Package ‘npordtests’

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Adaptive Test (AT)

**Description**

AtTest performs the Adaptive Test.

**Usage**

AtTest(formula, data, alpha = 0.05, na.rm = TRUE, verbose = TRUE)

**Arguments**

- **formula**: a formula of the form lhs ~ rhs where lhs gives the sample values and rhs the corresponding groups.
- **data**: a data frame containing the variables in the formula formula
- **alpha**: the level of significance to assess the statistical difference. Default is set to alpha = 0.05.
- **na.rm**: a logical value indicating whether NA values should be stripped before the computation proceeds.
- **verbose**: a logical for printing output to R console.

**Value**

A list with class "owt" containing the following components:

- **statistic**: the Adaptive test statistic.
- **mean**: the mean of the Adaptive test statistic.
- **variance**: the variance of the Adaptive test statistic.
- **Z**: the standardized test statistic.
- **p.value**: the p-value of the test.
- **alpha**: the level of significance.
- **method**: the character string "Adaptive test".
- **data**: a data frame containing the variables in which NA values (if exist) are removed.
- **formula**: a formula of the form lhs ~ rhs where lhs gives the sample values and rhs the corresponding groups.

**Author(s)**

Bulent Altunkaynak
References


Examples

```r
library(npordtests)

## data from jonckheere (1YUT)
X <- as.factor(c(1,1,1,2,2,2,2,3,3,3,4,4,4,4))
Y <- c(19,20,60,130,21,61,80,129,40,99,100,149,49,110,151,160)
data <- cbind.data.frame(X, Y)
AtTest(Y ~ X, data)
```

---

**FtmTest**

*Ferdhiana, Terpstra and Magel (FTM) Test*

Description

FtmTest performs FTM test.

Usage

FtmTest(formula, data, alpha = 0.05, na.rm = TRUE, verbose = TRUE)

Arguments

- **formula**: a formula of the form `lhs ~ rhs` where `lhs` gives the sample values and `rhs` the corresponding groups.
- **data**: a data frame containing the variables in the formula `formula`.
- **alpha**: the level of significance to assess the statistical difference. Default is set to `alpha = 0.05`.
- **na.rm**: a logical value indicating whether NA values should be stripped before the computation proceeds.
- **verbose**: a logical for printing output to R console.
Value

A list with class "owt" containing the following components:

- **statistic**: the FTM test statistic.
- **mean**: the mean of the FTM test statistic.
- **variance**: the variance of the FTM test statistic.
- **Z**: the standardized test statistic.
- **p.value**: the p-value of the test.
- **alpha**: the level of significance.
- **method**: the character string "FTM test".
- **data**: a data frame containing the variables in which NA values (if exist) are removed.
- **formula**: a formula of the form lhs ~ rhs where lhs gives the sample values and rhs the corresponding groups.

Author(s)

Bulent Altunkaynak

References


Examples

```r
library(npordtests)

## Data from Jonckheere (1954)
X<-as.factor(c(1,1,1,1,2,2,2,2,3,3,3,3,4,4,4,4))
Y<-c(19,20,66,130,21,61,80,129,40,99,100,149,49,110,151,160)
data<-cbind.data.frame(X,Y)
FtmTest(Y~X,data)
```
Description

GcTest performs Gaur’s Gc test.

Usage

\[
\text{GcTest}(\text{formula}, \text{data}, \alpha = 0.05, \text{na.rm} = \text{TRUE}, \text{verbose} = \text{TRUE, } c = 2)
\]

Arguments

- \textbf{formula}: a formula of the form \textit{lhs} \sim \textit{rhs} where \textit{lhs} gives the sample values and \textit{rhs} the corresponding groups.
- \textbf{data}: a data frame containing the variables in the formula \textit{formula}.
- \textbf{alpha}: the level of significance to assess the statistical difference. Default is set to alpha = 0.05.
- \textbf{na.rm}: a logical value indicating whether NA values should be stripped before the computation proceeds.
- \textbf{verbose}: a logical for printing output to R console.
- \textbf{c}: an integer value chosen from \textit{(1, \ldots, min(n_i))} for subsample size. Default is set to \textit{c = 2}.

Value

A list with class "owt" containing the following components:

- \textbf{statistic}: the Gaur’s Gc test statistic.
- \textbf{mean}: the mean of the Gaur’s Gc test statistic.
- \textbf{variance}: the variance of the Gaur’s Gc test statistic.
- \textbf{Z}: the standardized test statistic.
- \textbf{p.value}: the p-value of the test.
- \textbf{alpha}: the level of significance.
- \textbf{method}: the character string "Gaur’s Gc test ".
- \textbf{data}: a data frame containing the variables in which NA values (if exist) are removed.
- \textbf{formula}: a formula of the form \textit{lhs} \sim \textit{rhs} where \textit{lhs} gives the sample values and \textit{rhs} the corresponding groups.

Author(s)

Bulent Altunkaynak
References


Examples

```r
library(npordtests)

## data from jonckheere (1954)
X<-as.factor(c(1,1,1,1,2,2,2,2,3,3,3,3,4,4,4,4))
Y<-c(19,20,60,130,21,61,80,129,40,90,100,149,49,110,151,160)
data<-cbind.data.frame(X,Y)
GcTest(Y~X,data)
```

---

**JtTest**  
*Jonckheere-Terpstra (JT) Test*

Description

JtTest performs JT test.

Usage

```
JtTest(formula, data, alpha = 0.05, na.rm = TRUE, verbose = TRUE)
```

Arguments

- `formula` a formula of the form `lhs ~ rhs` where `lhs` gives the sample values and `rhs` the corresponding groups.
- `data` a data frame containing the variables in the formula `formula`
- `alpha` the level of significance to assess the statistical difference. Default is set to `alpha = 0.05`.
- `na.rm` a logical value indicating whether NA values should be stripped before the computation proceeds.
- `verbose` a logical for printing output to R console.
Value
A list with class "owt" containing the following components:

- **statistic**: the JT test statistic.
- **mean**: the mean of the JT test statistic.
- **variance**: the variance of the JT test statistic.
- **Z**: the standardized test statistic.
- **p.value**: the p-value of the test.
- **alpha**: the level of significance.
- **method**: the character string "JT test".
- **data**: a data frame containing the variables in which NA values (if exist) are removed.
- **formula**: a formula of the form \( \text{lhs} \sim \text{rhs} \) where \( \text{lhs} \) gives the sample values and \( \text{rhs} \) the corresponding groups.

Author(s)
Bulent Altunkaynak

References

Examples

```r
library(npordtests)

## Data from Jonckheere (1954)
X <- as.factor(c(1,1,1,2,2,2,3,3,3,3,4,4,4))
Y <- c(19,20,60,130,21,80,129,40,99,100,149,49,110,151,160)
data <- cbind.data.frame(X,Y)
JtTest(Y~X,data)
```

Description
*KtpTest* performs KTP test.

Usage

*KtpTest*(formula, data, alpha = 0.05, na.rm = TRUE, verbose = TRUE)
Arguments

formula  a formula of the form lhs ~ rhs where lhs gives the sample values and rhs the corresponding groups.
data    a data frame containing the variables in the formula formula
alpha   the level of significance to assess the statistical difference. Default is set to alpha = 0.05.
na.rm   a logical value indicating whether NA values should be stripped before the computation proceeds.
verbose a logical for printing output to R console.

Value

A list with class "owt" containing the following components:

statistic  the KTP test statistic.
mean       the mean of the KTP test statistic.
variance   the variance of the KTP test statistic.
z          the standardized test statistic.
p.value    the p-value of the test.
alpha      the level of significance.
method     the character string "KTP".
data       a data frame containing the variables in which NA values (if exist) are removed.
formula    a formula of the form lhs ~ rhs where lhs gives the sample values and rhs the corresponding groups.

Author(s)

Bulent Altunkaynak

References


Examples

library(npordtests)

## Data from Jonckheere (1954)

X<-as.factor(c(1,1,1,1,2,2,2,3,3,3,3,4,4,4))
Y<-c(19,20,60,130,21,61,80,129,40,99,100,149,49,110,151,160)
data<-cbind.data.frame(X,Y)
KtpTest(Y~X,data)
**Description**

LsTest performs LS test.

**Usage**

LsTest(formula, data, alpha = 0.05, na.rm = TRUE, verbose = TRUE)

**Arguments**

- `formula`: a formula of the form `lhs ~ rhs` where `lhs` gives the sample values and `rhs` the corresponding groups.
- `data`: a data frame containing the variables in the formula `formula`.
- `alpha`: the level of significance to assess the statistical difference. Default is set to `alpha = 0.05`.
- `na.rm`: a logical value indicating whether NA values should be stripped before the computation proceeds.
- `verbose`: a logical for printing output to R console.

**Value**

A list with class "owt" containing the following components:

- `statistic`: the LS test statistic.
- `mean`: the mean of the LS test statistic.
- `variance`: the variance of the LS test statistic.
- `Z`: the standardized test statistic.
- `p.value`: the p-value of the test.
- `alpha`: the level of significance.
- `method`: the character string "LS test ".
- `data`: a data frame containing the variables in which NA values (if exist) are removed.
- `formula`: a formula of the form `lhs ~ rhs` where `lhs` gives the sample values and `rhs` the corresponding groups.

**Author(s)**

Bulent Altunkaynak
References


Examples

```r
library(npordtests)

## data from jonckheere (1954)
X <- as.factor(c(1,1,1,2,2,2,3,3,3,4,4,4))
Y <- c(19,20,60,130,21,61,80,129,40,99,100,149,49,110,151,160)
data <- cbind.data.frame(X, Y)
lttest(Y ~ X, data)
```

---

**LtTest**

*Buning’s LT Test*

**Description**

LtTest performs LT test.

**Usage**

```r
LtTest(formula, data, alpha = 0.05, na.rm = TRUE, verbose = TRUE)
```

**Arguments**

- `formula`: a formula of the form `lhs ~ rhs` where `lhs` gives the sample values and `rhs` the corresponding groups.
- `data`: a data frame containing the variables in the formula `formula`.
- `alpha`: the level of significance to assess the statistical difference. Default is set to `alpha = 0.05`.
- `na.rm`: a logical value indicating whether NA values should be stripped before the computation proceeds.
- `verbose`: a logical for printing output to R console.
Value

A list with class "owt" containing the following components:

- **statistic**: the LT test statistic.
- **mean**: the mean of the LT test statistic.
- **variance**: the variance of the LT test statistic.
- **Z**: the standardized test statistic.
- **p.value**: the p-value of the test.
- **alpha**: the level of significance.
- **method**: the character string "LT test ".
- **data**: a data frame containing the variables in which NA values (if exist) are removed.
- **formula**: a formula of the form `lhs ~ rhs` where `lhs` gives the sample values and `rhs` the corresponding groups.

Author(s)

Bulent Altunkaynak

References


Examples

```r
library(npordtests)

## Data from Jonckheere (1954)
X<-as.factor(c(1,1,1,1,2,2,2,3,3,3,4,4,4))
Y<-c(19,20,60,130,21,61,80,129,48,99,108,149,49,110,151,160)
data<-cbind.data.frame(X,Y)
LtTest(Y~X,data)
```
Modified Jonckheere-Terpstra (MJT) Test

Description

MjtTest performs MJT test.

Usage

MjtTest(formula, data, alpha = 0.05L, na.rm = TRUEL, verbose = TRUEL)

Arguments

- formula: a formula of the form lhs ~ rhs where lhs gives the sample values and rhs the corresponding groups.
- data: a data frame containing the variables in the formula.
- alpha: the level of significance to assess the statistical difference. Default is set to alpha = 0.05.
- na.rm: a logical value indicating whether NA values should be stripped before the computation proceeds.
- verbose: a logical for printing output to R console.

Value

A list with class "owt" containing the following components:

- statistic: the MJT test statistic.
- mean: the mean of the MJT test statistic.
- variance: the variance of the MJT test statistic.
- Z: the standardized test statistic.
- p.value: the p-value of the test.
- alpha: the level of significance.
- method: the character string "MJT test".
- data: a data frame containing the variables in which NA values (if exist) are removed.
- formula: a formula of the form lhs ~ rhs where lhs gives the sample values and rhs the corresponding groups.

Author(s)

Bulent Altunkaynak
References


Examples

```r
library(npordtests)

## Data from Jonckheere (1954)
X <- as.factor(c(1,1,1,2,2,2,3,3,3,4,4,4))
Y <- c(19,28,60,130,21,61,80,129,40,99,100,149,49,110,151,160)
data <- cbind.data.frame(X, Y)
MjtTest(Y~X, data)
```

<table>
<thead>
<tr>
<th>RsTest</th>
<th><em>Hogg, Fisher and Randles’ RS Test</em></th>
</tr>
</thead>
</table>

Description

RsTest performs RS test.

Usage

```
RsTest(formula, data, alpha = 0.05, na.rm = TRUE, verbose = TRUE)
```

Arguments

- `formula`: a formula of the form `lhs ~ rhs` where `lhs` gives the sample values and `rhs` the corresponding groups.
- `data`: a data frame containing the variables in the formula `formula`
- `alpha`: the level of significance to assess the statistical difference. Default is set to alpha = 0.05.
- `na.rm`: a logical value indicating whether NA values should be stripped before the computation proceeds.
- `verbose`: a logical for printing output to R console.
Value

A list with class "owt" containing the following components:

- `statistic` the RS test statistic.
- `mean` the mean of the RS test statistic.
- `variance` the variance of the RS test statistic.
- `Z` the standardized test statistic.
- `p.value` the p-value of the test.
- `alpha` the level of significance.
- `method` the character string "RS test ".
- `data` a data frame containing the variables in which NA values (if exist) are removed.
- `formula` a formula of the form `lhs ~ rhs` where `lhs` gives the sample values and `rhs` the corresponding groups.

Author(s)

Bulent Altunkaynak

References


Examples

```
library(npordtests)

## Data from Jonckheere (1954)
X<-as.factor(c(1,1,1,1,2,2,2,2,3,3,3,4,4,4))
Y<-c(19, 20, 60, 130, 21, 61, 80, 129, 48, 99, 100, 149, 49, 110, 151, 160)
data<-cbind.data.frame(X,Y)
RsTest(Y~X,data)
```
**SsTest**

*Shan, Young and Kang's S Test*

---

**Description**

SsTest performs S test.

**Usage**

SsTest(formula, data, alpha = 0.05, na.rm = TRUE, verbose = TRUE)

**Arguments**

- `formula`: a formula of the form `lhs ~ rhs` where `lhs` gives the sample values and `rhs` the corresponding groups.
- `data`: a data frame containing the variables in the formula `formula`.
- `alpha`: the level of significance to assess the statistical difference. Default is set to `alpha = 0.05`.
- `na.rm`: a logical value indicating whether NA values should be stripped before the computation proceeds.
- `verbose`: a logical for printing output to R console.

**Value**

A list with class "owt" containing the following components:

- `statistic`: the S test statistic.
- `mean`: the mean of the S test statistic.
- `variance`: the variance of the S test statistic.
- `Z`: the standardized test statistic.
- `p.value`: the p-value of the test.
- `alpha`: the level of significance.
- `method`: the character string "S test".
- `data`: a data frame containing the variables in which NA values (if exist) are removed.
- `formula`: a formula of the form `lhs ~ rhs` where `lhs` gives the sample values and `rhs` the corresponding groups.

**Author(s)**

Bulent Altunkaynak
References


Examples

```r
library(npordtests)

## data from jonckheere (1954)
X <- as.factor(c(1,1,1,1,2,2,2,3,3,3,4,4,4,4))
Y <- c(19,20,60,130,21,61,80,129,40,99,100,149,49,110,151,160)
data <- cbind.data.frame(X,Y)
SstTest(Y ~ X, data)
```

---

**StTest**

*Gastwirth’s ST Test*

Description

StTest performs ST test.

Usage

```
StTest(formula, data, alpha = 0.05, na.rm = TRUE, verbose = TRUE)
```

Arguments

- **formula**: a formula of the form `lhs ~ rhs` where `lhs` gives the sample values and `rhs` the corresponding groups.
- **data**: a data frame containing the variables in the formula `formula`.
- **alpha**: the level of significance to assess the statistical difference. Default is set to `alpha = 0.05`.
- **na.rm**: a logical value indicating whether NA values should be stripped before the computation proceeds.
- **verbose**: a logical for printing output to R console.
**Value**

A list with class "owt" containing the following components:

- statistic: the ST test statistic.
- mean: the mean of the ST test statistic.
- variance: the variance of the ST test statistic.
- Z: the standardized test statistic.
- p.value: the p-value of the test.
- alpha: the level of significance.
- method: the character string "ST test ".
- data: a data frame containing the variables in which NA values (if exist) are removed.
- formula: a formula of the form lhs ~ rhs where lhs gives the sample values and rhs the corresponding groups.

**Author(s)**

Bulent Altunkaynak

**References**


**Examples**

```r
library(npordtests)

## Data from Jonckheere (1954)
X<-as.factor(c(1,1,1,1,2,2,2,2,3,3,3,3,4,4,4,4))
Y<-c(19,20,60,130,21,61,80,129,48,99,100,149,49,110,151,160)
data<-cbind.data.frame(X,Y)
StTest(Y~X,data)
```
TmTest

Terpstra and Magel (TM) Test

Description

TmTest performs TM test.

Usage

TmTest(formula, data, alpha = 0.05, na.rm = TRUE, verbose = TRUE)

Arguments

formula a formula of the form lhs ~ rhs where lhs gives the sample values and rhs the corresponding groups.
data a data frame containing the variables in the formula formulaalpha the level of significance to assess the statistical difference. Default is set to alpha = 0.05.na.rm a logical value indicating whether NA values should be stripped before the computation proceeds.verbose a logical for printing output to R console.

Value

A list with class "owt" containing the following components:

statistic the TM test statistic.mean the mean of the TM test statistic.variance the variance of the TM test statistic.Z the standardized test statistic.p.value the p-value of the test.alpha the level of significance.method the character string "TM test".data a data frame containing the variables in which NA values (if exist) are removed.formula a formula of the form lhs ~ rhs where lhs gives the sample values and rhs the corresponding groups.

Author(s)

Bulent Altunkaynak
**References**


**Examples**

```r
library(npordtests)

## data from jonckheere (1954)

X <- as.factor(c(1,1,1,2,2,2,3,3,3,3,4,4,4,4))
Y <- c(19,20,60,130,21,61,80,129,40,99,100,149,49,110,151,160)
data <- cbind.data.frame(X, Y)
TmTest(Y ~ X, data)
```

---

**WsTest**

**Beier and Buning’s WS Test**

**Description**

WsTest performs WS test.

**Usage**

```r
WsTest(formula, data, alpha = 0.05, na.rm = TRUE, verbose = TRUE)
```

**Arguments**

- `formula`: a formula of the form `lhs ~ rhs` where `lhs` gives the sample values and `rhs` the corresponding groups.
- `data`: a data frame containing the variables in the formula `formula`.
- `alpha`: the level of significance to assess the statistical difference. Default is set to `alpha = 0.05`.
- `na.rm`: a logical value indicating whether NA values should be stripped before the computation proceeds.
- `verbose`: a logical for printing output to R console.
Value

A list with class "owt" containing the following components:

- statistic: the WS test statistic.
- mean: the mean of the WS test statistic.
- variance: the variance of the WS test statistic.
- Z: the standardized test statistic.
- p.value: the p-value of the test.
- alpha: the level of significance.
- method: the character string "WS test".
- data: a data frame containing the variables in which NA values (if exist) are removed.
- formula: a formula of the form lhs ~ rhs where lhs gives the sample values and rhs the corresponding groups.

Author(s)

Bulent Altunkaynak

References


Examples

```r
library(npordtests)

## Data from Jonckheere (1954)

X <- as.factor(c(1,1,1,1,2,2,2,3,3,3,4,4,4))
Y <- c(19,28,60,130,21,61,80,129,40,99,100,149,49,110,151,160)
data <- cbind.data.frame(X,Y)
WsTest(Y~X,data)
```
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