Package 'BBcor'

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Type Package

Title Bayesian Bootstrapping Correlations

Version 1.0.0

Description Efficiently draw samples from the posterior distribution of various correlation coefficients with the Bayesian bootstrap described in Rubin (1981) <doi:10.1214/aos/1176345338>. There are five correlation coefficients, including Pearson, Kendall, Spearman, Blomqvist, and polychoric.

Depends R (>= 4.0.0)

License GPL-2

Imports parallel, pbapply (>= 1.4-2), psych (>= 1.9.12.31), wdm (>= 0.2.1), stats, utils, methods

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Author Donald Williams [aut, cre]

Maintainer Donald Williams <drwwilliams@ucdavis.edu>

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R topics documented:

bbcor *Bayesian Bootstrapping Correlations*

Description

Efficiently draws samples from the posterior distribution of various correlation coefficients

Usage

```
bbcor(x, method = "pearson", iter = 5000, cores = 2)
```

Arguments

x	A matrix of dimensions *n* by *p*
method	Character string. Which correlation coefficient should be computed. One of "pearson" (default), "kendall", "spearman", or "blomqvist" (i.e., median correlation).
iter	Numeric. How many posterior samples (defaults to 5000) ?
cores	Numeric. How many cores for parallel computing (defaults to 2)?

Value

- cor_mean: A matrix including the posterior mean
- samps: An array of dimensions p by b by iter that includes the sampled correlation matrices.

Note

NAs are removed.

Examples

```
Y <- mtcars[,1:2]

bb_samps <- bbcor(Y, method = "spearman")
```

cor_2_pcor *Correlation to Partial Correlation*

Description

Convert correlations into the corresponding partial correlations.

Usage

```
cor_2_pcor(x, ...)
```

Arguments

x	An object of class bbcor
...	Currently ignored

- pcor_mean: A matrix including the posterior mean.
- samps: An array of dimensions p by b by iter that includes the sampled partial correlation matrices.

Examples

```
Y <- mtcars[,1:3]

fit <- bbcor(Y, method = "spearman")

cor_2_pcor(fit)
```

posterior_samples *Extract Posterior Samples*

Description

Extract Posterior Samples

Usage

```
posterior_samples(object, summary = TRUE, cred = 0.95, ...)
```

Arguments

object	An object of class bbcor
summary	Logical. Should the posterior samples be summarized (defaults to TRUE)?
cred	Numeric. If summary = TRUE, the desired credible interval.
...	Currently ignored

Value

Either a data frame summarizing the relations (summary = TRUE) or a data frame including the posterior samples (summary = FALSE)

Examples

```
Y <- mtcars[,1:5]

bb_samps <- bbcor(Y, method = "spearman")

# correlations
posterior_samples(bb_samps)


# partial correlations
posterior_samples(cor_2_pcor(bb_samps))
```

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print.bbcor *Print* bbcor *Objects*

Description

Print the correlation or partial correlation matrix

Usage

```
## S3 method for class 'bbcor'
print(x, ...)
```

Arguments

x	An object of class bbcor
...	Currently ignored

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