

Package ‘coveffectsplot’

February 25, 2019

Title Produce Forest Plots to Visualize Covariate Effects

Version 0.0.3

Description Produce forest plots to visualize covariate effects using either the command line or an interactive 'Shiny' application.

URL <https://github.com/smouksassi/interactiveforestplot>

BugReports <https://github.com/smouksassi/interactiveforestplot/issues>

Depends R (>= 3.1.0)

Imports colourpicker, dplyr, egg, ggplot2, ggstance, markdown, shiny, shinyjs, stats, tidyr, utils

Suggests MASS, knitr, rmarkdown, ggridges, plotly

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SystemRequirements pandoc with https support

LazyData true

VignetteBuilder knitr

RoxygenNote 6.1.1

NeedsCompilation no

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Repository CRAN

Date/Publication 2019-02-25 10:30:04 UTC

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 forest_plot

Forest plot

Description

Produce forest plots to visualize covariate effects

Usage

```
forest_plot(data, facet_formula = "covname~paramname", xlabel = "",
  ylabel = "", x_facet_text_size = 13, y_facet_text_size = 13,
  x_label_text_size = 16, y_label_text_size = 16,
  table_text_size = 7, ref_legend_text = "", area_legend_text = "",
  interval_legend_text = "", legend_order = c("pointinterval", "ref",
  "area", "shape"), combine_area_ref_legend = TRUE,
  show_ref_area = TRUE, ref_area = c(0.8, 1.25), ref_value = 1,
  ref_area_col = "#BEBEBE50", interval_col = "blue",
  strip_col = "#E5E5E5", paramname_shape = FALSE,
  facet_switch = c("both", "y", "x", "none"), facet_scales = c("fixed",
  "free_y", "free_x", "free"), facet_space = c("fixed", "free_x",
  "free_y", "free"), strip_placement = c("inside", "outside"),
  major_x_ticks = NULL, minor_x_ticks = NULL, x_range = NULL,
  show_table_facet_strip = FALSE, show_table_yaxis_tick_label = FALSE,
  table_position = c("right", "below", "none"), plot_table_ratio = 4,
  vertical_dodge_height = 0.8, legend_space_x_mult = 1,
  return_list = FALSE)
```

Arguments

data	Data to use.
facet_formula	Facet formula.
xlabel	X axis title.
ylabel	Y axis title.
x_facet_text_size	Facet text size X.
y_facet_text_size	Facet text size Y.
x_label_text_size	X axis labels size.
y_label_text_size	Y axis labels size.
table_text_size	Table text size.
ref_legend_text	Reference legend text.

area_legend_text	Area legend text.
interval_legend_text	Pointinterval Legend text.
legend_order	Legend order. A four-element vector with the following items ordered in your desired order: "pointinterval", "ref", "area", "shape". if an item is absent the legend will be omitted.
combine_area_ref_legend	Combine reference and area legends if they share the same text?
show_ref_area	Show reference window?
ref_area	Reference area. Two-element numeric vector.
ref_value	X intercept of reference line.
ref_area_col	Reference area background color.
interval_col	Point range color.
strip_col	Strip background color.
paramname_shape	Map symbol to parameter(s)?
facet_switch	Facet switch to near axis. Possible values: "both", "y", "x", "none".
facet_scales	Facet scales. Possible values: "free_y", "fixed", "free_x", "free".
facet_space	Facet spaces. Possible values: "fixed", "free_x", "free_y", "free".
strip_placement	Strip placement. Possible values: "inside", "outside".
major_x_ticks	X axis major ticks. Numeric vector.
minor_x_ticks	X axis minor ticks. Numeric vector.
x_range	Range of X values. Two-element numeric vector.
show_table_facet_strip	Possible values: "none", "both", "y", "x"
show_table_yaxis_tick_label	Show table y axis ticks and labels?
table_position	Table position. Possible values: "right", "below", "none".
plot_table_ratio	Plot-to-table ratio. Suggested value between 1-5.
vertical_dodge_height	Amount of vertical dodging to apply on segments and table text.
legend_space_x_mult	Multiplier to adjust the spacing between legend items.
return_list	What to return if True a list of the main and table plots is returned instead of the gtable/plot.

Examples

```

library(dplyr)

# Example 1

plotdata <- get_sample_data("forest-plot-table.csv")
plotdata <- plotdata %>%
  mutate(midlabel = format(round(mid,2), nsmall = 2),
         lowerlabel = format(round(lower,2), nsmall = 2),
         upperlabel = format(round(upper,2), nsmall = 2),
         LABEL = paste0(midlabel, " [", lowerlabel, "-", upperlabel, "]"))
param <- "BZD AUC"
plotdata <- filter(plotdata,paramname==param)
plotdata$covname <- reorder(plotdata$covname,plotdata$upper,FUN =max)
plotdata$label <- reorder(plotdata$label,plotdata$scen)
covs <- c("WEIGHT","AGE")
plotdata <- filter(plotdata,covname%in%covs)
forest_plot(plotdata,
            ref_legend_text = "Reference (vertical line)",
            area_legend_text = "Reference (vertical line)",
            xlabel = paste("Fold Change in", param, "Relative to Reference"),
            show_ref_area = FALSE,
            facet_formula = "covname~.",
            facet_scales = "free_y",
            facet_space = "free_y",
            show_table_facet_strip = "none",
            table_position = "right",
            plot_table_ratio = 4)

# Example 2

plotdata <- get_sample_data("forest-plot-table.csv")
plotdata <- plotdata %>%
  mutate(midlabel = format(round(mid,2), nsmall = 2),
         lowerlabel = format(round(lower,2), nsmall = 2),
         upperlabel = format(round(upper,2), nsmall = 2),
         LABEL = paste0(midlabel, " [", lowerlabel, "-", upperlabel, "]"))
param <- c("BZD AUC","BZD Cmax")
plotdata <- filter(plotdata,paramname%in%param)
plotdata <- filter(plotdata,covname%in%"WEIGHT")
plotdata$covname <- reorder(plotdata$covname,plotdata$upper,FUN =max)
plotdata$label <- reorder(plotdata$label,plotdata$scen)
forest_plot(plotdata,
            ref_legend_text = "Reference (vertical line)",
            area_legend_text = "Reference (vertical line)",
            xlabel = paste("Fold Change of Parameter", "Relative to Reference"),
            show_ref_area = FALSE,
            facet_formula = "covname~paramname",
            facet_scales = "free_y",
            facet_space = "free_y",
            x_facet_text_size = 10,
            y_facet_text_size = 10,

```

```

        y_label_text_size = 10,
        x_label_text_size = 10,
        facet_switch = "both",
        show_table_facet_stripe = "both",
        show_table_yaxis_tick_label = TRUE,
        table_position = "below",
        plot_table_ratio = 1)

## Not run:
# Example 3

plotdata <- get_sample_data("forestplotdatacpidata.csv")
forest_plot(plotdata,
            ref_area = c(0.8, 1.2),
            x_facet_text_size = 12,
            y_facet_text_size = 12,
            y_label_text_size = 10,
            x_label_text_size = 10,
            table_text_size = 6,
            plot_table_ratio = 1.5,
            ref_legend_text = "Reference (vertical line)\n+/- 20% limits (colored area)",
            area_legend_text = "Reference (vertical line)\n+/- 20% limits (colored area)",
            xlabel = "Fold Change Relative to RHZE",
            facet_formula = "covname~paramname",
            table_position = "below",
            show_table_facet_stripe = "both",
            show_table_yaxis_tick_label = TRUE)

# Example 4
plotdata <- get_sample_data("dataforest.csv")
plotdata <- plotdata %>%
  mutate(midlabel = format(round(mid,2), nsmall = 2),
         lowerlabel = format(round(lower,2), nsmall = 2),
         upperlabel = format(round(upper,2), nsmall = 2),
         LABEL = paste0(midlabel, " [", lowerlabel, "-", upperlabel, "]"))
plotdata <- plotdata %>%
  filter(covname%in%c("Weight"))
plotdata$label <- as.factor(as.character(plotdata$label))
plotdata$label <- factor(plotdata$label, c("36.2 kg","66 kg","110 kg"))
forest_plot(plotdata,
            ref_area = c(0.8, 1.2),
            x_facet_text_size = 13,
            y_facet_text_size = 13,
            ref_legend_text = "Reference (vertical line)\n+/- 20% limits (colored area)",
            area_legend_text = "Reference (vertical line)\n+/- 20% limits (colored area)",
            xlabel = "Fold Change Relative to Parameter",
            facet_formula = "covname~paramname",
            facet_switch = "both",
            facet_scales = "free",
            facet_space = "fixed",
            table_position = "below",
            plot_table_ratio = 1,
            show_table_facet_stripe = "both",
            show_table_yaxis_tick_label = TRUE)

```

```
# Example 5

forest_plot(plotdata,
            ref_area = c(0.8, 1.2),
            x_facet_text_size = 13,
            y_facet_text_size = 13,
            ref_legend_text = "Reference (vertical line)\n+/- 20% limits (colored area)",
            area_legend_text = "Reference (vertical line)\n+/- 20% limits (colored area)",
            xlabel = "Fold Change Relative to Parameter",
            facet_formula = "covname~.",
            facet_switch = "both",
            facet_scales = "free",
            facet_space = "fixed",
            paramname_shape = TRUE,
            table_position = "none",
            ref_area_col = rgb( col2rgb("gray50")[1], col2rgb("gray50")[2],col2rgb("gray50")[3],
                               max = 255, alpha = 0.1*255 ) ,
            interval_col = "steelblue",
            strip_col = "lightblue",
            plot_table_ratio = 1)

## End(Not run)
```

get_sample_data	<i>Get sample dataset</i>
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Description

Get a sample dataset that is included with the package to plot a forest plot.

Usage

```
get_sample_data(dataset = "dfall.csv")
```

Arguments

dataset	A sample dataset file.
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prezista	<i>Prezista Drug Label Data</i>
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Description

A dataset containing an excerpt from the official Prezista FDA Drug Label to help in the app exploration.

Usage

`prezista`

Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 33 rows and 6 columns.

Source

Table 15 from <https://aidsinfo.nih.gov/drugs/397/darunavir/28/professional/>

`run_interactiveforestplot`

Run the interactiveforestplot application

Description

Run the `interactiveforestplot` application.

Usage

`run_interactiveforestplot()`

Examples

```
if (interactive()) {  
  run_interactiveforestplot()  
}
```

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