Package ‘Neighboot’

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Title Neighborhood Bootstrap Method for RDS
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Description A bootstrap method for Respondent-Driven Sampling (RDS) that relies on the underlying structure of the RDS network to estimate uncertainty.
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neighb  

**Compute standard errors and confidence intervals**

**Description**

This function estimates standard errors and computes confidence intervals from an RDS sample using the neighborhood bootstrap method.

**Usage**

```r
neighb(RDS.data, quant=c(0.025, 0.975),
       method=c("percentile","Wald"), B=1000)
```

**Arguments**

- `RDS.data`  
  A list containing the following objects:
  - `nodes` a numeric vector containing IDs
  - `edges` a list containing two vectors: node1 for the recruiter’s ID and node2 for the recruit’s ID.
  - `traits` a data frame containing respondents’ traits.
  - `degree` a vector containing each node’s degree, or number of social connections.
- `quant` a vector of positive integers between 0 and 1, representing quantiles to be estimated.
- `method` a character string representing the method for computing confidence intervals, either percentile or Wald. Default is percentile.
- `B` the number of bootstrap repetitions. Default is 1000.

**Details**

The function `neighb` computes standard errors and confidence intervals using the neighborhood bootstrap method for RDS. Confidence intervals can be computed using the percentile method or the studentized method.

**Value**

A matrix of estimated standard errors and quantiles. Each row represents a trait.

**Author(s)**

Mamadou Yauck <yauck.mamadou@uqam.ca> and Erica E. M. Moodie.
Examples

# Load the synthetic population network dataset.
data("pop.network")

# Draw an RDS sample from the simulated network using the sampleRDS function
# from the package RDStreeboot.
require(RDStreeboot)
RDS.samp <- sample.RDS(pop.network$traits, pop.network$adj.mat, 200, 10,
3, c(1/6,1/3,1/3,1/6), FALSE)

# Compute 95\% confidence intervals using the percentile method
neigh(RDS.data=RDS.samp, quant=c(0.025, 0.975), method="percentile", B=100)

---

pop.network  Population network

Description

Population network

Usage

pop.network

Format

A list containing two elements:

- traits a dataframe of 2000 rows and 4 columns
- adj.mat an adjacency matrix

---

to.rds  Transform an sample.RDS object to an rds.data.frame object.

Description

This function transforms an output from the sample.RDS function of the RDStreeboot package to an rds.data.frame object of the RDS package.

Usage

to.rds(RDS.data)
Arguments

RDS.data A list containing the following objects:
  nodes a numeric vector containing IDs
  edges a list containing two vectors: node1 for the recruiter's ID and node2 for
  the recruit's ID.
  traits a data frame containing respondents' traits.
  degree a vector containing each node's degree, or number of social connec-
  tions.

Value

An rds.data.frame object.

Author(s)

Mamadou Yauck <yauck.mamadou@uqam.ca> and Erica E. M. Moodie.

Examples

#Load the synthetic population network dataset.
data("pop.network")

#Draw an RDS sample from the simulated network using the sampleRDS function
#from the package RDStreeboot.
require(RDStreeboot)
RDS.samp <- sample.RDS(pop.network$traits, pop.network$adj.mat, 200, 10,
  3, c(1/6,1/3,1/3,1/6), FALSE)

#Transform RDS.samp to an rds.data.frame object
require(RDS)
to.rds(RDS.data=RDS.samp)
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