Package 'rlobico'

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Type Package

Title Fast Logical Models Implemented with IBM CPLEX

Version 0.1.0

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Description

Applies LOBICO model to large and complex datasets, formulates the logic mapping as an integer linear programming problem (ILP), and uses the advanced ILP solvers (IBM ILOG Cplex) to find the optimal mapping. T package is developed using R and C++, where the logic mapping formulation and Cplex Solver are implemented as sepa files by C++ for performance gain and R functions are used as wrappers to call the C++ functions in the package. The speed performance of our open source package is optimized by tuning relevant parameters of Cplex Solver, which leads to a better performance than the standard Matlab package.

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Encoding UTF-8

LazyData true

Depends R (>= 3.6.0)

Imports Rcpp (>= 0.12.16), Matrix

LinkingTo Rcpp

SystemRequirements C++11, Rcpp

RoxygenNote 6.1.1

NeedsCompilation yes

R topics documented:

`bibw2992` *The 'bibw2992' Dataset*

Description

The 'bibw2992' Dataset

Usage

```
bibw2992
```

Format

A data frame with N rows and P columns

Source

`http://r-pkgs.had.co.nz/data.html`

`CNF_CPLEX` *Compute DNF CPLEX weak pos*

Description

A function that excecutes some part of a logical model that I don't know about

Usage

```
CNF_CPLEX(X, Y, W, K, M, lambda, sens, spec, addcons)
```

Arguments

`X`	A matrix
`Y`	A binary matrix of logical cateogorizations
`W`	Some parameters
`K`	Some parameters
`M`	Some parameters
`lambda`	A parameter
`sens`	A parameter
`spec`	Some more parmaters
`addcons`	Some stuff

CNF_CPLEX_weak_pos *CNF CPLEX weak position function*

Description

An R helper function implemented as a wrapper for underlying C code

Usage

```
CNF_CPLEX_weak_pos(X, Y, W, K, M, lambda, sens, spec, addcons)
```

Arguments

X	A N x P binary matrix with N samples characterized by P binary features
Y	A N x 1 binary vector, which is the binarized version of the continuous output variable
W	A N x 1 continous vector with weghts for each version of the continuous output variable
K	A model parameter
M	A model parameter
lambda	A model parameter
sens	The minimum sensitivity
spec	The minimum specificity
addcons	Some additional parameters

CNF_ILP_weak *Compute DNF CPLEX weak pos*

Description

A function that excecutes some part of a logical model that I don't know about

Usage

```
CNF_ILP_weak(X, Y, W, K, M, lambda, sens, spec, addcons)
```

Arguments

X	A matrix
Y	A binary matrix of logical cateogorizations
W	Some parameters
K	Some parameters
M	Some parameters
lambda	A parameter
sens	A parameter
spec	Some more parmaters
addcons	Some stuff

CNF_ILP_weak_pos *Compute DNF CPLEX weak pos*

Description

A function that excecutes some part of a logical model that I don't know about

Usage

```
CNF_ILP_weak_pos(X, Y, W, K, M, lambda, sens, spec, addcons)
```

Arguments

X	A matrix
Y	A binary matrix of logical cateogorizations
W	Some parameters
K	Some parameters
M	Some parameters
lambda	A parameter
sens	A parameter
spec	Some more parmaters
addcons	Some stuff

`DNF_CPLEX` *Compute DNF CPLEX weak pos*

Description

A function that excecutes some part of a logical model that I don't know about

Usage

```
DNF_CPLEX(X, Y, W, K, M, lambda, sens, spec, addcons)
```

Arguments

`X`	A matrix
`Y`	A binary matrix of logical cateogorizations
`W`	Some parameters
`K`	Some parameters
`M`	Some parameters
`lambda`	A parameter
`sens`	A parameter
`spec`	Some more parmaters
`addcons`	Some stuff

`DNF_CPLEX_weak_pos` *Compute DNF CPLEX weak pos*

Description

A function that excecutes some part of a logical model that I don't know about

Usage

```
DNF_CPLEX_weak_pos(X, Y, W, K, M, lambda, sens, spec, addcons)
```

Arguments

`X`	A matrix
`Y`	A binary matrix of logical cateogorizations
`W`	Some parameters
`K`	Some parameters
`M`	Some parameters
`lambda`	A parameter
`sens`	A parameter
`spec`	Some more parmaters
`addcons`	Some stuff

`DNF_ILP_weak` *Compute DNF CPLEX weak pos*

Description

A function that excecutes some part of a logical model that I don't know about

Usage

```
DNF_ILP_weak(X, Y, W, K, M, lambda, sens, spec, addcons)
```

Arguments

`X`	A matrix
`Y`	A binary matrix of logical cateogorizations
`W`	Some parameters
`K`	Some parameters
`M`	Some parameters
`lambda`	A parameter
`sens`	A parameter
`spec`	Some more parmaters
`addcons`	Some stuff

`DNF_ILP_weak_pos` *Compute DNF CPLEX weak pos*

Description

A function that excecutes some part of a logical model that I don't know about

Usage

```
DNF_ILP_weak_pos(X, Y, W, K, M, lambda, sens, spec, addcons)
```

Arguments

`X`	A matrix
`Y`	A binary matrix of logical cateogorizations
`W`	Some parameters
`K`	Some parameters
`M`	Some parameters
`lambda`	A parameter
`sens`	A parameter
`spec`	Some more parmaters
`addcons`	Some stuff

`lobico` *Lobico help function*

Description

A wrapper for implementing C functions for calculating logical models

Usage

```
lobico(X, Y, K, M, solve, param, spec, sens, lambda, weak, pos, addcons)
```

Arguments

`X`	A data matrix
`Y`	A binary matrix of logical categorizations
`K`	A parameter
`M`	A parameter
`solve`	A parameter
`param`	A parameter
`spec`	A parameter
`sens`	A parameter
`lambda`	A parameter
`weak`	A parameter
`pos`	A parameter
`addcons`	Some other stuff