

Package: R2sample (via r-universe)

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Title Two Sample Problem Routines using Permutation

Version 1.1.0

Description The routine `twosample_test()` in this package runs the two sample test using various test statistic. The p values are found via permutation. The routine `twosample_power()` allows the calculation of the power in various cases, and `plot_power()` draws the corresponding power graphs.

License GPL (≥ 2)

Encoding UTF-8

RoxygenNote 7.2.1

LinkingTo Rcpp

Imports Rcpp, parallel, shiny, ggplot2, microbenchmark

Suggests rmarkdown, knitr

VignetteBuilder knitr

NeedsCompilation yes

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Contents

| | |
|------------------------------|---|
| <code>plot_power</code> | 2 |
| <code>run_shiny</code> | 2 |
| <code>twosample_power</code> | 3 |
| <code>twosample_test</code> | 4 |

| | |
|--------------|----------|
| Index | 5 |
|--------------|----------|

| | |
|------------|---|
| plot_power | <i>This function draws the power graph, with curves sorted by the mean power and smoothed for easier reading.</i> |
|------------|---|

Description

This function draws the power graph, with curves sorted by the mean power and smoothed for easier reading.

Usage

```
plot_power(pwr, xname = " ", Smooth = TRUE)
```

Arguments

| | |
|--------|--|
| pwr | a matrix of power values, usually from the twosample_power command |
| xname | Name of variable on x axis |
| Smooth | =TRUE lines are smoothed for easier reading |

Value

plt, an object of class ggplot.

| | |
|-----------|--|
| run_shiny | <i>Runs the shiny app associated with R2sample package</i> |
|-----------|--|

Description

Runs the shiny app associated with R2sample package

Usage

```
run_shiny()
```

Value

No return value, called for side effect of opening a shiny app

| | |
|-----------------|--|
| twosample_power | <i>Find the power of various two sample tests using Rcpp and parallel computing.</i> |
|-----------------|--|

Description

Find the power of various two sample tests using Rcpp and parallel computing.

Usage

```
twosample_power(
  f,
  ...,
  alpha = 0.05,
  B = 1000,
  nbins = c(100, 10),
  maxProcessor = 10,
  doMethod = "all"
)
```

Arguments

| | |
|--------------|---|
| f | function to generate a list with data sets x, y and (optional) vals |
| ... | additional arguments passed to f |
| alpha | =0.05, the level of the hypothesis test |
| B | =1000, number of simulation runs for permutation test and power. |
| nbins | =c(100,10), number of bins for chi large and chi small. |
| maxProcessor | =10, maximum number of cores to use. If maxProcessor=1 no parallel computing is used. |
| doMethod | ="all", which methods should be included? |

Value

A numeric vector of power values.

Examples

```
f=function(mu) list(x=rnorm(25), y=rnorm(25, mu))
twosample_power(f, mu=c(0,2), B=100, maxProcessor = 1)
f=function() list(x=table(sample(1:10, size=1000, replace=TRUE))),
  y=table(sample(1:10, size=1200, replace=TRUE)), vals=1:10)
twosample_power(f, B=100, maxProcessor = 1)
```

| | |
|----------------|---|
| twosample_test | <i>This function runs a number of two sample tests using Rcpp and parallel computing.</i> |
|----------------|---|

Description

This function runs a number of two sample tests using Rcpp and parallel computing.

Usage

```
twosample_test(
  x,
  y,
  vals,
  B = 5000,
  nbins = c(100, 10),
  maxProcessor = 10,
  discretize = FALSE,
  doMethod
)
```

Arguments

| | |
|--------------|--|
| x | a vector of numbers if data is continuous or of counts if data is discrete. |
| y | a vector of numbers if data is continuous or of counts if data is discrete. |
| vals | a vector of numbers, the values of a discrete random variable. If it is missing, continuous data is assumed. |
| B | =5000, number of simulation runs for permutation test |
| nbins | =c(100,10), number of bins for chi square tests. |
| maxProcessor | =10, maximum number of cores to use. If maxProcessor=1 no parallel computing is used. |
| discretize | =FALSE. Should continuous data be binned? |
| doMethod | Which methods should be included? If missing default methods are used. |

Value

A list of two numeric vectors, the test statistics and the p values.

Examples

```
twosample_test(rnorm(1000), rt(1000, 4), B=1000, maxProcessor = 1)
vals=1:5
x=table(sample(vals, size=100, replace=TRUE))
y=table(sample(vals, size=100, replace=TRUE, prob=c(1,1,2,1,1)))
twosample_test(x, y, vals, maxProcessor = 1)
```

Index

`plot_power`, 2

`run_shiny`, 2

`twosample_power`, 3

`twosample_test`, 4