Package 'gginference'

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Type Package

Title Visualise the Results of Inferential Statistics using 'ggplot2'

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Description Visualise the results of F test to compare two variances, Student's t-test, test of equal or given proportions, Pearson's chi-squared test for count data and test for association/correlation between paired samples.

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URL https://github.com/okgreece/gginference

BugReports https://github.com/okgreece/gginference/issues

Depends R (>= 3.5.0)

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Encoding UTF-8

LazyData true

Imports ggplot2, rlang, stats, utils

RoxygenNote 7.1.1

Suggests knitr, MASS, rmarkdown

NeedsCompilation no

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Repository CRAN

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R topics documented:

`accidentsData` *Car accident data*

Description

A data frame showing the use of seat belt and the driver status after a car accident in Greece.

Usage

```
accidentsData
```

Format

A data frame with 383 observations of 2 columns:

`record` factor representing the driver status

`seatBelt` factor indicating whether the driver wore a seatbelt

Source

The original data are available at Hellenic Statistical Authority

BirthDeath *Number of births and death in Greece*

Description

A data frame containing the number of births and deaths along with their rates from 1932 to 2016.

Usage

```
BirthDeath
```

Format

A data frame with 71 observations of 5 columns:

`Year` years 1932-2016
`Deaths` number of deaths
`DeathsRate` number of deaths per 1000 citizen
`Births` number of births
`BirthRate` number of births per 1000 citizen

Source

The original data are available at Hellenic Statistical Authority

BirthDeath2000 *Birth and Deaths before and after 2000*

Description

A data frame containing samples with the number of births and deaths before and after 2000.

Usage

```
BirthDeath2000
```

Format

A data frame with 30 observations of 3 columns:

`deaths` number of deaths
`births` number of births
`type` factor indicating if the number of births and deaths correspond before 2000 or after 2000

Source

The original data are available at Hellenic Statistical Authority

births *Births in Greece, 1976-1989*

Description

A data frame giving the number of births per 1000 people in Greece from 1976 to 1989.

Usage

```
births
```

Format

A data frame with 14 observations of 2 columns:

`year` years from 1976 to 1989

`rate` number of births per 1000 people

Source

The original data are available at Hellenic Statistical Authority

DieselbioRon95 *Bio diesel and RON 95 consumption*

Description

A data frame including a sample of bio diesel and RON 95 consumption in Greece.

Usage

```
DieselbioRon95
```

Format

A data frame with 24 observations of 5 columns:

`region` factor of Greek regions

`DieselBio_consumption2006` metric tons of bio-diesel consumption in 2006

`DieselBio_consumption2016` metric tons of bio-diesel consumption in 2016

`RON95_consumption2006` metric tons of ron 95 consumption in 2006

`RON95_consumption2016` metric tons of ron 95 consumption in 2016

Source

The original data are available at Hellenic Statistical Authority

FuelConsumption *FuelConsumption*

Description

A data frame containing the fuel consumption in Greece.

Usage

```
FuelConsumption
```

Format

A data frame with 50 observations of 8 columns:

`Geographic.area` factor with geographic area of Greece

`Regions` factor with regions of Greece

`Runits` factor with regional units of Greece

`RON95` metric tons of ron 95 consumption

`RON98_100` metric tons of ron 98 consumption

`DieselBio` metric tons of bio diesel consumption

`LPG` metric tons of liquefied petroleum gas consumption

`DieselC` metric tons of heating oil consumption

Source

The original data are available at Hellenic Statistical Authority

ggaov *Anova F test plot*

Description

Visualise anova F-test to determine whether group means are equal

Usage

```
ggaov(t, alpha=0.05, colaccept="lightsteelblue1",
colreject="grey84", colstat="navyblue")
```

Arguments

t	an object of class aov
alpha	alpha level for finding critical F value
colaccept	color for the acceptance region of the test
colreject	color for the area of rejection of the test
colstat	color of the statistic of the test line

Examples

```
# 21-th day
chick21 <- ChickWeight[ChickWeight$Time == 21,]
chickaov <- aov(weight~Diet, data = chick21)
summary(chickaov)

ggaov(chickaov, colaccept = "grey89", colreject = "black")
```

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ggchisqtest *Plot for Pearson's Chi-squared Test for Count Data*

Description

Visualise chi-squared contingency table tests and goodness-of-fit tests.

Usage

```
ggchisqtest(t, colaccept="lightsteelblue1", colreject="gray84",
colstat="navyblue", alpha=0.05)
```

Arguments

t	a list result of chisq.test of "htest" class
colaccept	color the acceptance area of the test
colreject	color for the rejection area of the test
colstat	color for the test statistic vline
alpha	default set to 0.05, choose confidence level for the plot as it is not stated in chisqtest

Examples

```
## Chi-squared test for given probabilities

x <- c(A = 20, B = 15, C = 25)
chisq_test <- chisq.test(x)
chisq_test
ggchisqtest(chisq_test)


x <- c(10, 86, 45, 38, 10)
p <- c(0.10, 0.40, 0.20, 0.20, 0.10)
chisq_test2 <- chisq.test(x, p = p)
chisq_test2
ggchisqtest(chisq_test2)



## Pearson's Chi-squared test

library(MASS)
sex_smoke <- table(survey$Sex, survey$Smoke)
chisq_test3 <- chisq.test(sex_smoke)
chisq_test3
ggchisqtest(chisq_test3)
```

`ggcortest` *Plot test for association between paired samples*

Description

Visualise test for association between paired samples, using Pearson's product moment correlation coefficient.

Usage

```
ggcortest(t, colaccept="lightskyblue1", colreject="grey94", colstat="navy")
```

Arguments

`t`	a list result of `cor.test` of "htest" class
`colaccept`	color the acceptance area of the test
`colreject`	color for the rejection area of the test
`colstat`	color for the test statistic vline

Examples

```
corr_test <- cor.test(iris$Sepal.Length, iris$Sepal.Width)
corr_test
ggcortest(corr_test)
```

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ggproptest *Plot test of Equal or Given Proportions*

Description

Visualise prop.test for testing the null that the proportions (probabilities of success) in several groups are the same, or that they equal certain given values.

Usage

```
ggproptest(t, alpha=0.05,colaccept="lightsteelblue1",
colreject="gray84", colstat="navyblue")
```

Arguments

t	a list result of prop.test of "htest" class
alpha	alpha level for ploting distribution, when prop.test is used on more than 2 samples
colaccept	color the acceptance area of the test
colreject	color for the rejection area of the test
colstat	color for the test statistic vline

Examples

```
x  <- c(5, 8, 12)
y <- c(8, 9, 13)
pr_test <- prop.test(x, y)
pr_test
ggproptest(pr_test)
```

ggttest *Student's t-test plot*

Description

Visualise one and/or two sample t-tests on vectors of data.

Usage

```
ggttest(t, colaccept="lightsteelblue1", colreject="grey84", colstat="navyblue")
```

Arguments

t	a list result of t.test of "htest" class
colaccept	color the acceptance area of the test
colreject	color for the rejection area of the test
colstat	color for the test statistic vline

Examples

```
t_test <- t.test(sleep$extra ~ sleep$group)
t_test
ggttest(t_test)


t_test2 <- t.test(x = 1:10, y = c(7:20))
t_test2
ggttest(t_test2)
```

ggvartest *F test plot*

Description

Visualise F test to compare two variances

Usage

```
ggvartest(t, colaccept = "lightsteelblue1",
colreject = "gray84", colstat = "navyblue")
```

Arguments

t	a list result of var.test of "htest" class
colaccept	color the acceptance area of the test, see colors
colreject	color for the rejection area of the test
colstat	color for the test statistic vline

Examples

```
x <- rnorm(50, mean = 0, sd = 2)
y <- rnorm(30, mean = 1, sd = 1)
var_test <- var.test(x, y)
var_test
ggvartest(var_test)
```

LaptopRates *LaptopRates*

Description

A data frame that contains sample ratings of 18 laptops, by three experts.

Usage

```
LaptopRates
```

Format

A data frame with 54 observations of 3 columns:

laptop laptop id, 1-18

expert a character of expert1,expert2,expert3 values

rating ratings-5 likert scale, 5 indicates a very good rate

`LivLab` *LivLab*

Description

A data frame containing a sample with the results of neuropsychological assessment before and after serious game intervention in the living lab, Thess-AHALL (Thessaloniki Active and Healthy Aging Living Lab) of Medical Physics Laboratory of Aristotle University of Thessaloniki.

Usage

```
LivLab
```

Format

A data frame with 10 observations of 2 columns:

`before` score in a neuropsychological test before serious game intervention

`after` score in a neuropsychological test after serious game intervention

Source

<http://aha-livinglabs.com/>

`MilkConsumption` *Milk consumption*

Description

A data frame containing a sample of the number of cow, sheep and goat milk bottles sold.

Usage

```
MilkConsumption
```

Format

A data frame with 13 observations of 3 columns:

`Cow.Milk` number of cow milk bottles

`Sheep.Milk` number of sheep milk bottles

`Goat.Milk` number of goat milk bottles

Source

The original data are available at Hellenic Statistical Authority

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`m_anova` *m_anova*

Description

A data frame with the volume of new stores by category for urban, suburban and rural areas.

Usage

```
m_anova
```

Format

A data frame with 54 observations of 4 columns:

`Categories` integer representing three categories

`UrbanAreas` coding for urban, suburban and rural areas

`Month` integer representing three months

`Volume` volume in cubic meters

Source

The original data are available at Hellenic Statistical Authority

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`profits_df` *Profits*

Description

A data frame with the profits of some companies for 5 months, constructed for teaching purposes.

Usage

```
profits_df
```

Format

A data frame with 26 companies (rows) of 5 months (columns).

questionnaire *Questionnaire Answers*

Description

A data frame containing a sample with the answers of students.

Usage

```
questionnaire
```

Format

A data frame with 50 observations of 8 columns:

`gender` A factor with the student gender

`writing.hand` A factor with the writing hand of the students(left, right)

`fold.arm` A factor with the top hand when the students fold their arms

`pulse` Integer with the pulse rate of students (beats per minute)

`exercise` A factor with the frequency the students exercises (none, some,frequently)

`smoke` A factor with the frequency the students smokes (heavy, regularly, occasionally, never)

`height` Integer with the height of the students (in centimeters)

`age` Integer with the age of the students

randexperiment *Random experiment results*

Description

A data frame with 128 sample results of a repeated experiment. Success is noted with 1 and failure with 0.

Usage

```
randexperiment
```

Format

A data frame with 128 observations of 1 column.

Salary_Gender *Female and male salaries*

Description

A sample data frame with female and male salaries of a company.

Usage

```
Salary_Gender
```

Format

A data frame with 100 observations of 2 columns:

`Male_sal` male salaries

`Female_sal` female salaries

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