

Package ‘vbracket’

May 8, 2026

Type Package

Title Custom Legends with Statistical Comparison Brackets

Version 1.4.0

Description Add publication-quality custom legends with vertical brackets. Designed for displaying statistical comparisons between groups, commonly used in scientific publications for showing significance levels. Features include adaptive positioning, automatic bracket spacing for overlapping comparisons, font family inheritance, and support for asterisks, p-values, or custom labels. Compatible with 'ggplot2' graphics.

License MIT + file LICENSE

Encoding UTF-8

Depends R (>= 3.5.0)

Imports ggplot2 (>= 3.0.0), grid

Suggests knitr, rmarkdown

URL <https://github.com/h20gg702/vbracket>

BugReports <https://github.com/h20gg702/vbracket/issues>

RoxygenNote 7.3.3

NeedsCompilation no

Author Yoshiaki Sato [aut, cre] (ORCID:
<<https://orcid.org/0000-0003-3375-5189>>)

Maintainer Yoshiaki Sato <lascia333@gmail.com>

Repository CRAN

Date/Publication 2026-03-26 16:20:02 UTC

Contents

| | |
|--------------------------------------|---|
| add_bracket_comparisons | 2 |
| draw_legend_with_brackets | 3 |
| ggplot_add.vbracket_legend | 4 |
| ggsave_vbracket | 5 |

| | |
|-----------------------------------|----|
| legend_bracket | 6 |
| plot_with_custom_legend | 8 |
| print.gg | 9 |
| p_to_symbol | 10 |

| | |
|--------------|-----------|
| Index | 11 |
|--------------|-----------|

add_bracket_comparisons

Create comparison specification for vbracket

Description

Helper function to create a properly formatted comparison data frame for use with `guide_legend_bracket()`.

Usage

```
add_bracket_comparisons(..., groups1 = NULL, groups2 = NULL, labels = NULL)
```

Arguments

... Named arguments or list of comparisons. Each comparison can be:

- A character vector of length 3: `c(group1, group2, label)`
- A named list: `list(from = "A", to = "B", label = "***")`

groups1 Character vector of first groups to compare.

groups2 Character vector of second groups to compare.

labels Character vector of significance labels.

Value

A data frame with columns: `group1`, `group2`, `label`

Examples

```
# Using individual vectors
add_bracket_comparisons(
  groups1 = c("A", "C"),
  groups2 = c("B", "D"),
  labels = c("***", "ns")
)

# Using ... with vectors
add_bracket_comparisons(
  c("A", "B", "***"),
  c("C", "D", "ns")
)
```

`draw_legend_with_brackets`*Create a custom legend with vertical brackets*

Description

This function draws a completely custom legend outside of ggplot2's system, with vertical brackets showing comparisons.

Usage

```
draw_legend_with_brackets(  
  labels,  
  colors,  
  comparisons = NULL,  
  x = 0.1,  
  y = 0.9,  
  width = 0.2,  
  height = NULL,  
  title = NULL,  
  text_size = 10,  
  text_family = "sans",  
  text_face = "plain",  
  title_size = 11,  
  title_face = "bold",  
  sig_size = 11,  
  sig_face = "plain",  
  output_width = NULL,  
  output_height = NULL,  
  line_length = NULL,  
  line_width = NULL,  
  item_spacing = NULL,  
  bracket_layer_spacing = NULL  
)
```

Arguments

| | |
|--------------------------|---|
| <code>labels</code> | Character vector of group names |
| <code>colors</code> | Character vector of colors for each group |
| <code>comparisons</code> | Data frame with columns: group1, group2, label |
| <code>x</code> | Numeric. X position of legend (0-1, in npc units) |
| <code>y</code> | Numeric. Y position of legend (0-1, in npc units) |
| <code>width</code> | Numeric. Width of legend box |
| <code>height</code> | Numeric. Height of legend box |
| <code>title</code> | Character. Legend title (optional) |

| | |
|------------------------------------|--|
| <code>text_size</code> | Numeric. Font size for legend labels (default 10) |
| <code>text_family</code> | Character. Font family (e.g., "sans", "serif", "mono", "Helvetica", "Times") |
| <code>text_face</code> | Character. Font face: "plain", "bold", "italic", "bold.italic" (default "plain") |
| <code>title_size</code> | Numeric. Font size for title (default 11) |
| <code>title_face</code> | Character. Font face for title (default "bold") |
| <code>sig_size</code> | Numeric. Font size for significance symbols (default 11) |
| <code>sig_face</code> | Character. Font face for significance symbols (default "plain") |
| <code>output_width</code> | Numeric. Output figure width in inches (optional, for METHOD 2) |
| <code>output_height</code> | Numeric. Output figure height in inches (optional, for METHOD 2) |
| <code>line_length</code> | Numeric. Manual override for legend symbol line length (default NULL = auto-scaled by <code>text_size</code>) |
| <code>line_width</code> | Numeric. Manual override for legend symbol line width (default NULL = auto-scaled by <code>text_size</code>) |
| <code>item_spacing</code> | Numeric. Manual override for vertical spacing between legend items (default NULL = auto-scaled by <code>text_size</code>) |
| <code>bracket_layer_spacing</code> | Numeric. Manual override for horizontal spacing between bracket layers (default NULL = auto-calculated) |

Value

A gTree object containing the custom legend

Examples

```

labels <- c("WT", "WT/Dox", "CH3+5")
colors <- c("green", "orange", "blue")
comps <- data.frame(group1 = "WT", group2 = "WT/Dox", label = "*")
legend_grob <- draw_legend_with_brackets(labels, colors, comps,
                                         text_family = "sans",
                                         text_size = 12)

grid::grid.draw(legend_grob)

```

`ggplot_add.vbracket_legend`

Add vbracket legend to ggplot

Description

Add vbracket legend to ggplot

Usage

```

## S3 method for class 'vbracket_legend'
ggplot_add(object, plot, ...)

```

Arguments

| | |
|--------|---------------------------------|
| object | A vbracket_legend object |
| plot | A ggplot object |
| ... | Additional arguments (not used) |

Value

A ggplot object (classes "gg" and "ggplot") with the vbracket legend incorporated. The plot's default legend is typically suppressed and a custom vbracket legend showing statistical comparison brackets is added.

| | |
|-----------------|---|
| ggsave_vbracket | <i>Save a ggplot with vbracket legend</i> |
|-----------------|---|

Description

This function is a wrapper around ggsave() that properly handles vbracket legends. Use this instead of ggsave() when your plot has a legend_bracket().

Usage

```
ggsave_vbracket(
  filename,
  plot,
  device = NULL,
  width = NA,
  height = NA,
  units = c("in", "cm", "mm", "px"),
  dpi = 300,
  ...
)
```

Arguments

| | |
|----------|---|
| filename | File name to save plot to |
| plot | Plot to save (must have legend_bracket) |
| device | Device to use (default auto-detects from filename) |
| width | Width in units |
| height | Height in units |
| units | Units for width and height ("in", "cm", "mm", "px") |
| dpi | DPI for raster devices |
| ... | Additional arguments passed to ggsave() |

Value

No return value, called for its side effects. Saves the plot (including the vbracket legend, if present) to the file specified by filename.

Examples

```
library(ggplot2)
data <- data.frame(x = 1:10, y = 1:10, group = rep(c("A", "B"), each = 5))
labels <- c("A", "B")
colors <- c("A" = "red", "B" = "blue")
comparisons <- add_bracket_comparisons(groups1 = "A", groups2 = "B", labels = "*")

p <- ggplot(data, aes(x, y, color = group)) +
  geom_point() +
  legend_bracket(labels, colors, comparisons,
                position = "topleft", output_width = 6, output_height = 4)

ggsave_vbracket(file.path(tempdir(), "plot.pdf"), p, width = 6, height = 4)
```

legend_bracket

Add legend with brackets to a ggplot object

Description

This function allows you to add a custom legend with brackets using the + operator, similar to ggplot2 layers.

Usage

```
legend_bracket(
  labels,
  colors,
  comparisons = NULL,
  x = NULL,
  y = NULL,
  width = NULL,
  height = NULL,
  unit = "npc",
  position = "topleft",
  title = NULL,
  text_size = 10,
  text_family = "sans",
  text_face = "plain",
  title_size = 11,
  title_face = "bold",
  sig_size = 11,
  sig_face = "plain",
```

```

    output_width = NULL,
    output_height = NULL,
    bracket_margin = NULL,
    legend_x = NULL,
    legend_y = NULL,
    line_length = NULL,
    line_width = NULL,
    item_spacing = NULL,
    bracket_layer_spacing = NULL
)

```

Arguments

| | |
|----------------|--|
| labels | Character vector of group names (in order) |
| colors | Character vector of colors matching the groups |
| comparisons | Data frame with columns: group1, group2, label |
| x | Numeric. X position of legend (0-1 scale or with unit) |
| y | Numeric. Y position of legend (0-1 scale or with unit) |
| width | Numeric. Width of legend box (default NULL = auto) |
| height | Numeric. Height of legend box (default NULL = auto) |
| unit | Character. Unit for width and height: "npc" (0-1 scale), "in", "cm", "mm" (default "npc") |
| position | Character. Preset position: "topleft", "topright", "bottomleft", "bottomright", or NULL for manual x/y |
| title | Character. Legend title (optional) |
| text_size | Numeric. Font size for labels (default 10) |
| text_family | Character. Font family (default "sans") |
| text_face | Character. Font face (default "plain") |
| title_size | Numeric. Title font size (default 11) |
| title_face | Character. Title font face (default "bold") |
| sig_size | Numeric. Significance symbol size (default 11) |
| sig_face | Character. Significance symbol face (default "plain") |
| output_width | Numeric. Output figure width in inches (for accurate bracket positioning) |
| output_height | Numeric. Output figure height in inches (for accurate bracket positioning) |
| bracket_margin | Numeric. Custom horizontal spacing between legend text and brackets (default NULL = auto-adaptive) |
| legend_x | Numeric. Custom X position for legend box (0-1 scale, overrides adaptive positioning) |
| legend_y | Numeric. Custom Y position for legend box (0-1 scale, overrides adaptive positioning) |
| line_length | Numeric. Manual override for legend symbol line length (default NULL = auto-scaled by text_size) |

| | |
|-----------------------|--|
| line_width | Numeric. Manual override for legend symbol line width (default NULL = auto-scaled by text_size) |
| item_spacing | Numeric. Manual override for vertical spacing between legend items (default NULL = auto-scaled by text_size) |
| bracket_layer_spacing | Numeric. Manual override for horizontal spacing between bracket layers (default NULL = auto-calculated) |

Value

A vbracket_legend object

Examples

```
library(ggplot2)
data <- data.frame(x = 1:10, y = 1:10, group = rep(c("A", "B"), each = 5))
labels <- c("A", "B")
colors <- c("A" = "red", "B" = "blue")
comparisons <- add_bracket_comparisons(groups1 = "A", groups2 = "B", labels = "*")

p <- ggplot(data, aes(x, y, color = group)) + geom_point() +
  legend_bracket(labels, colors, comparisons,
                position = "topleft",
                output_width = 6, output_height = 4)

# Then use regular ggsave with same dimensions
ggsave(file.path(tempdir(), "plot.pdf"), p, width = 6, height = 4)
```

plot_with_custom_legend

Add custom legend with brackets to a ggplot

Description

Remove ggplot2's legend and add a custom legend with brackets

Usage

```
plot_with_custom_legend(
  plot,
  labels,
  colors,
  comparisons = NULL,
  legend_x = 0.05,
  legend_y = 0.95,
  legend_width = 0.25,
  title = NULL
)
```

Arguments

| | |
|--------------|--|
| plot | A ggplot object |
| labels | Character vector of group names (in order) |
| colors | Character vector of colors matching the groups |
| comparisons | Data frame with columns: group1, group2, label |
| legend_x | X position (0-1) |
| legend_y | Y position (0-1) |
| legend_width | Width of legend |
| title | Legend title |

Value

A ggplot object (classes "gg" and "ggplot") with the vbracket legend incorporated. The plot's default legend is typically suppressed and a custom vbracket legend showing statistical comparison brackets is added.

Examples

```
library(ggplot2)
data <- data.frame(x = 1:10, y = 1:10, group = rep(c("A", "B"), each = 5))
p <- ggplot(data, aes(x, y, color = group)) + geom_line()
comps <- add_bracket_comparisons(groups1 = "A", groups2 = "B", labels = "*")
plot_with_custom_legend(p, c("A", "B"), c("red", "blue"), comps)
```

print.gg

Print method for ggplot objects with vbracket legend

Description

This overrides the default ggplot print method to add brackets automatically

Usage

```
## S3 method for class 'gg'
print(x, newpage = is.null(vp), vp = NULL, ...)
```

Arguments

| | |
|---------|---------------------------------|
| x | A ggplot object |
| newpage | Draw on new page (default TRUE) |
| vp | Viewport to draw in |
| ... | Additional arguments |

Value

Invisibly returns the input ggplot object (classes "gg" and "ggplot"). Called for its side effects: rendering the plot to the current graphics device with the vbracket legend overlay if present.

| | |
|-------------|--|
| p_to_symbol | <i>Get standard significance symbols from p-values</i> |
|-------------|--|

Description

Convert p-values to standard significance symbols

Usage

```
p_to_symbol(  
  p_values,  
  symbols = c("***", "**", "*", "ns"),  
  breaks = c(0, 0.001, 0.01, 0.05, 1)  
)
```

Arguments

| | |
|----------|---|
| p_values | Numeric vector of p-values |
| symbols | Character vector of symbols for different significance levels. Default: c("***", "**", "*", "ns") |
| breaks | Numeric vector of p-value thresholds. Default: c(0, 0.001, 0.01, 0.05, 1) |

Value

Character vector of significance symbols

Examples

```
p_to_symbol(c(0.0001, 0.005, 0.03, 0.15))  
# Returns: "***"  "**"   "*"   "ns"
```

Index

`add_bracket_comparisons`, [2](#)
`draw_legend_with_brackets`, [3](#)
`ggplot_add.vbracket_legend`, [4](#)
`ggsave_vbracket`, [5](#)
`legend_bracket`, [6](#)
`p_to_symbol`, [10](#)
`plot_with_custom_legend`, [8](#)
`print.gg`, [9](#)