Package 'pairedCI'

February 20, 2015

Type Package

Title Confidence intervals for the ratio of locations and for the ratio of scales of two paired samples

Version 0.5-4

Date 2012-11-24

Author Cornelia Froemke, Ludwig Hothorn and Michael Schneider

Maintainer Cornelia Froemke <cornelia.froemke@tiho-hannover.de>

Description The package contains two functions: paired.Loc and paired.Scale. A parametric and nonparametric confidence interval can be computed for the ratio of locations (paired.Loc) and the ratio of scales (paired.Scale). The samples must be paired and expected values must be positive.

License GPL-2

Repository CRAN

Date/Publication 2012-11-24 17:55:05

NeedsCompilation no

R topics documented:

`pairedCI-package` *Confidence intervals for the ratio of locations and for the ratio of scales of two paired samples*

Description

The package contains two functions: paired.Loc and paired.Scale. A parametric and nonparametric confidence interval can be computed for the ratio of locations (paired.Loc) and the ratio of scales (paired.Scale). The samples must be paired and expected means must be positive.

Details

Package:	pairedCI
Type:	Package
Version:	0.5-4
Date:	2012-11-24
License:	GPL-2
LazyLoad:	yes

Author(s)

Cornelia Froemke, Ludwig Hothorn, Michael Schneider

Maintainer: Cornelia Froemke <cornelia.froemke@tiho-hannover.de>

References

J. Ogawa (1983): On the confidence bounds of the ratio of the means of a bivariate normal distribution. Ann. Inst. Statist. Math., 35, 41-48.

B.M. Bennett (1965): Confidence limits for a ratio using Wilcoxon's signed rank test. Biometrics, 21, 231-234.

Bonett, D.G. (2006): Confidence interval for a ratio of variance in bivariate nonnormal distributions. J. Stat. Comput. Sim., 76 (7), 637-644.

Bonett, D.G. and E. Seier (2003): Statistical inference for a ratio of dispersions using paired samples. J. Educ. Behav. Stat., 28 (1), 21-30.

K.F. Yee (1988): Confidence-interval approach for evaluating bias in laboratory methods. Journal of Automatic Chemistry, 10 (3), 144-146.

Examples

```
astra <- c(2.4, 4.8, 4, 4.9, 3.9, 4.1, 3.8, 3.5, 4.6, 2.9, 4.9, 3.7, 4.8, 3.7, 3.8, 4.1, 4.2, 4.3, 3.9, 3.8)
flame <- c(2.4, 4.8, 4, 4.7, 3.9, 4.2, 3.8, 3.3, 4.6, 3, 5, 3.6, 4.9, 3.8, 3.9, 4.6, 4.2, 4.4, 4, 3.4)

paired.Loc(astra, flame, conf.level=0.9, method="parametric")
paired.Loc(astra, flame, conf.level=0.9, method="nonparametric")

paired.Scale(astra, flame, conf.level=0.9, method="parametric")
paired.Scale(astra, flame, conf.level=0.9, method="nonparametric")
```

paired.Loc *Confidence intervals for the ratio of locations of two paired samples*

Description

This function computes confidence intervals for the ratio of locations with matched pairs. Expected values must be positive.

Usage

```
paired.Loc(x, y, method = "parametric", exact = FALSE, conf.level = 0.95, alternative = "two.sided")
```

Arguments

x	sample 1; a (non-empty) numeric vector of data values
y	sample 2; a (non-empty) numeric vector of data values
method	either "parametric" (default) or "nonparametric"
exact	a logical indicating whether the exact nonparametric confidence interval should be computed
conf.level	confidence level of the interval with 95% as default
alternative	type of alternative hypothesis, one of "two.sided" (default), "greater" or "less"

Value

estimate	ratio of means (x/y)
lower	lower confidence bound
upper	upper confidence bound

Author(s)

Cornelia Froemke, Ludwig Hothorn and Michael Schneider

References

J. Ogawa (1983): On the "confidence bounds" of the ratio of the means of a bivariate normal distribution. Ann. Inst. Statist. Math., 35, 41-48.

B.M. Bennett (1965): Confidence limits for a ratio using Wilcoxon's signed rank test. Biometrics, 21, 231-234.

K.F. Yee (1988): Confidence-interval approach for evaluating bias in laboratory methods. Journal of Automatic Chemistry, 10 (3), 144-146.

Examples

```
astra <- c(2.4, 4.8, 4, 4.9, 3.9, 4.1, 3.8, 3.5, 4.6, 2.9, 4.9, 3.7, 4.8, 3.7, 3.8, 4.1, 4.2, 4.3, 3.9, 3.8)

flame <- c(2.4, 4.8, 4, 4.7, 3.9, 4.2, 3.8, 3.3, 4.6, 3, 5, 3.6, 4.9, 3.8, 3.9, 4.6, 4.2, 4.4, 4, 3.4)

paired.Loc(astra, flame, conf.level=0.9, method="parametric")
paired.Loc(astra, flame, conf.level=0.9, method="nonparametric")
```

`paired.Scale` *Confidence intervals for the ratio of scales of two paired samples*

Description

This function computes confidence intervals for the ratio of scales with matched pairs.

Usage

```
paired.Scale(x, y, method = "parametric", conf.level = 0.95, alternative = "two.sided")
```

Arguments

`x`	sample 1; a (non-empty) numeric vector of data values
`y`	sample 2; a (non-empty) numeric vector of data values
`method`	either "parametric" (default) or "nonparametric"
`conf.level`	confidence level of the interval with 95% as default
`alternative`	type of alternative hypothesis, one of "two.sided" (default), "greater" or "less"

Value

`estimate`	parametric: ratio of standard deviations, nonparametric: ratio of mean absolute deviations of the medians (x/y)
`lower`	lower confidence bound
`upper`	upper confidence bound

Author(s)

Cornelia Froemke, Ludwig Hothorn and Michael Schneider

References

Bonett, D.G. (2006): Confidence interval for a ratio of variance in bivariate nonnormal distributions. J. Stat. Comput. Sim., 76 (7), 637-644.

Bonett, D.G. and E. Seier (2003): Statistical inference for a ratio of dispersions using paired samples. J. Educ. Behav. Stat., 28 (1), 21-30.

K.F. Yee (1988): Confidence-interval approach for evaluating bias in laboratory methods. Journal of Automatic Chemistry, 10 (3), 144-146.

Examples

```
astra <- c(2.4, 4.8, 4, 4.9, 3.9, 4.1, 3.8, 3.5, 4.6, 2.9, 4.9, 3.7, 4.8, 3.7, 3.8, 4.1, 4.2, 4.3, 3.9, 3.8)

flame <- c(2.4, 4.8, 4, 4.7, 3.9, 4.2, 3.8, 3.3, 4.6, 3, 5, 3.6, 4.9, 3.8, 3.9, 4.6, 4.2, 4.4, 4, 3.4)


paired.Scale(astra, flame, conf.level=0.9, method="parametric")
paired.Scale(astra, flame, conf.level=0.9, method="nonparametric")
```

Index