=== Run information ===

Scheme: weka.classifiers.meta.FilteredClassifier -F "weka.filters.supervised.attribute.Discretize -R first-last -precision 6" -W weka.classifiers.rules.Prism

Relation: contact-lenses

Instances: 24

Attributes: 5

age

spectacle-prescrip

astigmatism

tear-prod-rate

contact-lenses

Test mode: evaluate on training data

=== Classifier model (full training set) ===

FilteredClassifier using weka.classifiers.rules.Prism on data filtered through weka.filters.supervised.attribute.Discretize -R first-last -precision 6

Filtered Header

@relation contact-lenses-weka.filters.supervised.attribute.Discretize-Rfirst-last-precision6

@attribute age {young,pre-presbyopic,presbyopic}

@attribute spectacle-prescrip {myope,hypermetrope}

@attribute astigmatism {no,yes}

@attribute tear-prod-rate {reduced,normal}

@attribute contact-lenses {soft,hard,none}

@data

Classifier Model

Prism rules

----------

If astigmatism = no

and tear-prod-rate = normal

and spectacle-prescrip = hypermetrope then soft——————3

If astigmatism = no

and tear-prod-rate = normal

and age = young then soft————————-3

If age = pre-presbyopic

and astigmatism = no

and tear-prod-rate = normal then soft———————-3

If astigmatism = yes

and tear-prod-rate = normal

and spectacle-prescrip = myope then hard———————3

If age = young

and astigmatism = yes

and tear-prod-rate = normal then hard———————3

If tear-prod-rate = reduced then none————————1

If age = presbyopic

and tear-prod-rate = normal

and spectacle-prescrip = myope

and astigmatism = no then none———————-4

If spectacle-prescrip = hypermetrope

and astigmatism = yes

and age = pre-presbyopic then none————————3

If age = presbyopic

and spectacle-prescrip = hypermetrope

and astigmatism = yes then none——————-3

Time taken to build model: 0 seconds

=== Evaluation on training set ===

Time taken to test model on training data: 0 seconds

=== Summary ===

Correctly Classified Instances 24 100 %

Incorrectly Classified Instances 0 0 %

Kappa statistic 1

Mean absolute error 0

Root mean squared error 0

Relative absolute error 0 %

Root relative squared error 0 %

Total Number of Instances 24

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure MCC ROC Area PRC Area Class

1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000 soft

1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000 hard

1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000 none

Weighted Avg. 1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000

=== Confusion Matrix ===

a b c <-- classified as

5 0 0 | a = soft

0 4 0 | b = hard

0 0 15 | c = none

=== Run information ===

Scheme: weka.classifiers.meta.FilteredClassifier -F "weka.filters.supervised.attribute.Discretize -R first-last -precision 6" -W weka.classifiers.rules.ConjunctiveRule -- -N 3 -M 2.0 -P -1 -S 1

Relation: contact-lenses

Instances: 24

Attributes: 5

age

spectacle-prescrip

astigmatism

tear-prod-rate

contact-lenses

Test mode: evaluate on training data

=== Classifier model (full training set) ===

FilteredClassifier using weka.classifiers.rules.ConjunctiveRule -N 3 -M 2.0 -P -1 -S 1 on data filtered through weka.filters.supervised.attribute.Discretize -R first-last -precision 6

Filtered Header

@relation contact-lenses-weka.filters.supervised.attribute.Discretize-Rfirst-last-precision6

@attribute age {young,pre-presbyopic,presbyopic}

@attribute spectacle-prescrip {myope,hypermetrope}

@attribute astigmatism {no,yes}

@attribute tear-prod-rate {reduced,normal}

@attribute contact-lenses {soft,hard,none}

@data

Classifier Model

Single conjunctive rule learner:

--------------------------------

=> contact-lenses = none

Class distributions:

Covered by the rule:

soft hard none

0.1875 0.1875 0.625

Not covered by the rule:

soft hard none

0 0 0

Time taken to build model: 0 seconds

=== Evaluation on training set ===

Time taken to test model on training data: 0 seconds

=== Summary ===

Correctly Classified Instances 15 62.5 %

Incorrectly Classified Instances 9 37.5 %

Kappa statistic 0

Mean absolute error 0.3594

Root mean squared error 0.4239

Relative absolute error 97.5733 %

Root relative squared error 99.9335 %

Total Number of Instances 24

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure MCC ROC Area PRC Area Class

0.000 0.000 0.000 0.000 0.000 0.000 0.500 0.208 soft

0.000 0.000 0.000 0.000 0.000 0.000 0.500 0.167 hard

1.000 1.000 0.625 1.000 0.769 0.000 0.500 0.625 none

Weighted Avg. 0.625 0.625 0.391 0.625 0.481 0.000 0.500 0.462

=== Confusion Matrix ===

a b c <-- classified as

0 0 5 | a = soft

0 0 4 | b = hard

0 0 15 | c = none

=== Run information ===

Scheme: weka.classifiers.meta.FilteredClassifier -F "weka.filters.supervised.attribute.Discretize -R first-last -precision 6" -W weka.classifiers.rules.JRip -- -F 3 -N 2.0 -O 2 -S 1

Relation: contact-lenses

Instances: 24

Attributes: 5

age

spectacle-prescrip

astigmatism

tear-prod-rate

contact-lenses

Test mode: evaluate on training data

=== Classifier model (full training set) ===

FilteredClassifier using weka.classifiers.rules.JRip -F 3 -N 2.0 -O 2 -S 1 on data filtered through weka.filters.supervised.attribute.Discretize -R first-last -precision 6

Filtered Header

@relation contact-lenses-weka.filters.supervised.attribute.Discretize-Rfirst-last-precision6

@attribute age {young,pre-presbyopic,presbyopic}

@attribute spectacle-prescrip {myope,hypermetrope}

@attribute astigmatism {no,yes}

@attribute tear-prod-rate {reduced,normal}

@attribute contact-lenses {soft,hard,none}

@data

Classifier Model

JRIP rules:

===========

(tear-prod-rate = normal) and (astigmatism = yes) => contact-lenses=hard (6.0/2.0)

(tear-prod-rate = normal) => contact-lenses=soft (6.0/1.0)

=> contact-lenses=none (12.0/0.0)

Number of Rules : 3

Time taken to build model: 0 seconds

=== Evaluation on training set ===

Time taken to test model on training data: 0 seconds

=== Summary ===

Correctly Classified Instances 21 87.5 %

Incorrectly Classified Instances 3 12.5 %

Kappa statistic 0.7895

Mean absolute error 0.1204

Root mean squared error 0.2453

Relative absolute error 32.6816 %

Root relative squared error 57.8358 %

Total Number of Instances 24

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure MCC ROC Area PRC Area Class

1.000 0.053 0.833 1.000 0.909 0.889 0.974 0.833 soft

1.000 0.100 0.667 1.000 0.800 0.775 0.950 0.667 hard

0.800 0.000 1.000 0.800 0.889 0.775 0.922 0.945 none

Weighted Avg. 0.875 0.028 0.910 0.875 0.878 0.798 0.938 0.876

=== Confusion Matrix ===

a b c <-- classified as

5 0 0 | a = soft

0 4 0 | b = hard

1 2 12 | c = none

=== Run information ===

Scheme: weka.classifiers.meta.FilteredClassifier -F "weka.filters.supervised.attribute.Discretize -R first-last -precision 6" -W weka.classifiers.rules.Prism

Relation: iris

Instances: 150

Attributes: 5

sepallength

sepalwidth

petallength

petalwidth

class

Test mode: evaluate on training data

=== Classifier model (full training set) ===

FilteredClassifier using weka.classifiers.rules.Prism on data filtered through weka.filters.supervised.attribute.Discretize -R first-last -precision 6

Filtered Header

@relation iris-weka.filters.supervised.attribute.Discretize-Rfirst-last-precision6

@attribute sepallength {'\'(-inf-5.55]\'','\'(5.55-6.15]\'','\'(6.15-inf)\''}

@attribute sepalwidth {'\'(-inf-2.95]\'','\'(2.95-3.35]\'','\'(3.35-inf)\''}

@attribute petallength {'\'(-inf-2.45]\'','\'(2.45-4.75]\'','\'(4.75-inf)\''}

@attribute petalwidth {'\'(-inf-0.8]\'','\'(0.8-1.75]\'','\'(1.75-inf)\''}

@attribute class {Iris-setosa,Iris-versicolor,Iris-virginica}

@data

Classifier Model

Prism rules

----------

If petallength = '(-inf-2.45]' then Iris-setosa—————-1

If petallength = '(2.45-4.75]'

and sepallength = '(5.55-6.15]' then Iris-versicolor————-2

If petallength = '(2.45-4.75]'

and sepallength = '(6.15-inf)' then Iris-versicolor——————-2

If petallength = '(2.45-4.75]'

and sepalwidth = '(2.95-3.35]' then Iris-versicolor———————2

If petallength = '(2.45-4.75]'

and sepallength = '(-inf-5.55]'

and sepalwidth = '(-inf-2.95]'

and petalwidth = '(0.8-1.75]' then Iris-versicolor———————4

If petalwidth = '(0.8-1.75]'

and sepallength = '(6.15-inf)'

and petallength = '(4.75-inf)'

and sepalwidth = '(-inf-2.95]' then Iris-versicolor——————-4

If petalwidth = '(0.8-1.75]'

and sepallength = '(6.15-inf)'

and sepalwidth = '(2.95-3.35]'

and petallength = '(4.75-inf)' then Iris-versicolor———————4

If petalwidth = '(0.8-1.75]'

and sepallength = '(5.55-6.15]'

and sepalwidth = '(-inf-2.95]'

and petallength = '(4.75-inf)' then Iris-versicolor———————4

If sepallength = '(5.55-6.15]'

and sepalwidth = '(2.95-3.35]'

and petallength = '(4.75-inf)'

and petalwidth = '(1.75-inf)' then Iris-versicolor—————-4

If petalwidth = '(1.75-inf)'

and sepallength = '(6.15-inf)' then Iris-virginica—————-2

If petalwidth = '(1.75-inf)'

and sepalwidth = '(-inf-2.95]' then Iris-virginica——————2

If petalwidth = '(1.75-inf)'

and sepallength = '(5.55-6.15]'

and sepalwidth = '(2.95-3.35]'

and petallength = '(4.75-inf)' then Iris-virginica—————-4

If petallength = '(4.75-inf)'

and sepallength = '(5.55-6.15]'

and sepalwidth = '(-inf-2.95]'

and petalwidth = '(0.8-1.75]' then Iris-virginica——————4

If petallength = '(4.75-inf)'

and sepallength = '(6.15-inf)'

and petalwidth = '(0.8-1.75]'

and sepalwidth = '(-inf-2.95]' then Iris-virginica——————4

If petallength = '(4.75-inf)'

and sepallength = '(6.15-inf)'

and sepalwidth = '(2.95-3.35]'

and petalwidth = '(0.8-1.75]' then Iris-virginica——————4

If sepalwidth = '(-inf-2.95]'

and sepallength = '(-inf-5.55]'

and petallength = '(2.45-4.75]'

and petalwidth = '(0.8-1.75]' then Iris-virginica———————4

Time taken to build model: 0 seconds

=== Evaluation on training set ===

Time taken to test model on training data: 0 seconds

=== Summary ===

Correctly Classified Instances 142 94.6667 %

Incorrectly Classified Instances 8 5.3333 %

Kappa statistic 0.92

Mean absolute error 0.0356

Root mean squared error 0.1886

Relative absolute error 8 %

Root relative squared error 40 %

Total Number of Instances 150

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure MCC ROC Area PRC Area Class

1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000 Iris-setosa

1.000 0.080 0.862 1.000 0.926 0.891 0.960 0.862 Iris-versicolor

0.840 0.000 1.000 0.840 0.913 0.882 0.920 0.893 Iris-virginica

Weighted Avg. 0.947 0.027 0.954 0.947 0.946 0.924 0.960 0.918

=== Confusion Matrix ===

a b c <-- classified as

50 0 0 | a = Iris-setosa

0 50 0 | b = Iris-versicolor

0 8 42 | c = Iris-virginica

=== Run information ===

Scheme: weka.classifiers.meta.FilteredClassifier -F "weka.filters.supervised.attribute.Discretize -R first-last -precision 6" -W weka.classifiers.rules.ConjunctiveRule -- -N 3 -M 2.0 -P -1 -S 1

Relation: iris

Instances: 150

Attributes: 5

sepallength

sepalwidth

petallength

petalwidth

class

Test mode: evaluate on training data

=== Classifier model (full training set) ===

FilteredClassifier using weka.classifiers.rules.ConjunctiveRule -N 3 -M 2.0 -P -1 -S 1 on data filtered through weka.filters.supervised.attribute.Discretize -R first-last -precision 6

Filtered Header

@relation iris-weka.filters.supervised.attribute.Discretize-Rfirst-last-precision6

@attribute sepallength {'\'(-inf-5.55]\'','\'(5.55-6.15]\'','\'(6.15-inf)\''}

@attribute sepalwidth {'\'(-inf-2.95]\'','\'(2.95-3.35]\'','\'(3.35-inf)\''}

@attribute petallength {'\'(-inf-2.45]\'','\'(2.45-4.75]\'','\'(4.75-inf)\''}

@attribute petalwidth {'\'(-inf-0.8]\'','\'(0.8-1.75]\'','\'(1.75-inf)\''}

@attribute class {Iris-setosa,Iris-versicolor,Iris-virginica}

@data

Classifier Model

Single conjunctive rule learner:

--------------------------------

(petallength = '(-inf-2.45]') => class = Iris-setosa

Class distributions:

Covered by the rule:

Iris-setosa Iris-versicolor Iris-virginica

1 0 0

Not covered by the rule:

Iris-setosa Iris-versicolor Iris-virginica

0 0.492537 0.507463

Time taken to build model: 0 seconds

=== Evaluation on training set ===

Time taken to test model on training data: 0 seconds

=== Summary ===

Correctly Classified Instances 100 66.6667 %

Incorrectly Classified Instances 50 33.3333 %

Kappa statistic 0.5

Mean absolute error 0.2222

Root mean squared error 0.3334

Relative absolute error 50 %

Root relative squared error 70.7186 %

Total Number of Instances 150

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure MCC ROC Area PRC Area Class

1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000 Iris-setosa

0.000 0.000 0.000 0.000 0.000 0.000 0.750 0.500 Iris-versicolor

1.000 0.500 0.500 1.000 0.667 0.500 0.750 0.500 Iris-virginica

Weighted Avg. 0.667 0.167 0.500 0.667 0.556 0.500 0.833 0.667

=== Confusion Matrix ===

a b c <-- classified as

50 0 0 | a = Iris-setosa

0 0 50 | b = Iris-versicolor

0 0 50 | c = Iris-virginica

=== Run information ===

Scheme: weka.classifiers.meta.FilteredClassifier -F "weka.filters.supervised.attribute.Discretize -R first-last -precision 6" -W weka.classifiers.rules.JRip -- -F 3 -N 2.0 -O 2 -S 1

Relation: iris

Instances: 150

Attributes: 5

sepallength

sepalwidth

petallength

petalwidth

class

Test mode: evaluate on training data

=== Classifier model (full training set) ===

FilteredClassifier using weka.classifiers.rules.JRip -F 3 -N 2.0 -O 2 -S 1 on data filtered through weka.filters.supervised.attribute.Discretize -R first-last -precision 6

Filtered Header

@relation iris-weka.filters.supervised.attribute.Discretize-Rfirst-last-precision6

@attribute sepallength {'\'(-inf-5.55]\'','\'(5.55-6.15]\'','\'(6.15-inf)\''}

@attribute sepalwidth {'\'(-inf-2.95]\'','\'(2.95-3.35]\'','\'(3.35-inf)\''}

@attribute petallength {'\'(-inf-2.45]\'','\'(2.45-4.75]\'','\'(4.75-inf)\''}

@attribute petalwidth {'\'(-inf-0.8]\'','\'(0.8-1.75]\'','\'(1.75-inf)\''}

@attribute class {Iris-setosa,Iris-versicolor,Iris-virginica}

@data

Classifier Model

JRIP rules:

===========

(petallength = '(-inf-2.45]') => class=Iris-setosa (50.0/0.0)

(petalwidth = '(0.8-1.75]') => class=Iris-versicolor (54.0/5.0)

=> class=Iris-virginica (46.0/1.0)

Number of Rules : 3

Time taken to build model: 0 seconds

=== Evaluation on training set ===

Time taken to test model on training data: 0 seconds

=== Summary ===

Correctly Classified Instances 144 96 %

Incorrectly Classified Instances 6 4 %

Kappa statistic 0.94

Mean absolute error 0.049

Root mean squared error 0.1566

Relative absolute error 11.0306 %

Root relative squared error 33.2123 %

Total Number of Instances 150

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure MCC ROC Area PRC Area Class

1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000 Iris-setosa

0.980 0.050 0.907 0.980 0.942 0.913 0.970 0.899 Iris-versicolor

0.900 0.010 0.978 0.900 0.938 0.910 0.970 0.930 Iris-virginica

Weighted Avg. 0.960 0.020 0.962 0.960 0.960 0.941 0.980 0.943

=== Confusion Matrix ===

a b c <-- classified as

50 0 0 | a = Iris-setosa

0 49 1 | b = Iris-versicolor

0 5 45 | c = Iris-virginica

=== Run information ===

Scheme: weka.classifiers.meta.FilteredClassifier -F "weka.filters.supervised.attribute.Discretize -R first-last -precision 6" -W weka.classifiers.rules.Prism

Relation: zoo

Instances: 101

Attributes: 18

animal

hair

feathers

eggs

milk

airborne

aquatic

predator

toothed

backbone

breathes

venomous

fins

legs

tail

domestic

catsize

type

Test mode: evaluate on training data

=== Classifier model (full training set) ===

FilteredClassifier using weka.classifiers.rules.Prism on data filtered through weka.filters.supervised.attribute.Discretize -R first-last -precision 6

Filtered Header

@relation zoo-weka.filters.supervised.attribute.Discretize-Rfirst-last-precision6

@attribute animal {aardvark,antelope,bass,bear,boar,buffalo,calf,carp,catfish,cavy,cheetah,chicken,chub,clam,crab,crayfish,crow,deer,dogfish,dolphin,dove,duck,elephant,flamingo,flea,frog,fruitbat,giraffe,girl,gnat,goat,gorilla,gull,haddock,hamster,hare,hawk,herring,honeybee,housefly,kiwi,ladybird,lark,leopard,lion,lobster,lynx,mink,mole,mongoose,moth,newt,octopus,opossum,oryx,ostrich,parakeet,penguin,pheasant,pike,piranha,pitviper,platypus,polecat,pony,porpoise,puma,pussycat,raccoon,reindeer,rhea,scorpion,seahorse,seal,sealion,seasnake,seawasp,skimmer,skua,slowworm,slug,sole,sparrow,squirrel,starfish,stingray,swan,termite,toad,tortoise,tuatara,tuna,vampire,vole,vulture,wallaby,wasp,wolf,worm,wren}

@attribute hair {false,true}

@attribute feathers {false,true}

@attribute eggs {false,true}

@attribute milk {false,true}

@attribute airborne {false,true}

@attribute aquatic {false,true}

@attribute predator {false,true}

@attribute toothed {false,true}

@attribute backbone {false,true}

@attribute breathes {false,true}

@attribute venomous {false,true}

@attribute fins {false,true}

@attribute legs {'\'(-inf-1]\'','\'(1-3]\'','\'(3-4.5]\'','\'(4.5-inf)\''}

@attribute tail {false,true}

@attribute domestic {false,true}

@attribute catsize {false,true}

@attribute type {mammal,bird,reptile,fish,amphibian,insect,invertebrate}

@data

Classifier Model

Prism rules

----------

If milk = true then mammal

If feathers = true then bird

If animal = pitviper then reptile

If animal = seasnake then reptile

If animal = slowworm then reptile

If animal = tortoise then reptile

If animal = tuatara then reptile

If animal = bass then fish

If animal = carp then fish

If animal = catfish then fish

If animal = chub then fish

If animal = dogfish then fish

If animal = haddock then fish

If animal = herring then fish

If animal = pike then fish

If animal = piranha then fish

If animal = seahorse then fish

If animal = sole then fish

If animal = stingray then fish

If animal = tuna then fish

If animal = frog then amphibian

If animal = newt then amphibian

If animal = toad then amphibian

If animal = flea then insect

If animal = gnat then insect

If animal = honeybee then insect

If animal = housefly then insect

If animal = ladybird then insect

If animal = moth then insect

If animal = termite then insect

If animal = wasp then insect

If animal = clam then invertebrate

If animal = crab then invertebrate

If animal = crayfish then invertebrate

If animal = lobster then invertebrate

If animal = octopus then invertebrate

If animal = scorpion then invertebrate

If animal = seawasp then invertebrate

If animal = slug then invertebrate

If animal = starfish then invertebrate

If animal = worm then invertebrate

Time taken to build model: 0 seconds

=== Evaluation on training set ===

Time taken to test model on training data: 0 seconds

=== Summary ===

Correctly Classified Instances 101 100 %

Incorrectly Classified Instances 0 0 %

Kappa statistic 1

Mean absolute error 0

Root mean squared error 0

Relative absolute error 0 %

Root relative squared error 0 %

Total Number of Instances 101

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure MCC ROC Area PRC Area Class

1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000 mammal

1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000 bird

1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000 reptile

1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000 fish

1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000 amphibian

1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000 insect

1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000 invertebrate

Weighted Avg. 1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000

=== Confusion Matrix ===

a b c d e f g <-- classified as

41 0 0 0 0 0 0 | a = mammal

0 20 0 0 0 0 0 | b = bird

0 0 5 0 0 0 0 | c = reptile

0 0 0 13 0 0 0 | d = fish

0 0 0 0 4 0 0 | e = amphibian

0 0 0 0 0 8 0 | f = insect

0 0 0 0 0 0 10 | g = invertebrate

=== Run information ===

Scheme: weka.classifiers.meta.FilteredClassifier -F "weka.filters.supervised.attribute.Discretize -R first-last -precision 6" -W weka.classifiers.rules.ConjunctiveRule -- -N 3 -M 2.0 -P -1 -S 1

Relation: zoo

Instances: 101

Attributes: 18

animal

hair

feathers

eggs

milk

airborne

aquatic

predator

toothed

backbone

breathes

venomous

fins

legs

tail

domestic

catsize

type

Test mode: evaluate on training data

=== Classifier model (full training set) ===

FilteredClassifier using weka.classifiers.rules.ConjunctiveRule -N 3 -M 2.0 -P -1 -S 1 on data filtered through weka.filters.supervised.attribute.Discretize -R first-last -precision 6

Filtered Header

@relation zoo-weka.filters.supervised.attribute.Discretize-Rfirst-last-precision6

@attribute animal {aardvark,antelope,bass,bear,boar,buffalo,calf,carp,catfish,cavy,cheetah,chicken,chub,clam,crab,crayfish,crow,deer,dogfish,dolphin,dove,duck,elephant,flamingo,flea,frog,fruitbat,giraffe,girl,gnat,goat,gorilla,gull,haddock,hamster,hare,hawk,herring,honeybee,housefly,kiwi,ladybird,lark,leopard,lion,lobster,lynx,mink,mole,mongoose,moth,newt,octopus,opossum,oryx,ostrich,parakeet,penguin,pheasant,pike,piranha,pitviper,platypus,polecat,pony,porpoise,puma,pussycat,raccoon,reindeer,rhea,scorpion,seahorse,seal,sealion,seasnake,seawasp,skimmer,skua,slowworm,slug,sole,sparrow,squirrel,starfish,stingray,swan,termite,toad,tortoise,tuatara,tuna,vampire,vole,vulture,wallaby,wasp,wolf,worm,wren}

@attribute hair {false,true}

@attribute feathers {false,true}

@attribute eggs {false,true}

@attribute milk {false,true}

@attribute airborne {false,true}

@attribute aquatic {false,true}

@attribute predator {false,true}

@attribute toothed {false,true}

@attribute backbone {false,true}

@attribute breathes {false,true}

@attribute venomous {false,true}

@attribute fins {false,true}

@attribute legs {'\'(-inf-1]\'','\'(1-3]\'','\'(3-4.5]\'','\'(4.5-inf)\''}

@attribute tail {false,true}

@attribute domestic {false,true}

@attribute catsize {false,true}

@attribute type {mammal,bird,reptile,fish,amphibian,insect,invertebrate}

@data

Classifier Model

Single conjunctive rule learner:

--------------------------------

(milk = true) => type = mammal

Class distributions:

Covered by the rule:

mammal bird reptile fish amphibian insect invertebrate

1 0 0 0 0 0 0

Not covered by the rule:

mammal bird reptile fish amphibian insect invertebrate

0 0.341463 0.097561 0.219512 0.04878 0.146341 0.146341

Time taken to build model: 0 seconds

=== Evaluation on training set ===

Time taken to test model on training data: 0 seconds

=== Summary ===

Correctly Classified Instances 61 60.396 %

Incorrectly Classified Instances 40 39.604 %

Kappa statistic 0.4481

Mean absolute error 0.133

Root mean squared error 0.2583

Relative absolute error 60.7759 %

Root relative squared error 78.4045 %

Total Number of Instances 101

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure MCC ROC Area PRC Area Class

1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000 mammal

1.000 0.494 0.333 1.000 0.500 0.411 0.753 0.333 bird

0.000 0.000 0.000 0.000 0.000 0.000 0.714 0.083 reptile

0.000 0.000 0.000 0.000 0.000 0.000 0.733 0.217 fish

0.000 0.000 0.000 0.000 0.000 0.000 0.711 0.067 amphibian

0.000 0.000 0.000 0.000 0.000 0.000 0.720 0.133 insect

0.000 0.000 0.000 0.000 0.000 0.000 0.725 0.167 invertebrate

Weighted Avg. 0.604 0.098 0.472 0.604 0.505 0.487 0.842 0.534

=== Confusion Matrix ===

a b c d e f g <-- classified as

41 0 0 0 0 0 0 | a = mammal

0 20 0 0 0 0 0 | b = bird

0 5 0 0 0 0 0 | c = reptile

0 13 0 0 0 0 0 | d = fish

0 4 0 0 0 0 0 | e = amphibian

0 8 0 0 0 0 0 | f = insect

0 10 0 0 0 0 0 | g = invertebrate

=== Run information ===

Scheme: weka.classifiers.meta.FilteredClassifier -F "weka.filters.supervised.attribute.Discretize -R first-last -precision 6" -W weka.classifiers.rules.JRip -- -F 3 -N 2.0 -O 2 -S 1

Relation: zoo

Instances: 101

Attributes: 18

animal

hair

feathers

eggs

milk

airborne

aquatic

predator

toothed

backbone

breathes

venomous

fins

legs

tail

domestic

catsize

type

Test mode: evaluate on training data

=== Classifier model (full training set) ===

FilteredClassifier using weka.classifiers.rules.JRip -F 3 -N 2.0 -O 2 -S 1 on data filtered through weka.filters.supervised.attribute.Discretize -R first-last -precision 6

Filtered Header

@relation zoo-weka.filters.supervised.attribute.Discretize-Rfirst-last-precision6

@attribute animal {aardvark,antelope,bass,bear,boar,buffalo,calf,carp,catfish,cavy,cheetah,chicken,chub,clam,crab,crayfish,crow,deer,dogfish,dolphin,dove,duck,elephant,flamingo,flea,frog,fruitbat,giraffe,girl,gnat,goat,gorilla,gull,haddock,hamster,hare,hawk,herring,honeybee,housefly,kiwi,ladybird,lark,leopard,lion,lobster,lynx,mink,mole,mongoose,moth,newt,octopus,opossum,oryx,ostrich,parakeet,penguin,pheasant,pike,piranha,pitviper,platypus,polecat,pony,porpoise,puma,pussycat,raccoon,reindeer,rhea,scorpion,seahorse,seal,sealion,seasnake,seawasp,skimmer,skua,slowworm,slug,sole,sparrow,squirrel,starfish,stingray,swan,termite,toad,tortoise,tuatara,tuna,vampire,vole,vulture,wallaby,wasp,wolf,worm,wren}

@attribute hair {false,true}

@attribute feathers {false,true}

@attribute eggs {false,true}

@attribute milk {false,true}

@attribute airborne {false,true}

@attribute aquatic {false,true}

@attribute predator {false,true}

@attribute toothed {false,true}

@attribute backbone {false,true}

@attribute breathes {false,true}

@attribute venomous {false,true}

@attribute fins {false,true}

@attribute legs {'\'(-inf-1]\'','\'(1-3]\'','\'(3-4.5]\'','\'(4.5-inf)\''}

@attribute tail {false,true}

@attribute domestic {false,true}

@attribute catsize {false,true}

@attribute type {mammal,bird,reptile,fish,amphibian,insect,invertebrate}

@data

Classifier Model

JRIP rules:

===========

(animal = frog) => type=amphibian (2.0/0.0)

(legs = '(4.5-inf)') and (aquatic = false) => type=insect (9.0/1.0)

(backbone = false) => type=invertebrate (9.0/0.0)

(breathes = false) => type=fish (14.0/1.0)

(feathers = true) => type=bird (20.0/0.0)

=> type=mammal (47.0/6.0)

Number of Rules : 6

Time taken to build model: 0 seconds

=== Evaluation on training set ===

Time taken to test model on training data: 0 seconds

=== Summary ===

Correctly Classified Instances 93 92.0792 %

Incorrectly Classified Instances 8 7.9208 %

Kappa statistic 0.8926

Mean absolute error 0.0409

Root mean squared error 0.1429

Relative absolute error 18.6769 %

Root relative squared error 43.385 %

Total Number of Instances 101

=== Detailed Accuracy By Class ===

TP Rate FP Rate Precision Recall F-Measure MCC ROC Area PRC Area Class

1.000 0.100 0.872 1.000 0.932 0.886 0.950 0.872 mammal

1.000 0.000 1.000 1.000 1.000 1.000 1.000 1.000 bird

0.000 0.000 0.000 0.000 0.000 0.000 0.718 0.084 reptile

1.000 0.011 0.929 1.000 0.963 0.958 0.994 0.929 fish

0.500 0.000 1.000 0.500 0.667 0.700 0.884 0.541 amphibian

1.000 0.011 0.889 1.000 0.941 0.938 0.995 0.889 insect

0.900 0.000 1.000 0.900 0.947 0.944 0.996 0.956 invertebrate

Weighted Avg. 0.921 0.043 0.881 0.921 0.895 0.876 0.960 0.862

=== Confusion Matrix ===

a b c d e f g <-- classified as

41 0 0 0 0 0 0 | a = mammal

0 20 0 0 0 0 0 | b = bird

4 0 0 1 0 0 0 | c = reptile

0 0 0 13 0 0 0 | d = fish

2 0 0 0 2 0 0 | e = amphibian

0 0 0 0 0 8 0 | f = insect

0 0 0 0 0 1 9 | g = invertebrate