

Package ‘waterfall’

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Type Package

Title Waterfall Charts

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<https://github.com/howardjp/waterfall>

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Description Provides support for creating waterfall charts in R
using both traditional base and lattice graphics.

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waterfall-package *Waterfall Charts*

Description

Create waterfall or "McKinsey" charts

Details

This package provides support for creating waterfall charts in R using both traditional base and lattice graphics.

Author(s)

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jaquith *Sample Business-Adjusted Risk Data*

Description

This dataset provides the sample business-adjusted risk from *Security Metrics* to illustrate non-financial waterfall charts.

Usage

```
data(jaquith)
```

Format

A data frame with 9 rows and 2 columns.

[,1]	factor	character	Factor label
[,2]	score	numeric	Relative score

Details

The dataset represents a sample business-adjusted risk calculation.

References

Andrew Jaquith, *Security Metrics: Replacing Fear, Uncertainty, and Doubt* (Boston: Addison-Wesley Professional, 2007), 170-171.

rasiel *Sample Financial Data*

Description

This dataset provides the sample financial data used in *The McKinsey Way* to illustrate financial waterfall charts.

Usage

```
data(rasiel)
```

Format

A data frame with 5 rows and 3 columns.

[,1]	label	character	Column label
[,2]	value	numeric	Column height
[,3]	subtotal	character	Group and subtotal labels

Details

The dataset represents a profit and loss statement for the fictional ACME Widget Corporation for 1998.

References

Ethan M. Rasiel, *The McKinsey Way: Using the Techniques of the World's Top Strategic Consultants to Help You and Your Business* (New York: McGraw-Hill, 1999), 115-116.

waterfallchart *Waterfall Chart*

Description

Creates a waterfall chart using Lattice

Usage

```
waterfallchart(x, data = NULL, groups = NULL, horizontal = FALSE,  
panel = panel.waterfallchart, prepanel = prepanel.waterfallchart,  
summaryname = "Total", box.ratio = 2, origin = 0, level.lines = TRUE,  
...)
```

Arguments

x	a formula describing the form of conditioning plot. The formula is generally of the form 'y ~ x g1 * g2 * ...', indicating that plots of 'y' (on the y axis) versus 'x' (on the x axis) should be produced conditional on the variables 'g1, g2, ...'. However, the conditioning variables 'g1,g2,...' may be omitted.
data	a data frame containing values (or more precisely, anything that is a valid 'envir' argument in 'eval', e.g., a list or an environment) for any variables in the formula, as well as 'groups' and 'subset' if applicable. If not found in 'data', or if 'data' is unspecified, the variables are looked for in the environment of the formula.
groups	a vector expected to act as a grouping variable within each panel, typically used to distinguish different groups by varying graphical parameters like color and line type. Unlike with the barchart function, groups specifies where subtotals columns, should appear. There is a subtotal created for each group specified. If no groups are given, a summary column is still reported.
horizontal	This argument is used to process the arguments to these high level functions, but more importantly, it is passed as an argument to the panel function, which is supposed to use it as appropriate.
panel	This draws the actual plot after bwplot has done the difficult work of processing the formula.
prepanel	This function returns the bwplot information on the number of columns to display and where to place labels.
summaryname	name of the summary column, usually "Total"
box.ratio	specifies the ratio of the width of the rectangles to the interrectangle space.
origin	initial offset relative to the x axis. The value serves as the logical starting point for the first column and any summary column. Defaults to 0.
level.lines	if FALSE, the lines connecting adjacent boxes are omitted from the display.
...	further arguments.

Details

This function closely mimics the [barchart](#) interface, but provides a type of chart called a waterfall plot, showing how multiple subvalues contribute to a total sum.

The bulk of the work is actually processed in [bwplot](#) which defines where tickmarks and other information outside the plot itself are placed. Only a formula method is provided.

Matrix and vector interfaces are not provided because mimicing the behavior of [barchart](#) for those interfaces produces unintelligible and undefined graphic output.

References

Andrew Jaquith, *Security Metrics: Replacing Fear, Uncertainty, and Doubt* (Boston: Addison-Wesley Professional, 2007), 170-172.

Ethan M. Rasiel, *The McKinsey Way: Using the Techniques of the World's Top Strategic Consultants to Help You and Your Business* (New York: McGraw-Hill, 1999), 113-118.

Examples

```

data(rasiel)
data(jaquith)
waterfallchart(value~label, data=rasiel, groups=rasiel$subtotal)
waterfallchart(factor~score, data=jaquith)

```

waterfallplot

*Waterfall Plot***Description**

Creates a waterfall plot with vertical or horizontal bars.

Usage

```

waterfallplot(height, width = 1, space = NULL, names.arg = NULL,
  horiz = FALSE, density = NULL, angle = 45, col = NULL,
  border = par("fg"), main = NA, sub = NA, xlab = NULL, ylab = NULL,
  xlim = NULL, ylim = NULL, xpd = TRUE, axes = TRUE, axisnames = TRUE,
  cex.axis = par("cex.axis"), cex.names = par("cex.axis"), plot = TRUE,
  axis.lty = 0, offset = 0, add = FALSE, summary = FALSE, rev = FALSE,
  level.lines = TRUE, ...)

```

Arguments

height	a vector of values describing the height of the bars that make up the plot. Matrices are not supported.
width	optional vector of bar widths. Re-cycled to length the number of bars drawn. Specifying a single value will have no visible effect unless 'xlim' is specified.
space	the amount of space (as a fraction of the average bar width) left before each bar. May be given as a single number or one number per bar. If not given explicitly, it defaults to 0.2.
names.arg	a vector of names to be plotted below each bar. If this argument is omitted, then the names are taken from the 'names' attribute of 'height.'
horiz	a logical value. If 'FALSE', the bars are drawn vertically with the first bar to the left. If 'TRUE', the bars are drawn horizontally with the first at the bottom.
density	a vector giving the density of shading lines, in lines per inch, for the bars or bar components. The default value of 'NULL' means that no shading lines are drawn. Non-positive values of 'density' also inhibit the drawing of shading lines.
angle	the slope of shading lines, given as an angle in degrees (counter-clockwise), for the bars or bar components.
col	a vector of colors for the bars or bar components. By default, grey is used.

<code>border</code>	the color to be used for the border of the bars. Use <code>'border = NA'</code> to omit borders. If there are shading lines, <code>'border = TRUE'</code> means use the same colour for the border as for the shading lines.
<code>main</code>	overall title for the plot.
<code>sub</code>	subtitle for the plot.
<code>xlab</code>	a label for the x-axis.
<code>ylab</code>	a label for the y-axis.
<code>xlim</code>	limits for the x-axis.
<code>ylim</code>	limits for the y-axis.
<code>xpd</code>	logical. Should bars be allowed to outside region?
<code>axes</code>	logical. If <code>'TRUE'</code> , a vertical (or horizontal, if <code>'horiz'</code> is true) axis is drawn.
<code>axisnames</code>	logical. If <code>'TRUE'</code> , and if there are <code>'names.arg'</code> (see above), the other axis is drawn (with <code>'lty=0'</code>) and labeled.
<code>cex.axis</code>	expansion factor for numeric axis labels.
<code>cex.names</code>	expansion factor for axis names (bar labels).
<code>plot</code>	logical. If <code>'FALSE'</code> , nothing is plotted.
<code>axis.lty</code>	the graphics parameter <code>'lty'</code> applied to the axis and tick marks of the categorical (default horizontal) axis. Note that by default the axis is suppressed.
<code>offset</code>	initial offset relative to the x axis. The value serves as the logical starting point for the first column and any summary column. Defaults to 0.
<code>add</code>	logical specifying if bars should be added to an already existing plot; defaults to <code>'FALSE'</code> .
<code>summary</code>	create a summary column. A summary column provides a final sum column showing the relative change from the offset. If a summary is requested and <code>names.arg</code> is set, the <code>names.arg</code> vector must include one extra entry with the summary column's name. Defaults to <code>FALSE</code> .
<code>rev</code>	reverse the order of columns? Defaults to <code>FALSE</code> .
<code>level.lines</code>	if <code>FALSE</code> , the lines connecting adjacent boxes are omitted from the display.
<code>...</code>	arguments to be passed to other methods. For the default method these can include further arguments (such as <code>'axes'</code> , <code>'asp'</code> and <code>'main'</code>) and graphical parameters (see <code>'par'</code>) which are passed to <code>'plot.window()'</code> , <code>'title()'</code> and <code>'axis'</code> .

Details

This function closely mimics the [barplot](#) interface, but provides a type of chart called a waterfall plot, showing how multiple subvalues contribute to a total sum.

This is a generic function, it currently only has a default method. A formula interface may be added eventually.

Value

A numeric vector say `'mp'`, giving the coordinates of *all* the bar midpoints drawn, useful for adding to the graph.

References

Andrew Jaquith, *Security Metrics: Replacing Fear, Uncertainty, and Doubt* (Boston: Addison-Wesley Professional, 2007), 170-172.

Ethan M. Rasiel, *The McKinsey Way: Using the Techniques of the World's Top Strategic Consultants to Help You and Your Business* (New York: McGraw-Hill, 1999), 113-118.

Examples

```
data(rasiel)
waterfallplot(rasiel$value, names.arg=rasiel$label)
```

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