Package ‘violinmplot’
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Title Combination of violin plot with mean and standard deviation.
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Description A lattice violin-plot is overlayed with the arithmetic mean and standard deviation.
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R topics documented:

violinmplot-package ........................................ 1
panel.meansdplot ........................................... 3
panel.violinm ............................................. 4
violinmplot ................................................. 4

Index

violinmplot-package  Combined violin, mean and standard deviation plots.

Description

Combine violin plots with information about arithmetic mean and standard deviation.

Details
The package can be used to generate violin plots with overlayed arithmetic mean and standard deviation using the function `violinmplot`. See examples below.

**Author(s)**

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**References**

The package was developed for a 2009 German national survey of usability in healthcare IT. [http://www.usabil-it.de/2009/](http://www.usabil-it.de/2009/) (in German)

**See Also**

`lattice`

**Examples**

```r
library(lattice)
library(violinmplot)

## Sample data frame
x <- c(1,1,1,2,2,3,1,2,2,3,3,3)
g <- c(1,1,1,1,1,1,2,2,2,2,2,2)
f <- data.frame("Daten"=x,"Gruppe"=g)

## Display a horizontal violinmplot
violinmplot( Gruppe ~ Daten, data=f )

## Same plot displayed vertically
violinmplot( Daten ~ Gruppe, data=f, horizontal=FALSE)

## Display the plot again using functions from the package lattice
bwplot( Daten ~ Gruppe, data=f, horizontal=FALSE, panel=panel.violinm)

## Mean and standard deviation can be displayed without violins
bwplot( Daten ~ Gruppe, data=f, horizontal=FALSE, panel=panel.meansdplot)
```
**panel.meansdplot**

Lattice panel function to plot arithmetic mean and standard deviation.

**Description**

This function plots arithmetic mean and standard deviation for a given data frame. The arithmetic mean is displayed as a small rectangle with lines with the length of standard deviation protruding from its sides.

**Usage**

```r
panel.meansdplot(x, y, mean.pch = 15, mean.cex = 1, mean.col = "blue", ...)
```

**Arguments**

- **x**: data
- **y**: data
- **mean.pch**: character to plot for the arithmetic mean
- **mean.cex**: color for the arithmetic mean.
- **mean.col**: additional parameters passed to further functions called.

**Details**

This lattice panel function is used to plot the arithmetic mean and the standard deviation. It can be used with any lattice function allowing the specification of a panel function.

**Author(s)**

Raphael W. Majeed

**See Also**

- `violinmplot`
Lattice panel function to combine violin plots with arithmetic mean and standard deviation.

Description

This function combines violin plots with the corresponding arithmetic mean and standard deviation values in a lattice panel function. The panel function can be used with lattice functions like `bwplot`.

Usage

```r
panel.violinm(x, y, horizontal = TRUE, grid = TRUE,
               mean.col = "blue", violin.col = "transparent", ...)
```

Arguments

- `x`
- `y`
- `horizontal` Whether to display plots horizontally or vertically.
- `grid` Whether to display grid lines cutting the violins.
- `mean.col` color for the arithmetic mean.
- `violin.col` violin fill color
- `...` additional parameters to pass along called functions.

See Also

`violinmplot, panel.meansdplot`

Combined violin plot with arithmetic mean and standard deviation.

Description

This function combines a violin plot from the package lattice with values for the arithmetic mean and standard deviation.

Usage

```r
violinmplot(x, data, ...)
```
Arguments

- **x**
  a formula describing the plot, typically of the form \( y \sim x \).

- **data**
  the data frame containing values for any variables in the formula provided as argument \( x \).

- **...**
  further arguments which are passed on to other functions used by this package.

  Possible arguments are as follows:

  - **horizontal** Whether to display the plots horizontally. Defaults to `TRUE`.
  - **grid** Whether to display grid lines. Defaults to `TRUE`.
  - **col.mean** color for the arithmetic mean. Defaults to "blue".
  - **col.violin** fill color for the violin plot. Defaults to "transparent".

Value

An object of class "trellis". The `update.trellis` method can be used to update components of the object and the `print.trellis` method (usually called by default) will plot it on an appropriate plotting device.

Author(s)

Raphael W. Majeed

References

The package was developed for a 2009 German national survey of usability in healthcare IT.
http://www.usabil-it.de/2009/ (in German)

See Also

`Lattice`

Examples

```r
library(violinnplot)

## Sample data frame
x <- c(1,1,1,2,2,3, 1,2,2,3,3,3)
g <- c(1,1,1,1,1, 2,2,2,2,2,2)
f <- data.frame("Daten"=x,"Gruppe"=g)

## Display a horizontal violinplot
violinnplot( Gruppe ~ Daten, data=f )

## Same plot displayed vertically
violinnplot( Daten ~ Gruppe, data=f, horizontal=FALSE)
```
Index

*Topic package
  violinmplot-package, 1
*Topic plot
  violinmplot, 4
  violinmplot-package, 1

bwplot, 4

Lattice, 5
lattice, 2

panel.meansdplot, 3, 4
panel.violinm, 4
print.trellis, 5

update.trellis, 5

violinmplot, 2–4, 4
violinmplot-package, 1