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)
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 'CIplot.TukeyHSD.R' 'CIplot.glht.R' 'CIplot.glm.R'
 'CIplot.ORci.R' 'CIplot.posthocTGH.R' 'ORci.R' 'print.ORci.R'

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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, 
vlty = 2, vlwd = 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

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.

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("esti", "lwr", "upr")
rownames(x) <- c("A", "B")
CIplot(x, xlab = "difference", v = 2, las = 1)

##### 'htest' objects
require(graphics)
## 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,
      vlty = 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)

### 'posthocTGH' object
## Tukey or Games-Howell method
require(graphics)
if (require(userfriendlyscience)) {
  x <- posthocTGH(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)
```
Description

Print odds ratios and their confidence intervals of ORci object.

Usage

## 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

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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