Package ‘forestploter’

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Title  Create Flexible Forest Plot

Version  0.1.5

Description  Create forest plot based on the layout of the data. Confidence interval in multiple columns by groups can be done easily. Editing plot, inserting/adding text, applying theme to the plot and much more.

License  MIT + file LICENSE

URL  https://github.com/adayim/forestploter

BugReports  https://github.com/adayim/forestploter/issues

Encoding  UTF-8

RoxygenNote  7.1.2

Imports  grid, gridExtra, gtable

Suggests  rmarkdown, knitr, vdiffr, testthat (>= 3.0.0)

VignetteBuilder  knitr

Config/testthat/edition  3

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add_text

Add text to forest plot

Description

This function can be used to add text to forest plot. The text can be span to multiple rows and columns. The height of the row will be changed accordingly if the text is added to only one row. The width of the text may exceed the columns provided if the text is too long.

Usage

```r
add_text(
plot, text, row = NULL, col = NULL, part = c("body", "header"),
just = c("center", "left", "right"),
gp = gpar(),
padding = unit(1, "mm")
)
```

Arguments

- `plot` A forest plot object.
- `text` A character or expression vector, see `textGrob`.
- `row` Row to add the text, this will be ignored if the `part` is "header".
- `col` A numeric value or vector indicating the columns the text will be added. The text will span over the column if a vector is given.
- `part` Part to add text, body (default) or header.
- `just` The justification of the text, "center" (default), "left" or "right".
- `gp` An object of class "gpar", this is the graphical parameter settings of the text. See `gpar`.
- `padding` Padding of the text, default is unit(1, "mm")

Value

A `gtable` object.
add_underline

Add underline to cells

Description

This function can be used to add underline to cells.

Usage

```r
add_underline(
  plot,
  row = NULL,
  col = NULL,
  part = c("body", "header"),
  gp = gpar(lwd = 2)
)
```

Arguments

- **plot**: A forest plot object.
- **row**: A numeric value or vector indicating row number to add underline. This is corresponding to the data row number. Remember to account for any text inserted. This will be ignored if the `part` is "header" and the underline will be drawn under the header column.
- **col**: A numeric value or vector indicating the columns to add underline.
- **part**: The underline will be added to "body" (default) or "header".
- **gp**: An object of class "gpar", graphical parameter to be passed to `segmentsGrob`.

Value

A `gtable` object.

edit_plot

Edit forest plot

Description

This function is used to edit the graphical parameter of text and background of the forest plot.
Usage

```
edit_plot(
    plot,
    row = NULL,
    col = NULL,
    part = c("body", "header"),
    which = c("text", "background"),
    gp
)
```

Arguments

- **plot**: A forest plot object.
- **row**: A numeric value or vector indicating row number to edit in the dataset. Will edit the whole row if left blank for the body. This will be ignored if the `part` is "header".
- **col**: A numeric value or vector indicating column to edit in the dataset. Will edit the whole column if left blank.
- **part**: Part to edit, body (default) or header.
- **which**: Which element to edit, text or background of the cell.
- **gp**: Pass `gpar` parameters, see `gpar`. It should be passed as `gpar(col = "red")`.

Value

- A `gtable` object.

---

### forest  
*Forest plot*

**Description**

A data frame will be used for the basic layout of the forest plot. Graphical parameters can be set using the `forest_theme` function.

**Usage**

```
forest(
    data,
    est,
    lower,
    upper,
    sizes = 0.4,
    ref_line = ifelse(xlog, 1, 0),
    vert_line = NULL,
    ci_column,
```
Arguments

data Data to be displayed in the forest plot
est Point estimation. Can be a list for multiple columns and/or multiple groups. If
the length of the list is larger than then length of ci_column, then the values
reused for each column and considered as different groups.
lower Lower bound of the confidence interval, same as est.
upper Upper bound of the confidence interval, same as est.
sizes Size of the point estimation box, can be a unit, vector or a list.
ref_line X-axis coordinates of zero line, default is 1. Provide an atomic vector if different
reference line for each ci_column is desired.
vert_line Numerical vector, add additional vertical line at given value. Provide a list of
numerical vector element if different vertical line for each ci_column is desired.
ci_column Column number of the data the CI will be displayed.
xlog If TRUE, x-axis tick marks assume values are exponential, e.g. for logistic
regression (OR), survival estimates (HR), Poisson regression etc. Provide a logical
vector if different conversion for each ci_column is desired.
is_summary A logical vector indicating if the value is a summary value, which will have a di-
mond shape for the estimate. Can not be used with multiple group forestplot.
xlim Limits for the x axis as a vector of length 2, i.e. c(low, high). It will take the
minimum and maximum of the lower and upper value if not provided. This
will apply to all CI columns if provided, and will be calculated automatically
for each column if not provided. This should be a list with the same length of
ci_column if different xlim for different column is desired.
ticks_at Set X-axis tick-marks point. This will apply to all CI columns if provided, and
will be calculated automatically for each column if not provided. This should
be a list if different ticks_at for different column is desired.
arrow_lab Labels for the arrows, string vector of length two (left and right). The theme of
arrow will inherit from the x-axis. This should be a list if different arrow labels
for each column is desired.
xlab X-axis labels, it will be put under the x-axis. An atomic vector should be pro-
vided if different xlab for different column is desired.
footnote

Footnote for the forest plot, will be aligned at left bottom of the plot. Please adjust the line length with line break to avoid the overlap with the arrow and/or x-axis.

nudge_y

Horizontal adjustment to nudge groups by, must be within 0 to 1.

theme

Theme of the forest plot, see forest_theme for details.

Value

A gtable object.

Examples

# Read provided sample example data
dt <- read.csv(system.file("extdata", "example_data.csv", package = "forestploter"))

# Keep needed columns
dt <- dt[,1:6]

# indent the subgroup if there is a number in the placebo column
dt$Subgroup <- ifelse(is.na(dt$Placebo),
                      dt$Subgroup,
                      paste0(" ", dt$Subgroup))

# NA to blank or NA will be transformed to caracter.
dt$Treatment <- ifelse(is.na(dt$Treatment), ",", dt$Treatment)
dt$Placebo <- ifelse(is.na(dt$Placebo), ",", dt$Placebo)
dt$se <- (log(dt$hi) - log(dt$est))/1.96

# Add blank column for the forest plot to display CI.
# Adjust the column width with space.
dt$` ` ` <- paste(rep(" ", 20), collapse = ")

# Create confidence interval column to display
dt$`HR (95\% CI)` ` <- ifelse(is.na(dt$se), ",",
                                 sprintf("%.2f (%.2f to %.2f)",
                                         dt$est, dt$low, dt$hi))

# Define theme
tm <- forest_theme(base_size = 10,
                   refline_col = "red",
                   footnote_col = "#636363",
                   footnote_fontface = "italic")

p <- forest(dt[,c(1:3, 8:9)],
            est = dt$est,
            lower = dt$low,
            upper = dt$hi,
            sizes = dt$se,
            ci_column = 4,
            ref_line = 1,
            arrow_lab = c("Placebo Better", "Treatment Better"),
            xlim = c(0, 4),
            theme = tm)
ticks_at = c(0.5, 1, 2, 3),
footnote = "This is the demo data. Please feel free to change\nanything you want. ",
theme = tm)

# Print plot
plot(p)

forestploter Create Forest Plot

Description
This package uses gtable and gridExtra to overlay forest plots.

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See Also
grid, gridExtra

forest_theme Forest plot default theme

Description
Default theme for the forest plot, but can pass other parameters. The parameters will be passed to corresponding elements of the forest plot. See gpar for details.

Usage
forest_theme(
  base_size = 12,
  base_family = "", 
  ci_pch = 15,
  ci_col = "black", 
  ci_lty = 1,
  ci_lwd = 1,
  ci_Theight = NULL,
  legend_name = "Group",
  legend_position = "right",
  legend_value = "", 
  xaxis_lwd = 0.6,
  xaxis_cex = 1,
  reline_lwd = 1,
refline_lty = "dashed",
refline_col = "grey20",
vertline_lwd = 1,
vertline_lty = "dashed",
vertline_col = "grey20",
summary_fill = "#4575b4",
summary_col = "#4575b4",
footnote_cex = 0.6,
footnote_fontface = "plain",
footnote_col = "black",
...
)

Arguments

base_size         The size of text
base_family       The font family
ci_pch            Shape of the point estimation. It will be reused if the forest plot is grouped.
ci_col            Color of the CI. A vector of color should be provided for the grouped forest plot. An internal color set will be if only not.
ci_lty            Line type of the CI. A vector of line type should be provided for the grouped forest plot.
ci_lwd            Line width of the CI. A vector of line type should be provided for the grouped forest plot.
ci_Theight        A unit specifying the height of the T end of CI. If set to NULL (default), no T end will be drawn.
legend_name       Title of the legend.
legend_position   Position of the legend, "right", "top", "bottom".
legend_value      Legend labels (expressions). A vector should be provided for the grouped forest plot. A "Group 1" etc will be created if not a vector for a grouped forest plot.
xaxis_lwd         Line width for x-axis.
xaxis_cex          Multiplier applied to font size for x-axis.
refline_lwd       Line width for reference line.
refline_lty       Line type for reference line.
refline_col       Line color for the reference line.
vertline_lwd      Line width for extra vertical line. A vector can be provided for each vertical line, and the values will be recycled if no enough values are given.
vertline_lty      Line type for extra vertical line. Works same as vertline_lwd.
vertline_col      Line color for the extra vertical line. Works same as vertline_lwd.
summary_fill      Color for filling the summary diamond shape.
summary_col       Color for borders of the summary diamond shape.
footnote_cex      Multiplier applied to font size for footnote.
**insert_text**

footnote_face
The font face for footnote.

footnote_col
Color of the footnote.

... Other parameters passed to table. See `tableGrob` for details.

**Value**

A list.

---

**Description**

This function can be used to insert text to forest plot. Remember to adjust for the row number if you have added text before, including header. This is achieved by inserted new row(s) to the plot and will affect the row number. A text vector can be inserted to multiple columns or rows.

**Usage**

```r
insert_text(
  plot,
  text,
  row = NULL,
  col = NULL,
  part = c("body", "header"),
  just = c("center", "left", "right"),
  before = TRUE,
  gp = gpar(),
  padding = unit(1, "mm")
)
```

**Arguments**

- `plot` A forest plot object.
- `text` A character or expression vector, see `textGrob`.
- `row` Row to insert the text, this will be ignored if the `part` is "header".
- `col` A numeric value or vector indicating the columns the text will be added. The text will span over the column if a vector is given.
- `part` Part to insert text, body (default) or header.
- `just` The justification of the text, "center" (default), "left" or "right".
- `before` Indicating the text will be inserted before or after the row.
- `gp` An object of class "gpar", this is the graphical parameter settings of the text. See `gpar`.
- `padding` Padding of the text, default is `unit(1, "mm")`
Value

A `gtable` object.

---

**print.forestplot**  
*Draw plot*

**Description**

Print or draw forestplot.

**Usage**

```r
## S3 method for class 'forestplot'
print(x, autofit = FALSE, ...)

## S3 method for class 'forestplot'
plot(x, autofit = FALSE, ...)
```

**Arguments**

- `x`  
  forestplot to display

- `autofit`  
  If true, the plot will be autofit.

- `...`  
  other arguments not used by this method

**Value**

Invisibly returns the original forestplot.
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