Package ‘RCA’

February 19, 2015

Type Package
Title Relational Class Analysis
Version 1.4.5
Date 2013-08-15
Author See the AUTHORS file.
Maintainer Yuan Wang <wangyuanvivien@post.harvard.edu>
Description Relational Class Analysis (RCA) is a method for
detecting heterogeneity in attitudinal data. (as
described in Goldberg A., 2011, Am. J. Soc, 116(5)).
src/ also contains the source files of igraph-C
which was written by Gabor. LAPACK routines are
included in the igraph source code.
Depends igraph, R (>= 2.15.1)
License GPL (>= 2)
Repository CRAN
LazyLoad yes
NeedsCompilation yes
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Description

Relational Class Analysis (RCA) is a method for detecting heterogeneity in attitudinal data. (as described in Goldberg A., 2011, Am. J. Soc, 116(5)). src also contains the source files of igraph-C which was written by Gabor.

Details

Package: RCA
Type: Package
Version: 1.4.1
Date: 2013-05-24
License: GPL
LazyLoad: yes

Author(s)

RCA C Library: Amir Goldberg
igraph: Gabor Csardi
R Wrapper: Jinjian Zhai

References


See Also

igraph

Examples

#attach("./data/LinkInputMatrix.rda")
#rcaout=RCA(SampleInputMatrix, 100, 0.075)
#rcaout$mod
#table(rcaout$member)
#rcaout$merge
#rcaout<-RCA(SampleInputMatrix,1000,0.25)
#rcaout$mod
#table(rcaout$member)
RCA

**Relational Class Analysis**

**Description**

Relational Class Analysis (RCA) is a method for detecting heterogeneity in attitudinal data. (as described in Goldberg A., 2011, Am. J. Soc, 116(5)). src also contains the source files of igraph-C which was written by Gabor.

**Usage**

RCA(inputMatrix, bootstrap = 1000, p_value = 0.05)

**Arguments**

- **bootstrap**: Bootstrap. Default is 1000.
- **p_value**: p_value. Default is 0.05.

**Details**

Let X be a dataset of size N x K. X must not include missing data. RCA finds an optimal division of X into G groups, such that each group of observations follows a distinctive pattern of relationships between the K variables. Each group comprises an exclusive subset of X, such that the K variables within each group have a unique covariance structure.

RCA divides X into a variable number of G groups, assigning each observation in X to one group. It reports a measure called modularity, which ranges from 0 to 1 and which measures the strength of the division into groups. It also reports a cluster tree which traces the process by which the data were partitioned into G groups.

**Value**

Results include:

- **member**: Assignment vector (size 1xN)
  Each cell in the vector includes the group number the corresponding observation was assigned to. Group numbers range from 0 to G-1.
- **mod**: Modularity (double)
  A number ranging from 0 to 1 indicating the strength of the partition into groups.
- **merge**: Cluster tree, reported as a merge matrix (array of varying size).
  See igraph/leading.eigenvector.community for more information.

**Note**

Depended on igraph library.
Relational Class Analysis (RCA) is a method for detecting heterogeneity in attitudinal data. (as described in Goldberg A., 2011, Am. J. Soc, 116(5)). src also contains the files of igraph-C which was written by Gabor.

The format is:

List of 3

$ member: int [1:1551] 0 0 0 1 0 0 2 0 1 2 ... 
$ mod : num 0.299 
$ merge : num [1:2, 1:2] 0 3 2 1
Details

Results include:

(a). member: Assignment vector (size 1xN)
   Each cell in the vector includes the group number the corresponding observation was assigned to.
   Group numbers range from 0 to G-1.

(b). mod: Modularity (double)
   A number ranging from 0 to 1 indicating the strength of the partition into groups.

(c). merge: Cluster tree, reported as a merge matrix (array of varying size). See igraph/leading.eigenvector.community for more information.

Description

Sample input matrix.

Format

The format is:

int [1:1551, 1:17] 4 2 2 3 2 1 1 1 3 2 ...

Details

Let X be a dataset of size N x K. X must not include missing data. RCA finds an optimal division of X into G groups, such that each group of observations follows a distinctive pattern of relationships between the K variables. Each group comprises an exclusive subset of X, such that the K variables within each group have a unique covariance structure.

Examples

```r
# sampleinputmatrix
```
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