

Package ‘egonet’

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Type Package

Title Tool for ego-centric measures in Social Network Analysis

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Depends sna

Description A small tool for Social Network Analysis, dealing with ego-centric network measures, including Burt's effective size and aggregate constraint and an import code suitable for a large number of adjacency matrices. A free web application is also available on <http://www.egonet.associazionerospo.org>

License GPL (>= 2)

LazyLoad yes

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egonet-package

Tool for ego-centric measures in Social Network Analysis

Description

A small tool for Social Network Analysis, dealing with ego-centric network measures, including Burt's effective size and aggregate constraint and an import code suitable for a large number of adjacency matrices.

The Egonet package is also available as free web application on <http://www.egonet.associazionerospo.org> (and an example of output can be seen here: <http://www.egonet.associazionerospo.org/egonetdata/EgonetOutput.htm>)

Details

Package: egonet
Type: Package
Version: 1.0
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License: GPL (>= 2)
LazyLoad: yes

Author(s)

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References

Burt, R.S. (1992) "Structural Holes. The Social Structure of Competition", Cambridge (MA), Harvard University Press.

Wasserman, S. and Faust, K. (1994) "Social Network Analysis. Method and Applications", Cambridge (MA), Cambridge University Press.

See Also

[sna](#)

Examples

```
## This is a list of file' names containing the ego-network
ff <- c("q1.csv", "q2.csv", "q3.csv")
files <- paste("http://www.egonet.associazionerospo.org/egonetdata/", ff, sep="")
names(files) <- ff
```

```

##if all your data are in a directory (eg. egonets, containing all files with the same extension),
##you can easily get this list with the following commands
# ff <- dir("./egonets",pattern=".csv")
# files <- paste("./egonets/",ff,sep="")
# names(files) <- ff

# Here is a dataset with demographic informations and the names of files containing the ego-network
#we now want to add network indeces to this data.frame
data <- data.frame( gender=c("F","F","M"), age =(2:4)*10, filename=ff)
data

#import all the egonets
mats <- lapply(files,read.egonet)

#compute (default) indices on the first subject
index.egonet(mats[[1]])

#compute indices on all adjacency matrices
idx <- sapply(mats,index.egonet)

#reshape idx in a data.frame and add the file names
idx <- as.data.frame(t(idx))
idx <- cbind(idx,filename=rownames(idx))

#now merge demographic informations with the indices
data <- merge(data,idx,by="filename")
data

#Compute the \code{effsize} and \code{constraint} to the restricted network with "EGO" and nodes with "P" in the r
idx <- sapply(mats,index.egonet, subset = "P",index = c("effsize","constraint"))
rownames(idx) <- paste(rownames(idx),"P",sep=".")
idx <- as.data.frame(t(idx))
idx <- cbind(idx,filename=rownames(idx))

#and merge them to the dataset
data <- merge(data,idx,by="filename")
data

```

index.egonet

Compute Burt's indexes (effective size and aggregate constraint) and other measure from sna package

Description

Compute Burt's indexes (effective size and aggregate constraint) and other measure from [sna](#) package. It also allow to restrict the analysis to one social circle identified by the name of the alters.

Usage

```
index.egonet(dat, index = list("effsize", "constraint", "outdegree", "indegree", "efficiency", "hiera
```

Arguments

<code>dat</code>	graph to be analyzed having row and column names in the same order.
<code>index</code>	is a list containing prespecified index functions. <code>effsize</code> and <code>constraint</code> are defined in as in Burt (1992) \ <code>outdegree</code> and <code>indegree</code> make a call of <code>degree(dat, cmode="outdegree")</code> and <code>degree(dat, cmode="indegree")</code> and take the element corresponding to <code>ego.name</code> \ <code>ego.gden</code> applies <code>gden</code> in a matrix without <code>ego.name</code> connections. \ Other indeces are call of the homonimous functions of package <code>sna</code> . \ If the generic element is <code>call(index[[h]])</code> is TRUE, it will be evaluated in the global environment: <code>eval(index[[h]], envir =.GlobalEnv)</code> (see also example below)
<code>subset</code>	Restricts the analysis to the nodes with at least one among the elements of vector in the name. If <code>vector = NULL</code> - the default - all the nodes of the graph are comprised.
<code>ego.name</code>	column and row name given to the ego subject. The default is EGO

Value

The requested indices.

Author(s)

A. Sciandra, F. Gioachin, L. Finos <livio@stat.unipd.it>

References

Burt, R.S. (1992) "Structural Holes. The Social Structure of Competition", Cambridge (MA), Harvard University Press.

Examples

```
# make a toy dataset
egomat <- matrix(c(0,1,1,1,0,0,1,0,0),3,3)
colnames(egomat) <- rownames(egomat) <- c("EGO", "1P", "1A")

index.egonet(egomat)

# an example with self defined index
my.outdegree <- function(dat) degree(dat,cmode="outdegree")[1]
index.egonet(egomat,index=c("effsize","constraint","outdegree","indegree","efficiency", "centralization", "gden

#Restricts the \code{outdegree} and \code{efficiency} to "EGO" and nodes with "P" in the name
index.egonet(egomat,index=c("outdegree","efficiency"),subset="P")
```

read.egonet	<i>Reads ego-centric graph in table format and creates a matrix suitable for SNA.</i>
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Description

Reads text table and creates ego-centric graph from it, with the ego actor in the first row and column. The result is a square matrix with common input/output connection' names.

Usage

```
read.egonet(file, sep=",", dec=".", ego.name="EGO")
```

Arguments

file	the name of the file which the data are to be read from. It must be a square matrix, with node's names in the first row and column. See also file of read.table
sep	as in read.table
dec	as in read.table
ego.name	column and row name given to the ego subject. The default is EGO

Value

A square matrix containing the ego-centric network of the data in the file.

Author(s)

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See Also

[read.table](#)

Examples

```
dat <- read.egonet("http://www.egonet.associazionerospo.org/egonetdata/q1.csv")  
dat
```

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