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AF Approximate F-test

Description

This function performs Approximate F-test.
AG

Usage

AF(data, group)

Arguments

data A vector containing the observations to which the treatments are randomly assigned.

group A numerical or character vector indicating the treatment/control groups.

Value

pvalue the p-value of the Approximate F-test

Author(s)

Mustafa CAVUS

References


Examples

library(doex)
AF(hybrid$data, hybrid$species)

AG

Alexander-Govern test

Description

This function performs Alexander-Govern test.

Usage

AG(data, group)

Arguments

data A vector containing the observations to which the treatments are randomly assigned.

group A numerical or character vector indicating the treatment/control groups.

Value

test.statistic the test statistic of the Alexander-Govern test

p.value the p-value of the Alexander-Govern test
Author(s)
Mustafa CAVUS

References

Examples
library(doex)
AG(hybrid$data, hybrid$species)

---

AGF  Alvandi et al. Generalized F-test

Description
This function performs Alvandi et al. Generalized F-test.

Usage
AGF(data, group, rept)

Arguments
data  A vector containing the observations to which the treatments are randomly assigned.
group  A numerical or character vector indicating the treatment/control groups.
rept  The loop size to perform the test.

Value
pvalue  the p-value of the Alvandi et al. Generalized F-test

Author(s)
Mustafa CAVUS

References

Examples
library(doex)
AGF(hybrid$data, hybrid$species,10000)
B2  

**B-square test**

Description

This function performs B-square test.

Usage

```
B2(alpha, data, group)
```

Arguments

- **alpha**: significance level of the test.
- **data**: A vector containing the observations to which the treatments are randomly assigned.
- **group**: A numerical or character vector indicating the treatment/control groups.

Value

- **p.value**: the p-value of the B-square test

Author(s)

Mustafa CAVUS

References


Examples

```
library(doex)
B2(0.05, hybrid$data, hybrid$species)
```
**Brown-Forsythe test**

**Description**

This function performs Brown-Forsythe test.

**Usage**

```r
BF(data, group)
```

**Arguments**

- `data` A vector containing the observations to which the treatments are randomly assigned.
- `group` A numerical or character vector indicating the treatment/control groups.

**Value**

- `pvalue` the p-value of the Brown-Forsythe test

**Author(s)**

Mustafa CA VUS

**References**


**Examples**

```r
library(doex)
BF(hybrid$data, hybrid$species)
```

---

**Box F-test**

**Description**

This function performs Box F-test.

**Usage**

```r
BX(data, group)
```
Arguments

- **data**: A vector containing the observations to which the treatments are randomly assigned.
- **group**: A numerical or character vector indicating the treatment/control groups.

Value

- **pvalue**: the p-value of the Box F-test

Author(s)

Mustafa CA VUS

References


Examples

```r
library(doex)
BX(hybrid$data, hybrid$species)
```

---

**CF**  
*Cochran F-test*

Description

This function performs Cochran F-test.

Usage

```r
CF(data, group)
```

Arguments

- **data**: A vector containing the observations to which the treatments are randomly assigned.
- **group**: A numerical or character vector indicating the treatment/control groups.

Value

- **pvalue**: the p-value of the Cochran F-test

Author(s)

Mustafa CA VUS
References


Examples

library(doex)
CF(hybrid$data, hybrid$species)

<table>
<thead>
<tr>
<th>Component data</th>
</tr>
</thead>
<tbody>
<tr>
<td>component</td>
</tr>
</tbody>
</table>

Description

Component data is a complete dataset consists lifetimes of a component which is produced by four different suppliers. The lifetimes of the component distribute as the two-parameter exponential distribution.

Usage

component

Value

<table>
<thead>
<tr>
<th>lifetime</th>
<th>A set of data on lifetimes of the components obtained from the different suppliers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>supplier</td>
<td>A set of suppliers produce the components.</td>
</tr>
</tbody>
</table>

Author(s)

Mustafa CAVUS

Examples

library(doex)
component$supplier; component$lifetime;
Description

This function performs Fiducial Approach test.

Usage

FA(data, group, rept)

Arguments

data A vector containing the observations to which the treatments are randomly assigned.
group A numerical or character vector indicating the treatment/control groups.
rept The loop size to perform the test.

Value

pvalue the p-value of the Fiducial Approach test

Author(s)

Mustafa CAVUS

References


Examples

library(doex)
FA(hybrid$data, hybrid$species)
fa_exp  

Fiducial Approach test for Two Parameter Exponential Distributions

Description

This function performs Fiducial Approach test for two-parameter exponential distributed populations.

Usage

fa_exp(data, group, rept)

Arguments

data  
A vector containing the observations to which the treatments are randomly assigned.

group  
A numerical or character vector indicating the treatment/control groups.

rept  
The loop size to perform the test.

Value

pvalue  
the p-value of the Fiducial Approach test for two-parameter exponential distributed populations

Author(s)

Mustafa CAVUS

References


Examples

library(doex)
fa_exp(component$lifetime, component$supplier)
**GF**

*Generalized F-test*

**Description**

This function performs Generalized F-test.

**Usage**

```r
GF(data, group, rept)
```

**Arguments**

- `data`: A vector containing the observations to which the treatments are randomly assigned.
- `group`: A numerical or character vector indicating the treatment/control groups.
- `rept`: The loop size to perform the test.

**Value**

- `pvalue`: the p-value of the Generalized F-test

**Author(s)**

Mustafa CA VUS

**References**


**Examples**

```r
library(doex)
GF(hybrid$data, hybrid$species)
```

---

**gpv_exp**

*Generalized p-value test for Two-Parameter Exponential Distributions*

**Description**

This function performs Generalized p-value test for two-parameter exponential distributed populations.

**Usage**

```r
gpv_exp(data, group, rept)
```
Arguments

data   A vector containing the observations to which the treatments are randomly assigned.

group  A numerical or character vector indicating the treatment/control groups.

rept   The loop size to perform the test.

Value

pvalue  the p-value of the Generalized p-value test for two-parameter exponential distributed populations

Author(s)

Mustafa CAVUS

References


Examples

library(doex)
gpv_exp(component$lifetime,component$supplier)

---

HS  

Hsieh test for Two Parameter Exponential Distributions

Description

This function performs Hsieh test for two-parameter exponential distributed populations.

Usage

HS(data, group)

Arguments

data   A vector containing the observations to which the treatments are randomly assigned.

group  A numerical or character vector indicating the treatment/control groups.

Value

pvalue  the p-value of the Hsieh test
Author(s)
Mustafa CA VUS

References

Examples
library(doex)
HS(component$lifetime,component$supplier)

hybrid Hybrid data

Description
Hybrid data is taken from Weerahandi (1995) where the goal is to compare four means of corn yields by four hybrids: A, B, C, D.

An agricultural research scientist is interested in comparing four hybrids of corn. The four corn hybrids were planted in a random order in 22 plots of equal size and fairly homogeneous soil conditions. A set of data on yield from corn hybrids obtained from the experiment.

The usual P-value based on the assumption of equal population within hybrid variances (F statistic 1.841) is 0.176, thus leading to acceptance of the null hypothesis of equal means. It is however clear from the values of the sample standard deviations that the assumption of equal population variances may not be tenable for this data set.

Usage
hybrid

Value
data A set of data on yield from corn hybrids obtained from the experiment.
species A set of corn hybrids.

Author(s)
Mustafa CA VUS

References
Examples

```
library(doex)
hybrid$data;
hybrid$species;
```

---

### Description

This function performs Johansen F-test.

### Usage

```
JF(data,group)
```

### Arguments

- **data**: A vector containing the observations to which the treatments are randomly assigned.
- **group**: A numerical or character vector indicating the treatment/control groups.

### Value

- **pvalue**: the p-value of the Johansen F-test

### Author(s)

Mustafa CAVUS

### References


### Examples

```
library(doex)
JF(hybrid$data,hybrid$species)
```
Description

This function performs modified Brown-Forsythe test.

Usage

MBF(data, group)

Arguments

data A vector containing the observations to which the treatments are randomly assigned.
group A numerical or character vector indicating the treatment/control groups.

Value

pvalue the p-value of the modified Brown-Forsythe test

Author(s)

Mustafa CAVUS

References


Examples

library(doex)
MBF(hybrid$data, hybrid$species)

Description

This function performs the modified generalized F-test.

Usage

MGF(data, group, rept)
Arguments

- **data**: A vector containing the observations to which the treatments are randomly assigned.
- **group**: A numerical or character vector indicating the treatment/control groups.
- **rept**: The loop size to perform the test.

Value

- **pvalue**: the p-value of the modified generalized F-test

Author(s)

- Mustafa CAVUS

References


Examples

```r
library(doex)
MGF(hybrid$data, hybrid$species)
```

---

**MW**  
*Modified Welch Test*

Description

This function performs adjusted Welch test.

Usage

`MW(data, group)`

Arguments

- **data**: A vector containing the observations to which the treatments are randomly assigned.
- **group**: A numerical or character vector indicating the treatment/control groups.

Value

- **tstat**: the test statistic of the adjusted Welch test
- **pvalue**: the p-value of the adjusted Welch test
Author(s)
Mustafa CAVUS

References

Examples

```r
library(doex)
MW(hybrid$data,hybrid$species)
```

OS One Stage test

Description
This function performs Chen’s one stage test.

Usage

```r
OS(data,group,nout,rept)
```

Arguments

- `data`: A vector containing the observations to which the treatments are randomly assigned.
- `group`: A numerical or character vector indicating the treatment/control groups.
- `nout`: an integer
- `rept`: The loop size to perform the test.

Value

- `pvalue`: the p-value of Chen’s one stage test

Author(s)
Mustafa CAVUS

References

Examples

```r
library(doex)
OS(hybrid$data,hybrid$species,1,10000)
```
One Stage Range test

Description

This function performs One Stage Range test.

Usage

OSR(data, group, nout, rept)

Arguments

data A vector containing the observations to which the treatments are randomly assigned.

group A numerical or character vector indicating the treatment/control groups.
nout an integer

rept The loop size to perform the test.

Value

pvalue the p-value of the One Stage Range test

Author(s)

Mustafa CAVUS

References


Examples

library(doex)

OSR(hybrid$data, hybrid$species, 1, 10000)
outly

Outlier generation function

Description

This function generates the outlier(s) by Interquantile range approach.

Usage

outly(ndata,noutlier,meand,vard,dif,alpha,normality.status,skewn.status)

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ndata</td>
<td>sample size of the data without outlier(s).</td>
</tr>
<tr>
<td>noutlier</td>
<td>number of outlier(s) in data.</td>
</tr>
<tr>
<td>meand</td>
<td>mean of the data.</td>
</tr>
<tr>
<td>vard</td>
<td>variance of the data.</td>
</tr>
<tr>
<td>dif</td>
<td>distance level of outlier(s) from the whiskers.</td>
</tr>
<tr>
<td>alpha</td>
<td>significance level for the normality test.</td>
</tr>
<tr>
<td>normality.status</td>
<td>a logical operator controls the normality of data with outlier. &quot;TRUE&quot; for normal and &quot;FALSE&quot; for non-normal</td>
</tr>
<tr>
<td>skewn.status</td>
<td>a logical operator controls the skewness of the data with outlier. &quot;0&quot; for symmetric, &quot;1&quot; for right-skewed and &quot;-1&quot; for left-skewed.</td>
</tr>
</tbody>
</table>

Value

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>data</td>
<td>the vector contains the generated data with outlier(s)</td>
</tr>
<tr>
<td>outlier</td>
<td>the vector contains the generated outlier(s)</td>
</tr>
<tr>
<td>normality.test</td>
<td>the result of the Shapiro-Wilk normality test for the generated data</td>
</tr>
</tbody>
</table>

Author(s)

Mustafa CAVUS

References


Examples

library(doex)
outly(8,2,2,0.05,FALSE)
**Description**

This function performs Parametric Bootstrap test.

**Usage**

PB(data, group, rept)

**Arguments**

data A vector containing the observations to which the treatments are randomly assigned.

group A numerical or character vector indicating the treatment/control groups.

rept The loop size to perform the test.

**Value**

pvalue the p-value of the Parametric Bootstrap test

**Author(s)**

Mustafa CAVUS

**References**


**Examples**

library(doex)
PB(hybrid$data, hybrid$species)
pb_exp  

**Parametric Bootstrap test for Two Parameter Exponential Distributions**

**Description**

This function performs Parametric Bootstrap test for two-parameter exponential distributed populations.

**Usage**

```
pb_exp(data, group, rept)
```

**Arguments**

- `data`: A vector containing the observations to which the treatments are randomly assigned.
- `group`: A numerical or character vector indicating the treatment/control groups.
- `rept`: The loop size to perform the test.

**Value**

- `pvalue`: the p-value of the Parametric Bootstrap test for two-parameter exponential distributed populations

**Author(s)**

Mustafa CAVUS

**References**


**Examples**

```
library(doex)
pb_exp(component$lifetime, component$supplier)
```
Description

This function performs Permutation F-test.

Usage

PF(data, group, rept)

Arguments

data A vector containing the observations to which the treatments are randomly assigned.
group A numerical or character vector indicating the treatment/control groups.
rept The loop size to perform the test.

Value

pvalue the p-value of the Permutation F-test

Author(s)

Mustafa CAVUS

References


Examples

library(doex)
PF(hybrid$data, hybrid$species, 1000)
**Description**

This function performs the revised generalized F-test.

**Usage**

```r
RGF(data, group, rept)
```

**Arguments**

- `data`: A vector containing the observations to which the treatments are randomly assigned.
- `group`: A numerical or character vector indicating the treatment/control groups.
- `rept`: The loop size to perform the test.

**Value**

- `pvalue`: the p-value of the revised generalized F-test

**Author(s)**

Mustafa CAVUS

**References**


**Examples**

```r
library(doex)
RGF(hybrid$data, hybrid$species)
```
**SS**  
*Scott-Smith Test*

**Description**
This function performs adjusted Scott-Smith test.

**Usage**

```r
SS(data, group)
```

**Arguments**
- `data` A vector containing the observations to which the treatments are randomly assigned.
- `group` A numerical or character vector indicating the treatment/control groups.

**Value**
- `pvalue` the p-value of the Scott-Smith test

**Author(s)**
Mustafa CA VUS

**References**

**Examples**

```r
library(doex)
SS(hybrid$data, hybrid$species)
```

---

**WA**  
*Welch-Aspin test*

**Description**
This function performs the Welch-Aspin test.

**Usage**

```r
WA(data, group)
```
Arguments

data  A vector containing the observations to which the treatments are randomly assigned.
group A numerical or character vector indicating the treatment/control groups.

Value

pvalue the p-value of the Welch-Aspin test

Author(s)

Mustafa CAVUS

References


Examples

library(doex)
WA(hybrid$data,hybrid$species)

\[ WE \quad Welch\ F-test \]

Description

This function performs Welch F-test.

Usage

\[ WE(data,group) \]

Arguments

data  A vector containing the observations to which the treatments are randomly assigned.
group A numerical or character vector indicating the treatment/control groups.

Value

pvalue the p-value of the Welch F-test

Author(s)

Mustafa CAVUS
References

Welch, B.L. (1951) On the comparison of several mean values, Biometrika, 38, 330-336.

Examples

library(doex)
WE(hybrid$data, hybrid$species)
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