Package: vbracket (via r-universe)

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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.

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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

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Repository https://h20gg702.r-universe.dev

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Contents

`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

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

text_size	Numeric. Font size for legend labels (default 10)
text_family	Character. Font family (e.g., "sans", "serif", "mono", "Helvetica", "Times")
text_face	Character. Font face: "plain", "bold", "italic", "bold.italic" (default "plain")
title_size	Numeric. Font size for title (default 11)
title_face	Character. Font face for title (default "bold")
sig_size	Numeric. Font size for significance symbols (default 11)
sig_face	Character. Font face for significance symbols (default "plain")
output_width	Numeric. Output figure width in inches (optional, for METHOD 2)
output_height	Numeric. Output figure height in inches (optional, for METHOD 2)
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 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.

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ggsave_vbracket *Save a ggplot with vbracket legend*

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)
```

---

p_to_symbol *Get standard significance symbols from p-values*

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"
```

`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.

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