

Package ‘plotbb’

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Title Grammar of Graphics for 'base' Plot

Version 0.1.1

Description A grammar of graphics framework built on 'base' graphics. It provides a 'bbplot' object and a '+' operator to incrementally compose plots from data, aesthetic mappings and layers, then render them using the base plotting system. The package includes common geometric layers (points, lines, segments, bars, histograms, boxplots and tiles), scales for color and other aesthetics, legends, faceting, themes, and significance annotations.

Imports graphics, magrittr, rlang, scales, methods, utils

Suggests stats, ape, aplot (>= 0.0.8), dplyr, ggplotify (>= 0.1.0), quarto, knitr, testthat

VignetteBuilder quarto

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as.bbplot	<i>as.bbplot</i>
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Description

convert a base plot function to a bbplot object

Usage

```
as.bbplot(fun)
```

Arguments

fun a function that plot something in base graphics

Details

the base plot function will be plotted as a canvas and users can apply theme and add layers to it

Value

A bbplot object

Author(s)

Guangchuang Yu

bbplot	<i>bbplot</i>
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Description

bbplot

Usage

```
bbplot(data, mapping = bb_aes())
```

Arguments

data	data
mapping	variable mapping

Details

a proof of concept for grammar of graphics based on base plot. The `bbplot` class contains data (input data), mapping (aesthetic mapping), layer (a list of plot layers), theme (theme setting) and labs (label setting, including title, subtitle, x and y labels).

Value

bbplot object

Author(s)

Guangchuang Yu

Examples

```
library(plotbb)
p <- bbplot(mtcars, bb_aes(mpg, disp, col=factor(cyl)))
p + bb_grid(col='grey50', lty='dashed') + bb_point(pch=19)
```

bb_aes	<i>bb_aes</i>
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Description

aesthetic mapping

Usage

```
bb_aes(x, y, ...)
```

Arguments

x	x variable
y	y variable
...	other mappings

Details

aesthetic mapping for bbplot

Value

enquo expression describing variables mapping to aesthetic attributes

Author(s)

Guangchuang Yu

bb_bar	<i>bb_boxplot</i>
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Description

boxplot layer
histogram layer
layer
significance layer

Usage

```
bb_bar(mapping = NULL, data = NULL, stat = "identity", width = 0.9, ...)  
bb_boxplot(mapping = NULL, data = NULL, ...)  
bb_errorbar(mapping = NULL, data = NULL, orientation = "y", width = 0.5, ...)  
bb_hist(mapping = NULL, data = NULL, ...)  
bb_line(mapping = NULL, data = NULL, ...)  
bb_lm(mapping = NULL, data = NULL, ...)  
bb_point(mapping = NULL, data = NULL, position = "identity", ...)  
bb_segment(mapping = NULL, data = NULL, ...)  
bb_signif(mapping = NULL, data = NULL, ...)  
bb_text(mapping = NULL, data = NULL, ...)  
bb_tile(mapping = NULL, data = NULL, ...)
```

Arguments

mapping	aesthetic mapping
data	layer data
stat	one of 'identity' or 'count'
width	bar width or errorbar cap width
...	addition parameter for the layer
orientation	one of 'y' or 'x'
position	one of 'identity' or 'jitter'

Details

bbplot layers

Value

A modified bbplot object
A modified bbplot object
A modified bbplot object
A modified bbplot object

Author(s)

Guangchuang Yu

Examples

```
library(plotbb)
p <- bbplot(mtcars, bb_aes(mpg, disp, col=factor(cyl))) +
  bb_point() + bb_lm(bb_aes(group=cyl), lwd=2)
```

bb_facet_wrap	<i>bb_facet_wrap</i>
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Description

Facet a bbplot object into multiple panels.

Usage

```
bb_facet_wrap(facets, ncol = NULL, nrow = NULL, scales = "fixed")
```

Arguments

facets	a formula specifying faceting variable, e.g. ~cyl.
ncol	number of columns.
nrow	number of rows.
scales	scale behavior across facets, one of 'fixed', 'free', 'free_x', or 'free_y'.

Value

A modified bbplot object

Author(s)

Guangchuang Yu

bb_grid	<i>bb_grid</i>
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Description

add grid lines

Usage

```
bb_grid(col = "lightgray", lty = par("lty"), lwd = par("lwd"), bg = TRUE)
```

Arguments

<code>col</code>	line color
<code>lty</code>	line type
<code>lwd</code>	line width
<code>bg</code>	whether plot the grid lines as background

Value

A modified `bbplot` object

Author(s)

Guangchuang Yu

<code>bb_labs</code>	<i>bb_labs</i>
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Description

change labels for `bbplot`

Usage

```
bb_labs(title = NULL, sub = NULL, xlab = NULL, ylab = NULL)
```

```
bb_title(title)
```

```
bb_sub(sub)
```

```
bb_xlab(xlab)
```

```
bb_ylab(ylab)
```

Arguments

<code>title</code>	title
<code>sub</code>	sub
<code>xlab</code>	xlab
<code>ylab</code>	ylab

Details

setting one or several of 'title', 'sub', 'xlab', and 'ylab'

Value

A modified bbplot object

Author(s)

Guangchuang Yu

Examples

```
library(plotbb)
p <- bbplot(mtcars, bb_aes(mpg, disp, col=factor(cyl))) + bb_point(pch=19)
p + bb_labs(title = "hello", sub = "just for demo",
            xlab="this is xlab", ylab = "this is ylab") +
  bb_title("hello world") # last one rules
```

bb_legend

bb_legend

Description

Add legend for aesthetic mapping.

Usage

```
bb_legend(
  position = "topright",
  title = NULL,
  aesthetic = "col",
  pch = 19,
  bty = "n",
  ...
)
```

Arguments

position	legend position passed to <code>graphics::legend</code> .
title	legend title.
aesthetic	currently only supports "col".
pch	point shape used in legend.
bty	box type passed to <code>graphics::legend</code> .
...	additional parameters passed to <code>graphics::legend</code> .

Value

A modified bbplot object

Author(s)

Guangchuang Yu

bb_scale_col_palette *bb_scale_col_palette*

Description

change col palette

Usage

`bb_scale_col_palette(palette = NULL)`

`bb_scale_col_manual(values)`

`bb_scale_col_gradient(low = "#132B43", high = "#56B1F7")`

Arguments

<code>palette</code>	color palette
<code>values</code>	colors for discrete scale.
<code>low</code>	low color for continuous scale.
<code>high</code>	high color for continuous scale.

Value

A modified `bbplot` object

Author(s)

Guangchuang Yu

bb_scale_pch_manual *aesthetic scales*

Description

aesthetic scales

Usage

```
bb_scale_pch_manual(values)

bb_scale_lty_manual(values)

bb_scale_cex_manual(values)

bb_scale_cex_continuous(range = c(0.8, 1.6))
```

Arguments

values	values used for mapping.
range	numeric length-2 range for continuous mapping.

Value

A modified bbplot object

Author(s)

Guangchuang Yu

bb_theme

bb_theme

Description

bbplot theme

Usage

```
bb_theme(...)

bb_theme_expand(...)

bb_theme_grey(...)

bb_theme_deepblue(...)

bb_theme_bw(...)

bb_theme_minimal(...)
```

Arguments

... parameters for graphics::par

Details

setting visual details of bbplot

Value

A modified bbplot object

Author(s)

Guangchuang Yu

set_bb_theme	<i>set_bb_theme</i>
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Description

set bb_theme

Usage

```
set_bb_theme(theme)
```

Arguments

theme bb_theme

Details

setting bb_theme for ordinary base plot command. It internally use par to set global graphic parameters. Users need to explicitly call unset_bb_theme() to restore original setting.

Value

setting selected theme as default (has side effect and will affect other base plot)

Author(s)

Guangchuang Yu

Examples

```
library(plotbb)
set_bb_theme(bb_theme_deepblue)
bbplot(mtcars, bb_aes(mpg, disp, col=factor(cyl))) + bb_point(pch=19)
```

unset_bb_theme	<i>unset_bb_theme</i>
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Description

unset bb_theme

Usage

unset_bb_theme()

Details

remove all the themes by set_bb_theme

Value

unset theme (i.e., restore par setting)

Author(s)

Guangchuang Yu

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