Package 'tableExtra'

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Title Draws an Awesome Table

Version 1.0.1

Description Draws an awesome table.

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Suggests testthat,
dplyr,
tibble

Depends R (>= 3.5.0)

Imports gtable,
grid

R topics documented:

`draw_table_extra` *Graphical display of a table with circles of varying scales and colours. Draw a heatmap of size (m,n) with cells containing circles of varying size and color. The column names are displayed on the top side and are defined by* `colnames(dscale)`. *Similarly, row names are displayed left side and defined by* `rownames(dscale)`.

Description

Render a gtable containing circle grobs representing a numeric matrix.

Usage

```
draw_table_extra(
  dscale,
  theme,
  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

dscale	a matrix of size (n,m) containing the values defining the circles' scales.
theme	a list of theme parameters. Use an instance of ttheme_awesome.
output	path to output file. Only pdf supported for now.
dcolor	(optional) a matrix of size (n,m) containing the values defining the circles' colors.
dscale_min	(optional) 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	(optional) value for setting the maximum scale size of foreground grobs. Entries in the dscale matrix above dscale_max will have a scale of 1.
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.
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.
dscale_title_legend	(optional) title for the colorbar providing a legend for scales.
dcolor_title_legend	(optional) title for the colorbar providing a legend for colors
margin_x	(optional) use it to fine-tune the width of the plot if some elements are not displayed correctly.
margin_y	(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

```
## Not run:
library(dplyr)
library(tableExtra)
library(tibble)

# load data
load(system.file("testdata", "pcawg_counts.rda", package="tableExtra"))
load(system.file("testdata", "sbs_aetiologies.rda", package="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
  mask <- sbs_aetiologies$Signature %in% rownames(dscale)
  rows_more <- list("Aetiology"=sbs_aetiologies[mask, "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 <- "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()

## End(Not run)
```

`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

`dscale`	a matrix of size (n,m) containing the values defining the circles' scales.
`dcolor`	(optional) a matrix of size (n,m) containing the values defining the circles' colors.
`theme`	a list of theme parameters. Use an instance of `ttheme_awesome`.
`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.
`unit`	(optional) choose any unit that is valid for `grid::unit`.
`dscale_title_legend`	(optional) title for the colorbar providing a legend for scales.

dcolor_title_legend
: (optional) title for the colorbar providing a legend for colors

margin_x
: (optional) use it to fine-tune the width of the plot if some elements are not displayed correctly.

margin_y
: (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
labels	tick labels displayed at legend tick marks
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 grid::unit for all possible specifications
name	name of the grob
vp	optional viewport
orientation	choose 'horizontal' or 'vertical'
...	additional parameters passed to add_table_params.

Value

A gtable.

Author(s)

Yoann Pradat

---

gtable_rbind *rbind two or more gtables*

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? 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

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

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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()

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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

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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

base_size	default font size
base_colour	default font colour
base_family	default font family
core_size	cell size for core background grobs
scale_breaks	number of size categories for core foreground grobs or numeric vector of bin breaks
scale_ratio	ratio of minimum to maximum core foreground grobs sizes
color_palette	color palette for core foreground grobs
color_breaks	bin breaks for color palette for core foreground grobs
rep_mode	'col' or 'row'. Used when recycling fg_params or bg_params to make a matrix of params.
parse	logical, default behaviour for parsing text as plotmath
size_unit	character vector defining the unit used for sizes. See grid::unit for all possible specifications.
padding	length-2 vector specifying the horizontal and vertical padding of text within each cell
show_legend	(optional) set to FALSE to not draw any legend.
legend_position	(optional) choose between 'top_left', 'top_center' and 'top_right'.
legend_layout	(optional) Only 'columnwise' is supported for now.
legend_x	(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 legend_position.
legend_y	(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.
legend_width	(optional) width in 'npc' units of the viewport(s) defining legend(s). If NULL, the function will try to set it automatically.

`legend_height` (optional) height in 'npc' units of the viewport(s) defining legend(s). If NULL, the function will try to set it automatically.

`legend_scale` (optional) Scale factor that defines the size of the legend colorbar cells relatively to the main plot cells.

`legend_title_fontsize` (optional) if NULL, font size is set to `theme$colhead$fontsize`.

`legend_labels_fontsize` (optional) if NULL, font size is set to `theme$colhead$fontsize`.

`legend_labels_pad` (optional) padding between the legend labels.

`...` extra parameters added to the theme list

Author(s)

Yoann Pradat

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