Package: rgml0 (via r-universe)

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Type Package

Title Random Graphical Model Estimation under L0 Penalty

Version 0.0.1

Description Provides functions for estimating sparse precision matrices using a random graphical model framework under an L0-style penalty. The method evaluates candidate theta values and returns both continuous and binary precision matrices representing inferred network structures.

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Encoding UTF-8

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Imports MASS

Suggests testthat (>= 3.0.0)

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NeedsCompilation no

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Contents

`rgml0` *Random graphical model estimation under L0-penalty*

Description

Estimates sparse precision matrices from a covariance matrix using an iterative sparse-step approximation under an L0-style penalty. The method evaluates a grid of theta values and returns both continuous and binary precision matrices representing the inferred network structure.

Usage

```
rgml0(
  S,
  theta.jump = 0.1,
  n.iter = 5,
  gamma0 = 1000,
  gammastop = 1e-04,
  IMsteps = 2,
  gammastep = 1.1,
  force.zero = TRUE,
  threshold = 1e-07,
  use_diag = FALSE
)
```

Arguments

`S`	A numeric covariance matrix.
`theta.jump`	Step size for candidate theta values.
`n.iter`	Number of inner iterations.
`gamma0`	Initial gamma value.
`gammastop`	Stopping value for gamma.
`IMsteps`	Currently unused.
`gammastep`	Factor used to decrease gamma.
`force.zero`	Logical flag (currently unused).
`threshold`	Threshold for binarizing the precision matrix.
`use_diag`	Logical flag (currently unused).

Value

A list where each element contains:

precision_matrix Estimated precision matrix.

binary_precision_matrix Thresholded binary matrix.

theta Theta value used.

sample_index Index of theta.

Examples

```
S <- diag(3)
out <- rgml0(S, theta.jump = 0.4, n.iter = 1,
             gamma0 = 1, gammastop = 0.1, gammastep = 2)
length(out)
```

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