

Package ‘tableExtra’

October 26, 2021

Title Draws an Awesome Table

Version 1.0.1

Description Draws an awesome table.

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Encoding UTF-8

LazyData true

Roxygen list(markdown = TRUE)

RoxygenNote 7.1.2

Suggests testthat,
dplyr,
tibble

Depends R (>= 3.5.0)

Imports gtable,
grid

R topics documented:

draw_table_extra	1
get_table_extra_dimensions	4
gtable_legend	5
gtable_rbind	6
table_extra_grob	7
tableExtra	8
ttheme_awesome	8

Index	10
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draw_table_extra	<i>Graphical display of a table with circles of varying scales and colours. Draw a heatmap of size (m,n) where heatmap cells containg circles of varying size and color. The column names are displayed on the top side and are defined by colnames(dscale). Similary, row names are displayed left side and defined by rownames(dscale).</i>
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Description

Render a gtable containing circle grobs representing a numeric matrix.

Usage

```
draw_table_extra(
  dscale,
  theme,
  dims,
  output,
  dcolor = NULL,
  dscale_min = NULL,
  dscale_max = NULL,
  cols_more = NULL,
  rows_more = NULL,
  dscale_title_legend = "Scale title",
  dcolor_title_legend = "Color title",
  margin_x = unit(1, "inches"),
  margin_y = unit(1, "inches")
)
```

Arguments

<code>dscale</code>	a matrix of size (n,m) containing the values defining the circles' scales.
<code>theme</code>	a list of theme parameters. Use an instance of <code>theme_awesome</code> .
<code>output</code>	path to output file. Only pdf supported for now.
<code>dcolor</code>	(optional) a matrix of size (n,m) containing the values defining the circles' colors.
<code>dscale_min</code>	(optional) value for setting the minimum scale size of foreground grobs. Entries in the <code>dscale</code> matrix below <code>dscale_min</code> will have a scale of 0 (no grob).
<code>dscale_max</code>	(optional) value for setting the maximum scale size of foreground grobs. Entries in the <code>dscale</code> matrix above <code>dscale_max</code> will have a scale of 1.
<code>cols_more</code>	(optional) a named list of additional rows (top-part) of the plot for describing the columns. The list names will be used as row headers.
<code>rows_more</code>	(optional) a named list of additional columns (right-part) of the plot for describing the rows. The list names will be used as column headers.
<code>dscale_title_legend</code>	(optional) title for the colorbar providing a legend for scales.
<code>dcolor_title_legend</code>	(optional) title for the colorbar providing a legend for colors
<code>margin_x</code>	(optional) use it to fine-tune the width of the plot if some elements are not displayed correctly.
<code>margin_y</code>	(optional) use it to fine-tune the height of the plot if some elements are not displayed correctly.

Value

An grob object.

Author(s)

Yoann Pradat

See Also[ttheme_awesome\(\)](#), [gtable_table\(\)](#), [gtable_legend\(\)](#)**Examples**

```

library(dplyr)
library(tableExtra)

pcawg_plot_data <- function(){
  scale_breaks <- seq(from=0, to=1, by=0.1)
  color_palette <- c("#ffc651", "#ffa759", "#ff8962", "#ff6b6b", "#cc6999", "#9968c8", "#6767f8", "#4459ce",
                    "#224ba5", "#013d7c")
  color_breaks <- c(0, 0.05, 0.1, 0.25, 0.5, 1, 2.5, 5, 10, 25, 1e6)
  color_bg <- c("#f8f9fa", "#e9ecef")

  theme <- ttheme_awesome(base_size=12,
                        rep_mode="col",
                        core_size=5,
                        scale_breaks=scale_breaks,
                        color_palette=color_palette,
                        color_breaks=color_breaks,
                        core=list(bg_params=list(fill=color_bg)))

  # define dscale and cols_more from PCAWG data
  dscale <- pcawg_counts %>%
    group_by(Cancer.Types) %>%
    mutate(n=n()) %>%
    summarize_at(vars(-Sample.Names, -Accuracy), ~sum(.x>0)) %>%
    mutate_at(vars(-Cancer.Types, -n), ~./n)

  cols_more <- list("n"=dscale$n)
  dscale$n <- NULL
  dscale <- column_to_rownames(.data=dscale, var="Cancer.Types")
  dscale <- t(as.matrix(dscale))

  # define dcolor and rows_more from PCAWG data
  rows_more <- list("Aetiology"=sbs_aetiologies[sbs_aetiologies$Signature %in% rownames(dscale), "Aetiology"])

  dcolor <- pcawg_counts %>%
    group_by(Cancer.Types) %>%
    summarize_at(vars(-Sample.Names, -Accuracy), ~median(.[.!=0]*1e6/3.2e9)) %>%
    replace(is.na(.),0)

  dcolor <- column_to_rownames(.data=dcolor, var="Cancer.Types")
  dcolor <- t(as.matrix(dcolor))

  list(dscale=dscale, dcolor=dcolor, cols_more=cols_more, rows_more=rows_more, theme=theme)
}

# tables needed for the plot and graphical parameters in `theme`
plot_data <- pcawg_plot_data()

```

```
# draw
output <- file.path(system.file("tests", "outputs", package="tableExtra"), "table_extra_grob_pcawg.pdf")
draw_table_extra(dscale=plot_data$dscale, theme=plot_data$theme, output=output,
                 dcolor=plot_data$dcolor, cols_more=plot_data$cols_more, rows_more=plot_data$rows_more,
                 dscale_title_legend="Prop of tumors with the signature",
                 dcolor_title_legend="Median mut/Mb due to signature")
graphics.off()
```

```
get_table_extra_dimensions
```

Get width and height of the plot

Description

Compute the width and height in user-specified unit required for drawing the plot.

Usage

```
get_table_extra_dimensions(
  dscale,
  dcolor,
  theme,
  rows_more = NULL,
  cols_more = NULL,
  unit = "inches",
  dscale_title_legend = NULL,
  dcolor_title_legend = NULL,
  margin_x = unit(1, "inches"),
  margin_y = unit(1, "inches")
)
```

Arguments

<code>dscale</code>	a matrix of size (n,m) containing the values defining the circles' scales.
<code>dcolor</code>	(optional) a matrix of size (n,m) containing the values defining the circles' colors.
<code>theme</code>	a list of theme parapemters. Use an instance of <code>ttheme_awesome</code> .
<code>rows_more</code>	(optional) a named list of additional columns (right-part) of the plot for describing the rows. The list names will be used as column headers.
<code>cols_more</code>	(optional) a named list of additional rows (top-part) of the plot for describing the columns. The list names will be used as row headers.
<code>unit</code>	(optional) choose any unit that is valid for <code>grid::unit</code> .
<code>dscale_title_legend</code>	(optional) title for the colorbar providing a legend for scales.
<code>dcolor_title_legend</code>	(optional) title for the colorbar providing a legend for colors
<code>margin_x</code>	(optional) use it to fine-tune the width of the plot if some elements are not displayed correctly.
<code>margin_y</code>	(optional) use it to fine-tune the height of the plot if some elements are not displayed correctly.

Value

a list with the width and the height

Author(s)

Yoann Pradat

gtable_legend

Build a grob containing a legend.

Description

Build a grob with a legend inside.

Usage

```
gtable_legend(
  d,
  labels,
  widths,
  heights,
  fg_fun,
  fg_params,
  bg_fun = NULL,
  bg_params = NULL,
  title_x = NULL,
  title_y = NULL,
  title_label = "Title",
  title_gp = gpar(fontsize = 10),
  labels_pad = -1,
  labels_gp = gpar(fontsize = 6),
  padding = 0.3,
  size_unit = "mm",
  name = "legend",
  vp = NULL,
  orientation = c("horizontal", "vertical"),
  ...
)
```

Arguments

d	data.frame or matrix
widths	optional unit.list specifying the grob widths
heights	optional unit.list specifying the grob heights
fg_fun	grob-drawing function
fg_params	named list of params passed to fg_fun
bg_fun	grob-drawing function
bg_params	named list of params passed to bg_fun
title_x	unit specifying the x position of the title

title_y	unit specifying the x position of the title
title_label	character vector
title_gp	graphical parameters of the title
labels_pad	padding between the text labels
labels_gp	graphical parameters of the text labels
padding	numeric vector specifying the padding between adjacent cells.
size_unit	character vector defining the unit used for sizes. See <code>grid::unit</code> for all possible specifications
name	name of the grob
vp	optional viewport
orientation	choose 'horizontal' or 'vertical'
...	additional parameters passed to <code>add_table_params</code> .

Value

A gtable.

Author(s)

Yoann Pradat

<code>gtable_rbind</code>	<i>rbind two or more gtables</i>
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Description

rbind two or more gtables

cbind two or more gtables

Usage

```
gtable_rbind(..., size = "max", height = NULL, z = NULL)
```

```
gtable_cbind(..., size = "max", width = NULL, z = NULL)
```

Arguments

...	gtables
size	how should the widths be calculated? <ol style="list-style-type: none"> 1. max maximum of all widths 2. min minimum of all widths 3. first widths/heights of first gtable 4. last widths/heights of last gtable
height	padding height between grobs
z	optional z level
width	padding width between grobs

table_extra_grob	<i>Grob underlying graphical display of a table with circles of varying scales and colours. The code is inspired by the tableGrob function gridExtra</i>
------------------	--

Description

Create a gtable containing circle grobs representing a numeric matrix.

Usage

```
table_extra_grob(  
  dscale,  
  dcolor = NULL,  
  dscale_min = NULL,  
  dscale_max = NULL,  
  rows = rownames(dscale),  
  cols = colnames(dscale),  
  rows_more = NULL,  
  cols_more = NULL,  
  theme = ttheme_awesome(),  
  vp = NULL  
)
```

Arguments

dscale	a matrix
dcolor	(optional) a matrix
dscale_min	value for setting the minimum scale size of foreground grobs. Entries in the dscale matrix below dscale_min will have a scale of 0 (no grob).
dscale_max	value for setting the maximum scale size of foreground grobs. Entries in the dscale matrix above dscale_max will have a scale of 0 (no grob).
rows	(optional) a character vector
cols	(optional) a character vector
rows_more	(optional) a named list of additional columns (right-part) of the plot for describing the rows. The list names will be used as column headers.
cols_more	(optional) a named list of additional rows (top-part) of the plot for describing the columns. The list names will be used as row headers.
theme	list of theme parameters
vp	optional viewport

Value

An R object of class grob

Author(s)

Yoann Pradat

See Also

[ttheme_awesome\(\)](#)

tableExtra

tableExtra: A package for awesome tables

Description

'tableExtra' provides a function to draw a table with grobs of varying size and colors to represent two different types of information about multiple variables in multiple samples. The package was originally developed to reproduce Figure 3 of Alexandrov, L.B., Kim, J., Haradhvala, N.J. et al. The repertoire of mutational signatures in human cancer. Nature 578, 94–101 (2020). doi: [10.1038/s4158602019433](#)

Author(s)

Yoann Pradat

ttheme_awesome

Define theme for awesome table plot.

Description

Define theme for awesome table plot.

Usage

```
ttheme_awesome(
  base_size = 8,
  base_colour = "black",
  base_family = "",
  core_size = 10,
  scale_breaks = 10,
  scale_ratio = 0.25,
  color_palette = "black",
  color_breaks = NULL,
  rep_mode = "col",
  parse = FALSE,
  size_unit = "mm",
  padding = c(0.3, 0.3),
  show_legend = T,
  legend_position = NULL,
  legend_layout = NULL,
  legend_x = NULL,
  legend_y = NULL,
  legend_width = NULL,
  legend_height = NULL,
  legend_scale = 1.5,
  legend_title_fontsize = 12,
```



```

    legend_labels_fontsize = 10,
    legend_labels_pad = -1.2,
    ...
)

```

Arguments

<code>base_size</code>	default font size
<code>base_colour</code>	default font colour
<code>base_family</code>	default font family
<code>core_size</code>	cell size for core background grobs
<code>scale_breaks</code>	number of size categories for core foreground grobs or numeric vector of bin breaks
<code>scale_ratio</code>	ratio of minimum to maximum core foreground grobs sizes
<code>color_palette</code>	color palette for core foreground grobs
<code>color_breaks</code>	bin breaks for color palette for core foreground grobs
<code>rep_mode</code>	'col' or 'row'. Used when recycling <code>fg_params</code> or <code>bg_params</code> to make a matrix of params.
<code>parse</code>	logical, default behaviour for parsing text as plotmath
<code>size_unit</code>	character vector defining the unit used for sizes. See <code>grid::unit</code> for all possible specifications.
<code>padding</code>	length-2 vector specifying the horizontal and vertical padding of text within each cell
<code>show_legend</code>	(optional) set to FALSE to not draw any legend.
<code>legend_position</code>	(optional) choose between 'top_left', 'top_center' and 'top_right'.
<code>legend_layout</code>	(optional) Only 'columnwise' is supported for now.
<code>legend_x</code>	(optional) x position in 'npc' units of the left bottom corner of the viewport defining the scale legend. If NULL, the function will try to set it automatically using <code>legend_position</code> .
<code>legend_y</code>	(optional) y position in 'npc' units of the left bottom corner of the viewport defining the scale legend. If NULL, the function will try to set it automatically.
<code>legend_width</code>	(optional) width in 'npc' units of the viewport(s) defining legend(s). If NULL, the function will try to set it automatically.
<code>legend_height</code>	(optional) height in 'npc' units of the viewport(s) defining legend(s). If NULL, the function will try to set it automatically.
<code>legend_scale</code>	(optional) Scale factor that defines the size of the legend colorbar cells relatively to the main plot cells.
<code>legend_title_fontsize</code>	(optional) if NULL, font size is set to <code>theme\$colhead\$fontsize</code> .
<code>legend_labels_fontsize</code>	(optional) if NULL, font size is set to <code>theme\$colhead\$fontsize</code> .
<code>legend_labels_pad</code>	(optional) padding between the legend labels.
<code>...</code>	extra parameters added to the theme list

Author(s)

Yoann Pradat

Index

`draw_table_extra`, 1

`get_table_extra_dimensions`, 4

`gtable_cbind(gtable_rbind)`, 6

`gtable_legend`, 5

`gtable_legend()`, 3

`gtable_rbind`, 6

`gtable_table()`, 3

`table_extra_grob`, 7

`tableExtra`, 8

`ttheme_awesome`, 8

`ttheme_awesome()`, 3, 8