Package 'bnclassify'

June 22, 2015

Title Learning Bayesian Network Classifiers from Data

Description Algorithms for learning Bayesian network classifiers from data.

Version 0.2.0

URL http://github.com/bmihaljevic/bnclassify

BugReports http://github.com/bmihaljevic/bnclassify/issues

Depends R (>= 3.2.0)

Imports
assertthat (>= 0.1),entropy(>= 1.2.0),crossval(>= 1.0.2),graph(>= 1.42.0),matrixStats(>= 0.14.0),pryr(>= 0.1.1),RBGL(
8)

Suggests gRain(>= 1.2-3),gRbase(>= 1.7-
0.1),mlr(>= 2.2),testthat(>= 0.8.1),knitr,ParamHelpers(>= 1.5),Rgraphviz(>= 2.8.1),rmarkdown(>= 0.7)

License GPL (>= 2)

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Maintainer Mihaljevic Bojan <bmihaljevic@fi.upm.es>

VignetteBuilder knitr

R topics documented:

`as_mlr` *To mlr*

Description

To mlr

Usage

```
as_mlr(x, dag, id = "1")
```

`awnb` *Compute feature weights according to the AWNB method.*

Description

Compute feature weights according to the AWNB method.

Usage

```
awnb(class, dataset, bootstrap_size = 0.5, trees = 10)
```

References

Mark Hall (2004). A decision tree-based attribute weighting filter for naive Bayes. *Knowledge-based Systems*, **20**(2), 120-126.

`bnclassify` *Algorithms for learning Bayesian network classifiers from data.*

Description

Algorithms for learning Bayesian network classifiers from data.

References

Bielza C and Larra\~naga P (2014), Discrete Bayesian network classifiers: A survey. *ACM Computing Surveys*, **47**(1), Article 5.

Friedman N, Geiger D and Goldszmidt M (1997). Bayesian network classifiers. *Machine Learning*, **29**, pp. 131–163.

car *Car Evaluation Data Set.*

Description

Car Evaluation Data Set.

Format

A `data.frame` with 7 columns and 1728 rows.

Source

http://sourceforge.net/projects/weka/files/datasets/UCIandStatLib/uci-20070111.tar.gz

chowliu *Chow-Liu ODE.*

Description

Chow-Liu ODE.

Usage

```
chowliu(class, dataset, score = "loglik", blacklist = NULL, root = NULL)
```

Arguments

`class`	character
`dataset`	data frame
`score`	character
`blacklist`	character matrix
`root`	character

cv *CV*

Description

CV

Usage

```
cv(x, dataset, k, dag, smooth = NULL)
```

family *Gets the parents of a node in the graph*

Description

Gets the parents of a node in the graph

Usage

```
family(x, g)
```

fssj *Learns Bayesian network classifiers in a wrapper fashion.*

Description

bsej is the backward *sequential elimination and joining* algorithm whereas fssj is the *forward sequential selection and joining* algorithms for learning a semi-naive Bayes classifier (Pazzani, 1996). tanhc Learns a tree augmented naive Bayes with a greedy hill-climbing search. tanhc is the superparent variant of tanhc.

Usage

```
fssj(class, dataset, k, epsilon = 0.01, smooth = 0.01)

bsej(class, dataset, k, epsilon = 0.01, smooth = 0.01)

tanhc(class, dataset, k, epsilon = 0.01, smooth = 0.01)

tanhc_sp(class, dataset, k, epsilon = 0.01, smooth = 0.01)
```

Arguments

class	A character. Name of the class variable.
epsilon	A numeric. Minimum absolute improvement required to keep searching.

References

Pazzani M (1996). Constructive induction of Cartesian product attributes. In *Proceedings of the Information, Statistics and Induction in Science Conference (ISIS-1996)*, pp. 66-77

Koegh E and Pazzani M (2002).Learning the structure of augmented Bayesian classifiers. In *International Journal on Artificial Intelligence Tools*, **11**(4), pp. 587-601.

lp *Learn parameters.*

Description

Learn parameters.

Usage

```
lp(x, dataset, smooth)
```

makeRLearner.bnc *makeRLearner*

Description

makeRLearner

Usage

```
makeRLearner.bnc()
```

predict.bnc_bn *Predict.*

Description

Ties are resolved randomly.

Usage

```
## S3 method for class 'bnc_bn'
predict(object, newdata, prob = FALSE, ...)
```

predictLearner.bnc *Predict.*

Description

Predict.

Usage

```
predictLearner.bnc(.learner, .model, .newdata, ...)
```

to_grain *To grain*

Description

To grain

Usage

```
to_grain(x)
```

trainLearner.bnc *Train.*

Description

Train.

Usage

```
trainLearner.bnc(.learner, .task, .subset, .weights, ...)
```

voting *Congress Voting Data Set.*

Description

Congress Voting Data Set.

Format

A `data.frame` with 17 columns and 435 rows.

Source

http://sourceforge.net/projects/weka/files/datasets/UCIandStatLib/uci-20070111.tar.gz

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