Package ‘arulesNBMiner’

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Title Mining NB-Frequent Itemsets and NB-Precise Rules
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Description

This dataset is generated by the method described by Agrawal and Srikant (1994) using the reimplementation in `arules` which also retains the patterns used in the generation process.

Usage

data(Agrawal)

Format

The format is: `transactions Agrawal.db itemsets Agrawal.pat`

Details

`Agrawal.db` contains the dataset (1000 items/20000 transactions) and `Agrawal.pat` contains the patterns that were used to create the dataset.

References


Examples

data(Agrawal)

summary(Agrawal.pat)
summary(Agrawal.db)

## the data set was generated with the following code
## Not run:
Agrawal.pat <- random.patterns(1000, nPats = 2000, method = "agrawal",
   lPats = 2, corr = 0.5, cmean = 0.5, cvar = 0.1, iWeight = NULL,
   verbose = FALSE)
Agrawal.db <- random.transactions(1000, 20000, method="agrawal",
   patterns = Agrawal.pat)

## End(Not run)
NBMiner: Mine NB-Frequent Itemsets or NB-Precise Rules

Description

Calls the Java implementation of the depth first search algorithm described in the paper in the references section to mine NB-frequent itemsets of NB-precise rules.

Usage

NBMiner(data, parameter, control = NULL)

Arguments

data: object of class transactions.

parameter: a list of parameters (automatically converted into an object of class NBMinerParameter). Reasonable parameters can be obtained using NBMinerParameters (see details section).

control: a list of control options (automatically converted into an object of class NBMinerControl). Currently only "verbose" and "debug" (both logical) are available.

Details

The parameters can be estimated from the data using NBMinerParameters.

Value

An object of class itemsets or rules (depending on the rules entry in parameter). The estimated precision is stored in the quality slot.

References


See Also

NBMinerParameters, transactions-class, itemsets-class, rules-class

Examples

data("Agrawal")

## mine

param <- NBMinerParameters(Agrawal.db, pi=0.99, theta=0.5, maxlen=5, minlen=1, trim = 0, verb = TRUE, plot=TRUE)

itemsets_NB <- NBMiner(Agrawal.db, parameter = param,
NBMinerParameters

Estimate Global Model Parameters from Data

Description

Estimate the global negative binomial data model used by the NBMiner and create an appropriate parameter object.

Usage

NBMinerParameters(data, trim = 0.01, pi = 0.99, theta = 0.5, 
minlen = 1, maxlen = 5, rules = FALSE, 
plot = FALSE, verbose = FALSE, getdata = FALSE)

Arguments

data the data as a object of class transactions.
trim fraction of incidences to trim off the tail of the frequency distribution of the data.
pi precision threshold \( \pi \).
theta pruning parameter \( \theta \).
minlen minimum number of items in found itemsets (default: 1).
maxlen maximal number of items in found itemsets (default: 5).
NBMinerParameters

rules       mine NB-precise rules instead of NB-frequent itemsets?
plot        plot the model?
verbose     use verbose output for the estimation procedure.
getdata     get also the observed and estimated counts.

Details

Uses the EM algorithm to estimate the global NB model for the data. The EM algorithm is used since the zero class (items which do not occur in the dataset) is not included in the data. The result are the two NB parameters \( k \) and \( a \), where \( a \) is rescaled by dividing it by the number of incidences in the data (this is needed by the NBMiner). Also the real number of items \( n \) is a result of the estimation.

theta and \( \pi \) are just taken and added to the resulting parameter object.

Value

an object of class NBMinerParameter for NBMiner.

References


See Also

NBMiner, transactions-class

Examples

data("Epub")

param <- NBMinerParameters(Epub, trim = 0.05, plot = TRUE, verbose = TRUE)

param
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