
##
          yogurt}
                                     => {other vegetables} 0.001016777 1.0000000 0.0
01016777 5.168156
                      10
## [72] {tropical fruit,
##
          pip fruit,
##
          yogurt,
                                     => {whole milk}
##
          frozen meals}
                                                           0.001016777 0.9090909 0.0
01118454 3.557863
                      10
## [73] {root vegetables,
##
          other vegetables,
##
          yogurt,
##
          hard cheese}
                                     => {whole milk}
                                                           0.001220132 0.9230769 0.0
```

```
01321810 3.612599
                      12
## [74]
         {ham,
##
          tropical fruit,
##
          pip fruit,
##
          yogurt}
                                     => {other vegetables} 0.001016777 1.0000000 0.0
01016777 5.168156
                      10
## [75]
         {ham,
##
          tropical fruit,
##
          pip fruit,
##
          whole milk}
                                     => {other vegetables} 0.001118454 1.0000000 0.0
01118454 5.168156
                      11
## [76]
         {tropical fruit,
##
          butter,
##
          yogurt,
##
          sliced cheese}
                                     => {whole milk}
                                                            0.001016777 0.9090909 0.0
01118454 3.557863
                      10
## [77]
         {tropical fruit,
##
          whole milk,
##
          butter,
##
          sliced cheese}
                                     => {yogurt}
                                                            0.001016777 0.9090909 0.0
01118454 6.516698
                      10
## [78]
         {tropical fruit,
##
          root vegetables,
##
          yogurt,
##
          oil}
                                     => {other vegetables} 0.001016777 0.9090909 0.0
01118454 4.698323
## [79]
         {tropical fruit,
          root vegetables,
##
##
          yogurt,
##
          oil}
                                     => {whole milk}
                                                            0.001118454 1.0000000 0.0
01118454 3.913649
                      11
## [80]
         {root vegetables,
##
          other vegetables,
##
          yogurt,
##
          oil}
                                     => {whole milk}
                                                            0.001423488 1.0000000 0.0
01423488 3.913649
## [81]
         {root vegetables,
##
          whole milk,
##
          yogurt,
##
          oil}
                                     => {other vegetables} 0.001423488 0.9333333 0.0
01525165 4.823612
                      14
## [82]
         {root vegetables,
##
          other vegetables,
##
          yogurt,
##
          waffles}
                                     => {whole milk}
                                                            0.001016777 0.9090909 0.0
01118454 3.557863
                      10
## [83]
         {other vegetables,
##
          curd,
##
          whipped/sour cream,
##
          cream cheese }
                                     => {yogurt}
                                                            0.001016777 0.9090909 0.0
01118454 6.516698
                      10
## [84]
         {citrus fruit,
##
          whole milk,
##
          whipped/sour cream,
##
                                     => {other vegetables} 0.001118454 0.9166667 0.0
          cream cheese }
01220132 4.737476
                      11
## [85]
        {pip fruit,
##
          root vegetables,
```

```
##
         other vegetables,
##
          cream cheese }
                                     => {whole milk}
                                                           0.001016777 0.9090909 0.0
01118454 3.557863
## [86] {pip fruit,
##
          other vegetables,
##
          yogurt,
##
                                    => {whole milk}
                                                           0.001118454 0.9166667 0.0
          cream cheese }
01220132 3.587512
                      11
## [87] {tropical fruit,
##
          butter,
##
          yogurt,
                                     => {other vegetables} 0.001016777 0.9090909 0.0
##
         white bread}
01118454 4.698323
                      10
## [88] {tropical fruit,
##
          other vegetables,
##
          butter,
                                                           0.001016777 0.9090909 0.0
##
         white bread}
                                     => {yogurt}
01118454 6.516698
                      10
## [89] {root vegetables,
##
          other vegetables,
##
          butter,
##
         white bread}
                                     => {whole milk}
                                                           0.001016777 1.0000000 0.0
01016777 3.913649
                     10
## [90] {root vegetables,
##
         whole milk,
##
          butter,
##
         white bread}
                                     => {other vegetables} 0.001016777 0.9090909 0.0
01118454 4.698323
                      10
## [91] {citrus fruit,
##
          other vegetables,
##
          yogurt,
                                                           0.001016777 0.9090909 0.0
                                  => {whole milk}
##
          frozen vegetables}
01118454 3.557863 10
## [92] {beef,
##
          tropical fruit,
##
          yogurt,
                                     => {whole milk}
                                                           0.001321810 0.9285714 0.0
##
          rolls/buns}
01423488 3.634103
                      13
## [93] {tropical fruit,
##
          curd,
##
          yogurt,
                                     => {whole milk}
##
                                                           0.001118454 0.9166667 0.0
          domestic eggs}
01220132 3.587512
                      11
## [94]
         {citrus fruit,
##
          tropical fruit,
##
          curd,
          yogurt}
                                     => {whole milk}
                                                           0.001016777 0.9090909 0.0
##
01118454 3.557863
                      10
         {other vegetables,
## [95]
##
          butter,
##
          whipped/sour cream,
                                     => {whole milk}
                                                           0.001016777 0.9090909 0.0
##
          napkins}
01118454 3.557863
                      10
## [96]
         {pork,
##
          other vegetables,
##
          butter,
                                    => {whole milk}
##
          whipped/sour cream}
                                                           0.001016777 1.0000000 0.0
01016777
         3.913649
```

```
## [97]
         {pork,
##
          root vegetables,
##
          other vegetables,
##
          butter}
                                      => {whole milk}
                                                             0.001016777 0.9090909 0.0
01118454 3.557863
                      10
## [98] {frankfurter,
##
          tropical fruit,
##
          root vegetables,
                                      => {whole milk}
                                                             0.001220132 0.9230769 0.0
##
          yogurt}
01321810 3.612599
                      12
## [99]
         {pip fruit,
##
          root vegetables,
##
          other vegetables,
                                                             0.001220132 0.9230769 0.0
##
          brown bread}
                                      => {whole milk}
01321810 3.612599
## [100] {root vegetables,
          other vegetables,
##
##
          rolls/buns,
##
          brown bread}
                                      => {whole milk}
                                                             0.001016777 0.9090909 0.0
01118454 3.557863
                      10
## [101] {other vegetables,
##
          butter,
##
          whipped/sour cream,
##
          domestic eggs}
                                      => {whole milk}
                                                             0.001220132 1.0000000 0.0
01220132 3.913649
## [102] {tropical fruit,
##
          butter,
##
          yogurt,
##
                                      => {whole milk}
                                                             0.001220132 0.9230769 0.0
          domestic eggs}
01321810
         3.612599
                      12
## [103] {root vegetables,
##
          butter,
##
          yogurt,
##
                                      => {whole milk}
                                                             0.001118454 0.9166667 0.0
          domestic eggs}
01220132 3.587512
                      11
## [104] {tropical fruit,
##
          butter,
##
          whipped/sour cream,
##
          fruit/vegetable juice}
                                      => {other vegetables} 0.001016777 1.0000000 0.0
01016777
         5.168156
                      10
## [105] {whole milk,
##
          butter,
##
          whipped/sour cream,
##
          soda}
                                      => {other vegetables} 0.001016777 0.9090909 0.0
01118454
          4.698323
                      10
## [106] {citrus fruit,
          other vegetables,
##
##
          butter,
##
          bottled water}
                                      => {whole milk}
                                                             0.001016777 0.9090909 0.0
01118454
          3.557863
                      10
## [107] {whole milk,
          rolls/buns,
##
##
          soda,
                                      => {other vegetables} 0.001016777 1.0000000 0.0
##
          newspapers}
         5.168156
                      10
01016777
## [108] {pip fruit,
##
          other vegetables,
##
          whipped/sour cream,
```

```
##
                                                           0.001220132 0.9230769 0.0
          domestic eggs}
                                     => {whole milk}
01321810 3.612599
                      12
## [109] {citrus fruit,
##
         whole milk,
##
          whipped/sour cream,
          domestic eggs}
                                     => {other vegetables} 0.001220132 0.9230769 0.0
##
01321810 4.770605
                      12
## [110] {tropical fruit,
##
          yogurt,
##
          whipped/sour cream,
                                     => {whole milk}
                                                           0.001118454 0.9166667 0.0
##
          domestic eggs}
01220132 3.587512
                      11
## [111] {tropical fruit,
##
         other vegetables,
##
          whipped/sour cream,
                                                           0.001118454 0.9166667 0.0
                                     => {whole milk}
##
          domestic eggs}
01220132 3.587512
                      11
## [112] {citrus fruit,
##
         tropical fruit,
##
          other vegetables,
##
          domestic eggs}
                                     => {whole milk}
                                                           0.001016777 0.9090909 0.0
01118454 3.557863
                      10
## [113] {tropical fruit,
##
          yogurt,
##
          whipped/sour cream,
##
          fruit/vegetable juice}
                                   => {other vegetables} 0.001118454 0.9166667 0.0
01220132 4.737476
                      11
## [114] {tropical fruit,
##
         whole milk,
##
          whipped/sour cream,
##
          fruit/vegetable juice}
                                   => {other vegetables} 0.001016777 0.9090909 0.0
01118454 4.698323
                      10
## [115] {pip fruit,
          root vegetables,
##
##
          yogurt,
##
          fruit/vegetable juice}
                                    => {whole milk}
                                                           0.001118454 0.9166667 0.0
01220132 3.587512
                      11
## [116] {citrus fruit,
          other vegetables,
##
##
          soda,
##
          fruit/vegetable juice}
                                   => {root vegetables} 0.001016777 0.9090909 0.0
01118454 8.340400
                      10
## [117] {citrus fruit,
##
          whipped/sour cream,
##
          rolls/buns,
                                     => {whole milk}
##
                                                           0.001016777 1.0000000 0.0
          pastry}
01016777 3.913649
                      10
## [118] {citrus fruit,
          tropical fruit,
##
##
          root vegetables,
##
          whipped/sour cream}
                                     => {other vegetables} 0.001220132 1.0000000 0.0
01220132 5.168156
## [119] {pip fruit,
          root vegetables,
##
##
          other vegetables,
##
                                     => {whole milk}
                                                           0.001118454 1.0000000 0.0
          bottled water}
01118454 3.913649
                      11
## [120] {tropical fruit,
```

```
##
          root vegetables,
##
          yogurt,
                                      => {whole milk}
                                                             0.001016777 0.9090909 0.0
##
          pastry}
01118454 3.557863
                      10
## [121] {sausage,
          tropical fruit,
##
##
          root vegetables,
                                      => {whole milk}
##
                                                             0.001525165 0.9375000 0.0
          yogurt}
01626843 3.669046
                      15
## [122] {sausage,
##
          tropical fruit,
##
          root vegetables,
##
                                      => {whole milk}
                                                             0.001016777 1.0000000 0.0
          rolls/buns}
01016777 3.913649
                      10
## [123] {tropical fruit,
##
          root vegetables,
##
          rolls/buns,
##
          bottled water}
                                      => {whole milk}
                                                            0.001118454 0.9166667 0.0
01220132 3.587512
                      11
## [124] {tropical fruit,
##
          root vegetables,
##
          other vegetables,
##
          yogurt,
                                                            0.001016777 1.0000000 0.0
##
          oil}
                                      => {whole milk}
01016777 3.913649
## [125] {tropical fruit,
##
          root vegetables,
##
          whole milk,
##
          yogurt,
##
          oil}
                                      => {other vegetables} 0.001016777 0.9090909 0.0
01118454 4.698323
                      10
## [126] {tropical fruit,
          other vegetables,
##
##
          whole milk,
##
          yogurt,
##
          oil}
                                      => {root vegetables} 0.001016777 0.9090909 0.0
01118454 8.340400
                      10
## [127] {tropical fruit,
          other vegetables,
##
##
          butter,
##
          yogurt,
##
                                      => {whole milk}
          domestic eggs}
                                                            0.001016777 0.9090909 0.0
01118454 3.557863
                      10
## [128] {citrus fruit,
##
          root vegetables,
##
          whole milk,
##
          yogurt,
##
          whipped/sour cream}
                                      => {other vegetables} 0.001016777 0.9090909 0.0
01118454 4.698323
                      10
## [129] {citrus fruit,
##
          tropical fruit,
##
          root vegetables,
##
          whole milk,
##
          yogurt}
                                      => {other vegetables} 0.001423488 0.9333333 0.0
01525165 4.823612
                      14
```

inspect(head(sort(association.rules, by=c("conf", "supp"))))

```
##
       lhs
                                rhs
                                                       support confidence
                                                                             coverage
lift count
## [1] {root vegetables,
       whipped/sour cream,
##
##
        flour}
                             => {whole milk}
                                                   0.001728521
                                                                        1 0.001728521
3.913649
            17
## [2] {root vegetables,
        other vegetables,
##
##
        yogurt,
##
        oil}
                             => {whole milk}
                                                   0.001423488
                                                                        1 0.001423488
3.913649
            14
## [3] {rice,
##
                             => {whole milk}
                                                   0.001220132
                                                                        1 0.001220132
        sugar}
3.913649
            12
## [4] {other vegetables,
##
        butter,
        whipped/sour cream,
##
                           => {whole milk}
                                                   0.001220132
                                                                        1 0.001220132
##
        domestic eggs}
3.913649
            12
## [5] {citrus fruit,
##
        tropical fruit,
##
        root vegetables,
##
       whipped/sour cream} => {other vegetables} 0.001220132
                                                                 1 0.001220132
5.168156
            12
## [6] {canned fish,
        hygiene articles} => {whole milk}
                                                   0.001118454
                                                                        1 0.001118454
3.913649
            11
```

 $shorter.association.rules <- apriori(Groceries, parameter = list(supp=0.001, conf=0.8 \\, maxlen=3))$

```
## Apriori
##
## Parameter specification:
  confidence minval smax arem aval originalSupport maxtime support minlen
##
           0.8
                  0.1
                        1 none FALSE
                                                 TRUE
                                                           5
                                                               0.001
##
## maxlen target ext
##
        3 rules TRUE
##
## Algorithmic control:
## filter tree heap memopt load sort verbose
       0.1 TRUE TRUE FALSE TRUE 2
##
                                        TRUE
##
## Absolute minimum support count: 9
##
## set item appearances ...[0 item(s)] done [0.00s].
## set transactions ...[169 item(s), 9835 transaction(s)] done [0.00s].
## sorting and recoding items ... [157 item(s)] done [0.00s].
## creating transaction tree ... done [0.00s].
## checking subsets of size 1 2 3
```

```
## Warning in apriori(Groceries, parameter = list(supp = 0.001, conf = 0.8, :
## Mining stopped (maxlen reached). Only patterns up to a length of 3 returned!
```

```
## done [0.00s].
## writing ... [29 rule(s)] done [0.00s].
## creating S4 object ... done [0.00s].
```

inspect(shorter.association.rules)

##			rhs	support	confidence	cove
_	lift count {liquor,					
	red/blush wine}	=>	{bottled beer}	0.001931876	0.9047619	0.00213
5231 11	-		(botted beer)	01001331070	013017013	0100215
## [2]						
	cereals}	=>	{whole milk}	0.001016777	0.9090909	0.00111
8454 3			(Miloto miloto)	0.001010777	0.5050505	0.00111
	{yogurt,					
	cereals}	=>	{whole milk}	0.001728521	0.8095238	0.00213
5231 3	•		,			
## [4]	{butter,					
	jam}	=>	{whole milk}	0.001016777	0.8333333	0.00122
0132 3	.261374 10					
## [5]	{soups,					
##	bottled beer}	=>	{whole milk}	0.001118454	0.9166667	0.00122
0132 3	.587512 11					
## [6]	{napkins,					
##	house keeping products}	=>	<pre>{whole milk}</pre>	0.001321810	0.8125000	0.00162
6843 3	.179840 13					
## [7]	<pre>{whipped/sour cream,</pre>					
##	house keeping products}	=>	<pre>{whole milk}</pre>	0.001220132	0.9230769	0.00132
1810 3						
	{pastry,					
	sweet spreads}	=>	{whole milk}	0.001016777	0.9090909	0.00111
8454 3						
	{turkey,					
	curd}	=>	{other vegetables}	0.001220132	0.8000000	0.00152
	. 134524 12					
	{rice,					
	sugar}	=>	{whole milk}	0.001220132	1.0000000	0.00122
	.913649 12					
	{butter,		(h.a.l.a	0 001535165	0 022222	0.00100
	rice}	=>	{whole milk}	0.001525165	0.8333333	0.00183
	.261374 15					
	{domestic eggs,		(h.a.l.a	0 001110454	0.0461530	0 00122
##	_	=>	{whole milk}	0.001118454	0.8401538	0.00132
	.311549 11					
## [13]			{whole milk}	0 001220122	0 0220760	0 00122
## 1810 3	•	=>	TMIIOTE HITTER	0.001220132	0.9230/09	0.00132
	.012599 12 {yogurt,					
	rice}		<pre>{other vegetables}</pre>	0 001031976	A 8260870	0 00333
	.269346 19	-/	(June) vegetables;	0.001931070	0.0200070	0.00233
## [15]						
	mustard}	=>	{whole milk}	0.001220132	0.8571420	0.00142
3488 3			(WHO CO MITCH)	3.001220132	0.0071429	3.00172
	{canned fish,					
	hygiene articles}	=>	{whole milk}	0.001118454	1.0000000	0.00111
	.913649 11	-	Compact matery	5.001110104		
	{herbs,					
	<pre>fruit/vegetable juice}</pre>	=>	{other vegetables}	0.001220132	0.8000000	0.00152
	.134524 12					
	{herbs,					
##		=>	<pre>{other vegetables}</pre>	0.001931876	0.8260870	0.00233
8587 4			,			
## [19]	{tropical fruit,					
I .						

```
##
        herbs}
                                => {whole milk}
                                                     0.002338587  0.8214286  0.00284
6975 3.214783
                 23
## [20] {herbs,
##
         rolls/buns}
                                => {whole milk}
                                                     0330 3.130919
                 24
## [21] {pickled vegetables,
##
        chocolate}
                                => {whole milk}
                                                     0.001220132  0.8571429  0.00142
3488 3.354556
                 12
## [22] {grapes,
##
        onions}
                                => {other vegetables} 0.001118454 0.9166667 0.00122
0132 4.737476
                 11
## [23] {meat,
                                => {other vegetables} 0.001728521 0.8500000 0.00203
##
        margarine}
3554 4.392932
                 17
## [24] {hard cheese,
                                => {other vegetables} 0.001118454 0.9166667 0.00122
##
        oil}
0132 4.737476
                 11
## [25] {onions,
        butter milk}
##
                                => {other vegetables} 0.001321810 0.8125000 0.00162
6843 4.199126
                 13
## [26] {pork,
##
        butter milk}
                                => {other vegetables} 0.001830198 0.8571429 0.00213
5231 4.429848
               18
## [27] {onions,
##
        waffles}
                                => {other vegetables} 0.001220132 0.8000000 0.00152
5165 4.134524
                 12
## [28] {hamburger meat,
##
                                => {whole milk}
                                                     0.002541942  0.8064516  0.00315
        curd}
2008 3.156169
                 25
## [29] {hamburger meat,
        bottled beer}
                                => {whole milk}
                                                     0.001728521  0.8095238  0.00213
5231 3.168192
                 17
```

```
milk.association.rules <- apriori(Groceries, parameter = list(supp=0.001, conf=0.9),
appearance = list(default='lhs', rhs='whole milk'))</pre>
```

```
## Apriori
##
## Parameter specification:
   confidence minval smax arem aval originalSupport maxtime support minlen
##
           0.9
                         1 none FALSE
                                                 TRUE
                                                            5
                                                                0.001
                                                                           1
##
                 0.1
## maxlen target ext
##
        10 rules TRUE
##
## Algorithmic control:
   filter tree heap memopt load sort verbose
       0.1 TRUE TRUE FALSE TRUE 2
                                         TRUE
##
##
## Absolute minimum support count: 9
##
## set item appearances ...[1 item(s)] done [0.00s].
## set transactions ...[169 item(s), 9835 transaction(s)] done [0.00s].
## sorting and recoding items ... [157 item(s)] done [0.00s].
## creating transaction tree ... done [0.00s].
## checking subsets of size 1 2 3 4 5 6 done [0.01s].
## writing ... [85 rule(s)] done [0.00s].
## creating S4 object ... done [0.00s].
```

inspect(milk.association.rules)

```
##
       lhs
                                      rhs
                                                      support confidence
                                                                            coverag
    lift count
e
## [1] {curd,
##
        cereals}
                                   => {whole milk} 0.001016777 0.9090909 0.00111845
4 3.557863
             10
## [2] {soups,
       bottled beer}
                                   => {whole milk} 0.001118454 0.9166667 0.00122013
##
2 3.587512
             11
## [3] {whipped/sour cream,
        house keeping products} => {whole milk} 0.001220132 0.9230769 0.00132181
0 3.612599
             12
## [4] {pastry,
##
        sweet spreads}
                                  => {whole milk} 0.001016777 0.9090909 0.00111845
4 3.557863
## [5] {rice,
                                   => {whole milk} 0.001220132 1.0000000 0.00122013
        sugar}
2 3.913649
            12
## [6] {rice,
                                   => {whole milk} 0.001220132 0.9230769 0.00132181
##
        bottled water}
0 3.612599
            12
## [7] {canned fish,
        hygiene articles}
                                  => {whole milk} 0.001118454 1.0000000 0.00111845
4 3.913649
             11
## [8] {root vegetables,
##
        butter.
                                   => {whole milk} 0.001016777 1.0000000 0.00101677
##
        rice}
7 3.913649
             10
## [9] {citrus fruit,
##
        tropical fruit,
        herbs}
                                   => {whole milk} 0.001118454 0.9166667 0.00122013
##
2 3.587512
             11
## [10] {root vegetables,
##
        whipped/sour cream,
##
        flour}
                                   => {whole milk} 0.001728521 1.0000000 0.00172852
1 3.913649
## [11] {butter,
##
        soft cheese,
##
        domestic eggs}
                                  => {whole milk} 0.001016777 1.0000000 0.00101677
7 3.913649
             10
## [12] {root vegetables,
        whipped/sour cream,
##
##
        soft cheese}
                                   => {whole milk} 0.001220132 0.9230769 0.00132181
             12
0 3.612599
## [13] {frankfurter,
##
        tropical fruit,
                                  => {whole milk} 0.001016777 0.9090909 0.00111845
##
        frozen meals}
4 3.557863
             10
## [14] {tropical fruit,
##
        butter,
##
                                   => {whole milk} 0.001016777 0.9090909 0.00111845
        frozen meals}
4 3.557863
             10
## [15] {frankfurter,
##
        root vegetables,
##
                                 => {whole milk} 0.001016777 0.9090909 0.00111845
        sliced cheese}
4 3.557863
             10
## [16] {butter,
##
        whipped/sour cream,
```

```
## sliced cheese} => {whole milk} 0.001220132 0.9230769 0.00132181
0 3.612599 12
## [17] {sausage,
        berries,
##
        butter}
                                 => {whole milk} 0.001016777 0.9090909 0.00111845
4 3.557863 10
## [18] {butter,
##
      hygiene articles,
                                 => {whole milk} 0.001016777 0.9090909 0.00111845
##
       napkins}
4 3.557863
            10
## [19] {pip fruit,
##
        butter,
        hygiene articles} => {whole milk} 0.001016777 1.0000000 0.00101677
##
7 3.913649
           10
## [20] {tropical fruit,
##
       butter,
##
       hygiene articles} => {whole milk} 0.001220132 0.9230769 0.00132181
0 3.612599
           12
## [21] {tropical fruit,
##
      domestic eggs,
##
       hygiene articles} => {whole milk} 0.001220132 0.9230769 0.00132181
0 3.612599
             12
## [22] {root vegetables,
        whipped/sour cream,
        hygiene articles}
##
                                => {whole milk} 0.001016777 1.0000000 0.00101677
7 3.913649
           10
## [23] {pip fruit,
##
      root vegetables,
##
      hygiene articles}
                                => {whole milk} 0.001016777 1.0000000 0.00101677
7 3.913649
           10
## [24] {cream cheese ,
##
       domestic eggs,
##
                                 => {whole milk} 0.001118454 1.0000000 0.00111845
        sugar}
4 3.913649 11
## [25] {other vegetables,
       cream cheese ,
##
                                 => {whole milk} 0.001525165 0.9375000 0.00162684
        sugar}
3 3.669046 15
## [26] {curd,
##
        domestic eggs,
                                 => {whole milk} 0.001016777 1.0000000 0.00101677
##
       sugar}
7 3.913649 10
## [27] {citrus fruit,
##
        domestic eggs,
##
        sugar}
                                 => {whole milk} 0.001423488 0.9333333 0.00152516
5 3.652739 14
## [28] {tropical fruit,
##
      domestic eggs,
##
       sugar}
                                 => {whole milk} 0.001118454 0.9166667 0.00122013
2 3.587512 11
## [29] {yogurt,
##
        domestic eggs,
##
        sugar}
                                 => {whole milk} 0.001423488 0.9333333 0.00152516
5 3.652739
            14
## [30] {root vegetables,
##
        whipped/sour cream,
##
        sugar}
                                 => {whole milk} 0.001220132 0.9230769 0.00132181
0 3.612599
```

```
## [31] {pork,
##
        rolls/buns,
                               => {whole milk} 0.001016777 0.9090909 0.00111845
##
        waffles}
4 3.557863
             10
## [32] {whipped/sour cream,
        long life bakery product,
##
        napkins}
                                   => {whole milk} 0.001016777 0.9090909 0.00111845
4 3.557863
             10
## [33] {tropical fruit,
##
        long life bakery product,
##
        napkins}
                                   => {whole milk} 0.001220132 0.9230769 0.00132181
0 3.612599
             12
## [34] {sausage,
##
        butter,
##
        long life bakery product} => {whole milk} 0.001016777 0.9090909 0.00111845
4 3.557863
             10
## [35] {cream cheese ,
##
        domestic eggs,
##
        napkins}
                                   => {whole milk} 0.001118454 1.0000000 0.00111845
4 3.913649
             11
## [36] {root vegetables,
##
        butter,
##
        cream cheese }
                           => {whole milk} 0.001016777 0.9090909 0.00111845
4 3.557863
            10
## [37] {pip fruit,
        whipped/sour cream,
##
        cream cheese }
                                  => {whole milk} 0.001321810 0.9285714 0.00142348
8 3.634103
             13
## [38] {sausage,
##
        pip fruit,
##
        cream cheese }
                                  => {whole milk} 0.001016777 0.9090909 0.00111845
             10
4 3.557863
## [39] {root vegetables,
##
        butter,
##
        white bread}
                                  => {whole milk} 0.001118454 0.9166667 0.00122013
2 3.587512
             11
## [40] {butter,
##
       whipped/sour cream,
        coffee}
                                   => {whole milk} 0.001220132 0.9230769 0.00132181
##
0 3.612599
             12
## [41] {root vegetables,
        domestic eggs,
##
##
        coffee}
                                   => {whole milk} 0.001016777 0.9090909 0.00111845
4 3.557863
             10
## [42] {butter,
##
        curd,
##
        domestic eggs}
                                   => {whole milk} 0.001118454 0.9166667 0.00122013
2 3.587512
            11
## [43] {citrus fruit,
##
        butter,
##
                                   => {whole milk} 0.001118454 0.9166667 0.00122013
        curd}
2 3.587512
             11
## [44] {domestic eggs,
##
        margarine,
##
        bottled beer}
                                  => {whole milk} 0.001016777 0.9090909 0.00111845
4 3.557863
             10
## [45] {domestic eggs,
##
        margarine,
```

```
##
        fruit/vegetable juice} => {whole milk} 0.001118454 0.9166667 0.00122013
2 3.587512
             11
## [46] {pip fruit,
##
         butter,
##
        whipped/sour cream}
                                   => {whole milk} 0.001830198 0.9000000 0.00203355
4 3.522284
             18
## [47] {tropical fruit,
##
        whipped/sour cream,
##
        domestic eggs}
                                   => {whole milk} 0.001830198 0.9000000 0.00203355
4 3.522284
              18
## [48] {root vegetables,
        other vegetables,
##
##
        yogurt,
##
        rice}
                                   => {whole milk} 0.001321810 0.9285714 0.00142348
8 3.634103
             13
## [49] {tropical fruit,
##
        root vegetables,
##
        herbs,
        other vegetables}
##
                                  => {whole milk} 0.001016777 0.9090909 0.00111845
4 3.557863
             10
## [50] {tropical fruit,
##
        pip fruit,
##
        yogurt,
##
        frozen meals}
                                  => {whole milk} 0.001016777 0.9090909 0.00111845
4 3.557863
              10
## [51] {root vegetables,
##
        other vegetables,
##
        yogurt,
##
        hard cheese}
                                   => {whole milk} 0.001220132 0.9230769 0.00132181
0 3.612599
             12
## [52] {tropical fruit,
##
        butter,
##
        yogurt,
##
                                  => {whole milk} 0.001016777 0.9090909 0.00111845
        sliced cheese}
4 3.557863
             10
## [53] {tropical fruit,
##
        root vegetables,
##
        yogurt,
##
        oil}
                                   => {whole milk} 0.001118454 1.0000000 0.00111845
4 3.913649
             11
## [54] {root vegetables,
##
        other vegetables,
##
        yogurt,
                                   => {whole milk} 0.001423488 1.0000000 0.00142348
##
        oil}
8 3.913649
              14
## [55] {root vegetables,
##
        other vegetables,
##
        yogurt,
##
        waffles}
                                   => {whole milk} 0.001016777 0.9090909 0.00111845
4 3.557863
             10
## [56] {pip fruit,
##
         root vegetables,
##
        other vegetables,
##
                                   => {whole milk} 0.001016777 0.9090909 0.00111845
         cream cheese }
4 3.557863
             10
## [57] {pip fruit,
##
         other vegetables,
##
         yogurt,
```

```
## cream cheese }
                             => {whole milk} 0.001118454 0.9166667 0.00122013
2 3.587512
             11
## [58] {root vegetables,
        other vegetables,
##
        butter,
##
        white bread}
                                  => {whole milk} 0.001016777 1.0000000 0.00101677
7 3.913649
              10
## [59] {citrus fruit,
        other vegetables,
##
##
        yogurt,
##
        frozen vegetables}
                             => {whole milk} 0.001016777 0.9090909 0.00111845
4 3.557863
              10
## [60] {beef,
##
        tropical fruit,
##
        yogurt,
                                  => {whole milk} 0.001321810 0.9285714 0.00142348
##
        rolls/buns}
8 3.634103
             13
## [61] {tropical fruit,
##
        curd,
##
        yogurt,
##
        domestic eggs}
                                   => {whole milk} 0.001118454 0.9166667 0.00122013
2 3.587512
              11
## [62] {citrus fruit,
##
        tropical fruit,
##
        curd,
##
        yogurt}
                                   => {whole milk} 0.001016777 0.9090909 0.00111845
4 3.557863
              10
## [63] {other vegetables,
##
        butter,
##
        whipped/sour cream,
##
        napkins}
                                   => {whole milk} 0.001016777 0.9090909 0.00111845
4 3.557863
              10
## [64] {pork,
        other vegetables,
##
##
        butter,
        whipped/sour cream}
                                => {whole milk} 0.001016777 1.0000000 0.00101677
##
7 3.913649
              10
## [65] {pork,
##
        root vegetables,
##
        other vegetables,
                                   => {whole milk} 0.001016777 0.9090909 0.00111845
##
        butter}
4 3.557863
              10
## [66] {frankfurter,
##
        tropical fruit,
##
        root vegetables,
##
        yogurt}
                                   => {whole milk} 0.001220132 0.9230769 0.00132181
0 3.612599
             12
## [67] {pip fruit,
##
        root vegetables,
##
        other vegetables,
##
        brown bread}
                                   => {whole milk} 0.001220132 0.9230769 0.00132181
0 3.612599
             12
## [68] {root vegetables,
        other vegetables,
##
##
        rolls/buns,
##
        brown bread}
                                   => {whole milk} 0.001016777 0.9090909 0.00111845
4 3.557863
              10
## [69] {other vegetables,
```

```
##
         butter,
##
         whipped/sour cream,
                                    => {whole milk} 0.001220132 1.0000000 0.00122013
##
         domestic eggs}
2 3.913649
              12
## [70] {tropical fruit,
##
        butter,
##
         yogurt,
##
         domestic eggs}
                                    => {whole milk} 0.001220132 0.9230769 0.00132181
0 3.612599
              12
## [71] {root vegetables,
##
        butter,
##
         yogurt,
##
                                    => {whole milk} 0.001118454 0.9166667 0.00122013
         domestic eggs}
2 3.587512
              11
## [72] {citrus fruit,
##
        other vegetables,
##
         butter,
##
                                    => {whole milk} 0.001016777 0.9090909 0.00111845
         bottled water}
4 3.557863
              10
## [73] {pip fruit,
##
        other vegetables,
##
         whipped/sour cream,
##
         domestic eggs}
                                    => {whole milk} 0.001220132 0.9230769 0.00132181
0 3.612599
              12
## [74] {tropical fruit,
##
         yogurt,
##
         whipped/sour cream,
##
                                    => {whole milk} 0.001118454 0.9166667 0.00122013
         domestic eggs}
2 3.587512
              11
## [75] {tropical fruit,
##
        other vegetables,
##
         whipped/sour cream,
         domestic eggs}
                                    => {whole milk} 0.001118454 0.9166667 0.00122013
##
2 3.587512
              11
## [76] {citrus fruit,
        tropical fruit,
##
##
         other vegetables,
##
         domestic eggs}
                                    => {whole milk} 0.001016777 0.9090909 0.00111845
4 3.557863
              10
## [77] {pip fruit,
##
         root vegetables,
##
         yogurt,
##
        fruit/vegetable juice} => {whole milk} 0.001118454 0.9166667 0.00122013
2 3.587512
              11
## [78] {citrus fruit,
##
         whipped/sour cream,
##
         rolls/buns,
##
         pastry}
                                    => {whole milk} 0.001016777 1.0000000 0.00101677
7 3.913649
              10
## [79] {pip fruit,
##
         root vegetables,
##
         other vegetables,
##
         bottled water}
                                    => {whole milk} 0.001118454 1.0000000 0.00111845
4 3.913649
              11
## [80] {tropical fruit,
##
         root vegetables,
##
         yogurt,
##
         pastry}
                                    => {whole milk} 0.001016777 0.9090909 0.00111845
```

```
4 3.557863
              10
## [81] {sausage,
##
        tropical fruit,
##
         root vegetables,
##
         yogurt}
                                    => {whole milk} 0.001525165 0.9375000 0.00162684
3 3.669046
              15
## [82] {sausage,
##
        tropical fruit,
##
         root vegetables,
##
         rolls/buns}
                                    => {whole milk} 0.001016777 1.0000000 0.00101677
7 3.913649
              10
## [83] {tropical fruit,
##
        root vegetables,
##
         rolls/buns,
##
         bottled water}
                                    => {whole milk} 0.001118454 0.9166667 0.00122013
2 3.587512
              11
## [84] {tropical fruit,
        root vegetables,
##
##
         other vegetables,
##
         yogurt,
                                    => {whole milk} 0.001016777 1.0000000 0.00101677
##
         oil}
7 3.913649
              10
## [85] {tropical fruit,
         other vegetables,
##
##
         butter,
##
         yogurt,
                                   => {whole milk} 0.001016777 0.9090909 0.00111845
##
         domestic eggs}
4 3.557863
              10
```

```
inspect(head(sort(milk.association.rules, by=c("conf", "supp"))))
```

```
##
       lhs
                                 rhs
                                                                                      ι
                                                  support confidence
                                                                        coverage
ift count
## [1] {root vegetables,
        whipped/sour cream,
##
        flour}
                             => {whole milk} 0.001728521
                                                                   1 0.001728521 3.913
       17
649
## [2] {root vegetables,
        other vegetables,
##
##
        yogurt,
                             => {whole milk} 0.001423488
##
        oil}
                                                                   1 0.001423488 3.913
649
       14
## [3] {rice,
                             => {whole milk} 0.001220132
                                                                   1 0.001220132 3.913
##
        sugar}
649
       12
## [4] {other vegetables,
        butter,
##
##
        whipped/sour cream,
##
        domestic eggs}
                             => {whole milk} 0.001220132
                                                                   1 0.001220132 3.913
649
       12
## [5] {canned fish,
        hygiene articles}
                            => {whole milk} 0.001118454
                                                                   1 0.001118454 3.913
##
649
       11
## [6] {cream cheese ,
        domestic eggs,
##
##
        sugar}
                             => {whole milk} 0.001118454
                                                                   1 0.001118454 3.913
649
       11
```

top10Rules <- head(milk.association.rules, n=10, by="confidence")
plot(top10Rules, method="graph", engine="htmlwidget")</pre>

Select by id

