Package: spearmanCI (via r-universe)

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Title Jackknife Euclidean / Empirical Likelihood Inference for Spearman's Rho

Description Functions for conducting jackknife Euclidean / empirical likelihood inference for Spearman's rho (de Carvalho and Marques (2012) <doi:10.1080/10920277.2012.10597644>).

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Depends R (>= 3.0.1)

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License GPL (>= 3)

Imports emplik, MASS

NeedsCompilation no

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Repository https://extremestats.r-universe.dev

RemoteUrl https://github.com/cran/spearmanCI

RemoteRef HEAD

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Contents

fire — *Danish Fire Insurance Claims Database*

Description

Danish Fire Insurance Claims Database includes 2167 industrial fire losses gathered from the Copenhagen Reinsurance Company over the period 1980–1990.

Usage

```
data(fire)
```

Format

A dataframe with 2167 observations on five variables. The object is of class `data.frame`.

Examples

```
data(fire)
attach(fire)
plot(building, contents, pch = 20, xlim = c(0,95), ylim = c(0,133),
     xlab = "Loss of Building", ylab = "Loss of Contents",
     main = "Danish Fire Insurance Claims")
```

spearmanCI — *Jackknife Euclidean / Empirical Likelihood Inference for Spearman's Correlation*

Description

Computes jackknife Euclidean / empirical likelihood confidence intervals for Spearman's correlation.

Usage

```
spearmanCI(x, y, level = 0.95, method = "Euclidean", plot = FALSE)
```

Arguments

`x`	vector with data.
`y`	vector with data.
`level`	the confidence level required.
`method`	this must be one of the strings `"Euclidean"` or `"empirical"`; see references below for details.
`plot`	logical; if `TRUE`, it plots log-likelihood ratio function.

Author(s)

Miguel de Carvalho

References

de Carvalho, M. and Marques, F. J. (2012). Jackknife Euclidean likelihood-based inference for Spearman's rho. *North American Actuarial Journal*, **16**, 487–492.

Wang, R., and Peng, L. (2011). Jackknife empirical likelihood intervals for Spearman's rho. *North American Actuarial Journal*, **15**, 475–486.

Examples

```
## Real data example
data(fire)
attach(fire)
spearmanCI(building, contents)

## The intervals in de Carvalho and Marques (2012, Section 3.2)
## differ slightly as they are based on the estimate
## spearman <- function(x, y) {
##  n <- length(x)
##  F <- ecdf(x); G <- ecdf(y)
##  return(12 / n * sum((F(x) - 1 / 2) * (G(y) - 1 / 2)))
## }

## Simulated data example
library(MASS)
pearson <- .7
Sigma <- matrix(c(1, pearson, pearson, 1), 2, 2)
xy <- mvrnorm(n = 1000, rep(0, 2), Sigma)
spearmanCI(xy[, 1], xy[, 2])
abline(v = 6 / pi * asin(pearson / 2), col = "grey", lty = 3)
```

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