Package 'simgof'

October 14, 2022

Title Simultaneous Goodness-of-Fits Tests

Version 1.0.2

Description Routine that allows the user to run several goodness-of-fit tests.
It also combines the tests and returns a properly adjusted family-wise p value.
Details can be found in <arXiv:2007.04727>.

Depends R (>= 3.1.0)

Imports ddst, stats, graphics

License GPL-2

Encoding UTF-8

NeedsCompilation no

LazyData true

RoxygenNote 7.1.1

Author Wolfgang Rolke [aut, cre] (<https://orcid.org/0000-0002-3514-726X>)

Maintainer Wolfgang Rolke <wolfgang.rolke@upr.edu>

Repository CRAN

Date/Publication 2021-01-27 09:00:02 UTC

R topics documented:

`chisquare.test` *chisquare.test*

Description

This function does the chisquare test

Usage

```
chisquare.test(x, case, which = "RGd")
```

Arguments

`x`	data set
`case`	setup info
`which`	type of binning (either RGd, Equal Size or Equal Prob)

Value

A numeric vector of length 1 with the value of the chi-square statistic.

Examples

```
case <- list(B=1000, param = NULL, n = 1000, pnull = function(x, param) punif(x),
        rnull = function(n, param) runif(n), qnull = function(x, param) qunif(x),
        est.mle = function(x) NA, nbins = 10)
x <- runif(1000)
chisquare.test(x, case)
```

`simgof.test` *simgof.test*

Description

This function performs a number of gof tests and rejects the null if any of the tests does so. Then it finds the adjusted p-value.

Usage

```
simgof.test(
  x,
  pnull,
  rnull,
  qnull = function(x) NULL,
  do.estimation = TRUE,
  estimate = function(x) NULL,
```

```
  include.methods = c(rep(TRUE, 7), rep(FALSE, 9)),
  B = 10000,
  lambda,
  nbins = NULL
)
```

Arguments

x	data set
pnull	distribution function under the null hypothesis
rnull	routine to generate data under the null hypothesis
qnull	quantile function under the null hypothesis
do.estimation	TRUE if parameters are to be estimated
estimate	routine for parameter estimation
include.methods	which methods should be used, a vector of length 16 of T/F
B	=10000 number of simulation runs
lambda	rate of Poisson if sample size is random
nbins	number of bins for chisquare test

Value

A numeric vector of p values

Examples

```
x <- runif(1000)
pnull <- function(x) x
rnull <- function(n) runif(n)
qnull <- function(x) x
simgof.test(x, pnull, rnull, qnull, FALSE, B=500)
x <- rnorm(1000, 100, 20)
pnull <- function(x, param) pnorm(x, param[1], param[2])
rnull <- function(n, param) rnorm(x, param[1], param[2])
qnull <- function(x, param) qnorm(x, param[1], param[2])
estimate <- function(x) c(mean(x), sd(x))
simgof.test(x, pnull, rnull, qnull, TRUE, estimate, B=500)
```

---

spreadout *spreadout*

Description

This function unbins data. If qnull is given it uses quantiles, otherwise uniform

Usage

```
spreadout(x, case)
```

Arguments

x	data set
case	setup info

Value

A numeric vector of observations without ties.

Examples

```
case <- list(B=1000, param = NULL, n = 1000, pnull = function(x, param) punif(x),
    rnull = function(n, param) runif(n), qnull = function(x, param) qunif(x),
    est.mle = function(x) NA, nbins = 10)
y=runif(1000)
bins=seq(0, 1, length=11)
counts=hist(y, bins, plot=FALSE)$counts
x=list(bins=bins,counts=counts)
spreadout(x, case)
```

TS *TS*

Description

This function finds various gof statistics

Usage

```
TS(x, case)
```

Arguments

x	data
case	setup info

Value

A numeric vector with the values of various test statistics.

Examples

```
case <- list(B=1000, param = NULL, n = 1000, pnull = function(x, param)
         punif(x), rnull = function(n, param) runif(n), qnull = function(x, param)
        qunif(x), est.mle = function(x) NA, nbins = 10)
case$methods=c("KS", "AD", "CdM", "W", "ZA", "ZK", "ZC")
x <- runif(1000)
TS(x, case)
```

Index