Package ‘CIplot’
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Type Package
Title Functions to Plot Confidence Interval
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Description Plot confidence interval from the objects of statistical tests such as
t.test(), var.test(), cor.test(), prop.test() and fisher.test() (’htest’ class),
Tukey test [TukeyHSD()], Dunnett test [glht() in ’multcomp’ package],
logistic regression [glm()], and Tukey or Games-Howell test [posthocTGH() in
’userfriendlyscience’ package].
Users are able to set the styles of lines and points.
This package contains the function to calculate odds ratios and their confidence
intervals from the result of logistic regression.
Imports MASS, multcomp
Suggests BSDA, fmsb, userfriendlyscience
License GPL (>= 2)
URL https://github.com/toshi-ara/CIplot
BugReports https://github.com/toshi-ara/CIplot/issues/
RoxygenNote 6.0.1
Collate ‘CIplot.R’ ‘CIplot.default.R’ ‘CIplot.htest.R’
 ‘CIplot.TukeyHSD.R’ ‘CIplot.glht.R’ ‘CIplot(glm).R’

R topics documented:

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Description

A function to plot confidential interval for such as htest, TukeyHSD, glht (multcomp), glm (logistic regression only!) and posthocTGH (userfriendlyscience) objects.

Usage

CIplot(x, ...)

## Default S3 method:
CIplot(x, xlog = FALSE, xlim = NULL, xlab = NULL,
yname = TRUE, las = 0, pch = 21, pcol = 1, pcolbg = "white",
pcex = 1, conf.level = 0.95, cilty = 1, cilwd = 1, cicol = 1, v,
v1ty = 2, v1wd = 1, vcol = 1, main = NULL, ...)

## S3 method for class 'htest'
CIplot(x, xlog = FALSE, xlim = NULL, xlab = NULL,
yname = FALSE, v = NULL, ...)

## S3 method for class 'TukeyHSD'
CIplot(x, xlab = "Differences in mean", v = 0, ...)

## S3 method for class 'glht'
CIplot(x, xlab = "Differences in mean", v = 0, ...)

## S3 method for class 'glm'
CIplot(x, conf.level = 0.95, xlog = TRUE,
    xlab = "Odds Ratio", v = 1, ...)

## S3 method for class 'ORci'
CIplot(x, xlog = TRUE, xlab = "Odds Ratio", v = 1, ...)

## S3 method for class 'posthocTGH'
CIplot(x, xlab = "Differences in mean", v = 0, ...)

Arguments

x     default: matrix or data.frame class with 3 columns ('any name', lwr, upr),
or an object: htest, TukeyHSD, glht (multcomp), glm (logistic regression only!) or posthocTGH (userfriendlyscience).

... other options for x-axis.

xlog (logical) if log is TRUE, the x axis is drawn logarithmically. Default is FALSE.
ciplot call is made from the function [plotTukeyHSD](https://www.R-project.org).

## Arguments

- `xlim` the x limits (x1, x2) of the plot.
- `xlab` a title for the plot.
- `yname` If `yname` is TRUE, the name of comparison between groups are shown.
- `las` numeric in 0,1,2,3; the style of axis labels. Default is 0. see also `par`.
- `pch` plotting 'character', i.e., symbol to use.
- `pcol` color code or name of the points.
- `pcolbg` background (fill) color for the open plot symbols given by 'pch = 21:25'.
- `pcex` character (or symbol) expansion of points.
- `conf.level` default and glm object only. the confidence interval. Default is 0.95. see also ORCI.
- `cilty` line types of confidence intervals.
- `cilwd` line width of confidence intervals.
- `cicol` color code or name of confidence intervals.
- `v` the x-value(s) for vertical line.
- `vlty` line types of vertical line.
- `vlwd` line width of vertical line.
- `vcol` color code or name of vertical line.
- `main` a main title for the plot.

## Note

ciplot was made based on plot.TukeyHSD.

```r
# File src/library/stats/R/TukeyHSD.R
# Part of the R package, https://www.R-project.org
#
# Copyright (C) 2000-2001 Douglas M. Bates
# Copyright (C) 2002-2015 The R Core Team
```

## See Also

plot, axis, points, par.

## Examples

```
#### default (matrix or data.frame)
require(graphics)
x <- matrix(c(3, 1, 5,
  4, 2, 6), 2, 3, byrow = TRUE)
colnames(x) <- c("est1", "lw1", "upr")
rownames(x) <- c("A", "B")
ciplot(x, xlab = "difference", v = 2, las = 1)
```

```r
#### 'htest' objects
require(graphics)
```
```r
## t test
set.seed(1234)
a <- rnorm(10, 10, 2); b <- rnorm(10, 8, 2)
x <- t.test(a, b)
CIplot(x)

## binomial test
x <- binom.test(5, 20)
CIplot(x, xlim = c(0, 1))

## Fisher’s exact test
x <- matrix(c(10, 7, 8, 9), 2, 2, byrow = TRUE)
res <- fisher.test(x)
CIplot(res, xlog = TRUE)

#### 'TukeyHSD' objects
require(graphics)

## Tukey test
aov1 <- aov(breaks ~ tension + wool, data = warpbreaks)
x <- TukeyHSD(aov1)

oldpar <- par(no.readonly = TRUE)
par(mfrow = c(1, 2))
CIplot(x, las = 1)
par(oldpar)

## example of line type and color
aov1 <- aov(breaks ~ tension, data = warpbreaks)
x <- TukeyHSD(aov1)
CIplot(x, las = 1,
pcol = 2:4, pcolbg = 2:4, cicol = 2:4,
vlt = 1, vcol = "gray")

#### 'glht' objects
require(graphics)

## Tukey test
require(multcomp)
aov1 <- aov(breaks ~ tension, data = warpbreaks)
x <- glht(aov1, linfct = mcp(tension = "Tukey"))
CIplot(x, las = 1)

## Dunnett test
x <- glht(aov1, linfct = mcp(tension = "Dunnett"))
CIplot(x, las = 1)

#### 'glm' object: logistic regression only!
## odds ratio
require(graphics)
```
ORci

```
require(MASS)
data(birthwt)
x <- glm(low ~ age + lwt + smoke + ptl + ht + ui, data = birthwt,
       family = binomial)
CIplot(x, las = 1)
```

```
getPostG() object
## Tukey or Games-Howell methos
require(graphics)
if (require(userfriendlyscience)) {
  x <- posthocG(warpbreaks$breaks, warpbreaks$tension)
  CIplot(x, las = 1)
}
```

---

### ORci

**Calculate odds ratios and their confidence intervals from glm object**

**Description**

Calculate odds ratios and their confidence intervals from glm object

**Usage**

```
ORci(x, conf.level = 0.95)
```

**Arguments**

- `x` glm object (logistic regression only!).
- `conf.level` the confidence interval. Default is 0.95.

**Value**

an object ORci and matrix classes with four columns.

- **OR** odds ratio
- **lwr** lower confidence interval
- **upr** upper confidence interval
- **p.value** P value by logistic regression

**Examples**

```
require(graphics)
require(MASS)
data(birthwt)
x <- glm(low ~ age + lwt + smoke + ptl + ht + ui, data = birthwt,
       family = binomial)
OR1 <- ORci(x)
CIplot(OR1, las = 1)
```
print.ORci

---

**Description**

Print odds ratios and their confidence intervals of ORci object.

**Usage**

```r
## S3 method for class 'ORci'
print(x, ...)
```

**Arguments**

- `x` ORci object. see also ORci.
- `...` other options for print such as digits.

**See Also**

glm, ORci.

**Examples**

```r
require(MASS)
data(birthwt)
x <- glm(low ~ age + lwt + smoke + ptl + ht + ui, data = birthwt, family = binomial)
OR1 <- ORci(x)
print(OR1, digits = 3)
```
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