Package 'gconcord'

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Type Package

Title Concord method for Graphical Model Selection

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Suggests mvtnorm

Description Estimates a sparse inverse covariance matrix from a convex pseudo-likelihood function with L1 penalty

License GPL (>= 2)

NeedsCompilation yes

Repository CRAN

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R topics documented:

`concord` *CONvex CORrelation selection methoD*

Description

Estimates a sparse inverse covariance matrix from a convex pseudo-likelihood function with lasso L1 penalty

Usage

```
concord(data, lambda, tol = 1e-05, maxit = 100, save.iterates = FALSE,
  ...)
```

Arguments

data	Data matrix with n observations (rows) and p variables (columns)
lambda	Penalty parameter
tol	Convergence threshold
maxit	Maximum number of iterations before termination
save.iterates	Returns iterates if TRUE
...	ignored

Details

Implements the CONCORD method by Khare, Oh and Rajaratnam (2013) http://arxiv.org/abs/1307.5381

Examples

```
library(mvtnorm)

## True omega
omega <- matrix(0,3,3)
omega[1,2] <- omega[2,3] <- 2.1
omega <- t(omega) + omega
diag(omega) <- 3

sigma <- solve(omega)

## Generate data
set.seed(60)
data <- rmvnorm(100, rep(0,3), sigma)

## Solve
concord(data,2)
```

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symlasso *Symmetric Lasso (symlasso)*

Description

Estimates a sparse inverse covariance matrix from a pseudo-likelihood function formulation with L1 penalty on inverse covariance elements.

Usage

```
symlasso(data, lambda, tol = 1e-05, maxit = 100, save.iterates = FALSE,
  ...)
```

Arguments

data	Data matrix with n observations (rows) and p variables (columns)
lambda	Penalty parameter
tol	Convergence threshold
maxit	Maximum number of iterations before termination
save.iterates	Returns iterates if TRUE
...	ignored

Details

Implements the Symmetric Lasso method by Friedman, Hastie and Tibshirani (2010) http://statweb.stanford.edu/~tibs/ftp/ggr

Examples

```
library(mvtnorm)

## True omega
omega <- matrix(0,3,3)
omega[1,2] <- omega[2,3] <- 2.1
omega <- t(omega) + omega
diag(omega) <- 3

sigma <- solve(omega)

## Generate data
set.seed(60)
data <- rmvnorm(100, rep(0,3), sigma)

## Solve
symlasso(data,2.1)
```

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