Package 'ggsced'

July 23, 2026

Type Package

Title Utilities and Helpers for Single Case Experimental Design (SCED) using 'ggplot2'

Version 0.1.9

Description Provides specialized visualization tools for Single-Case Experimental Design (SCED) research using 'ggplot2'. SCED studies are a crucial methodology in behavioral and educational research where individual participants serve as their own controls through carefully designed experimental phases. This package extends 'ggplot2' to create publication-ready graphics with professional phase change lines, support for multiple baseline designs, and styling functions that follow SCED visualization conventions. Key functions include adding phase change demarcation lines to existing plots and formatting axes with broken axis appearance commonly used in single-case research.

License GPL (>= 2)

Encoding UTF-8

LazyData true

Depends ggplot2, R (>= 3.5.0)

Imports grid, gtable, ggh4x, assert, dplyr

Suggests knitr, rmarkdown, testthat (>= 3.0.0), usethis, tidyverse

RoxygenNote 7.3.3

Config/testthat/edition 3

VignetteBuilder knitr

NeedsCompilation no

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Repository CRAN

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Contents

`ggsced` *ggsced*

Description

Core exported function to facilitate the drawing of phase change lines atop a ggplot object. Primarily designed to be used *after* the plot is finalized, with the lines being the last element drawn at the highest z index (i.e., atop all elements).

Usage

```
ggsced(plt, legs, offs = NULL, print = TRUE, verbose = FALSE)
```

Arguments

`plt`	ggplot object as typically designed/printed in userspace
`legs`	list of 'legs' to be drawn
`offs`	mapping of lines that require minor offset
`print`	output result directly to graphical device (default = TRUE)
`verbose`	Optional ability to view process output (debugging primarily)

Value

Finalized figure with respective phase change lines embedded.

`ggsced_condition_labels` *generate_condition_labels*

Description

Optional helper class to prepare condition labels (e.g., Baseline, Intervention) based on the grouping of an existing ggplot object

Usage

```
ggsced_condition_labels(plt, y = NULL)
```

Arguments

`plt`	ggplot object
`y`	ordinate of respective label (Default = last tick from plot object)

Value

a data frame that can be used with a geom_text layer

`ggsced_extract_domain` *ggsced_extract_domain*

Description

Internal helper to pull respective panel parameters and assert validity.

Usage

```
ggsced_extract_domain(panel_params)
```

Arguments

`panel_params`	respective parameters of panel grob

Value

numeric vector specifying size in min-max units

ggsced_facet_labels *ggsced_facet_labels*

Description

Optional helper class to prepare facet labels (e.g., Participant names) based on the faceting of an existing ggplot object

Usage

```
ggsced_facet_labels(plt, y = 0, x = NULL)
```

Arguments

plt	ggplot object
y	ordinate of respective label (typically very low or very high)
x	position on the x-axis (Default = last tick from plot object)

Value

a data frame that can be used with a geom_text layer

ggsced_get_panels *ggsced_get_panels*

Description

Honestly, a bit of a 'hackish' solution to extract grobs that are associated with data to be drawn. Probably fragile and specific to modern gg implementations, but probably the close we'll get. Subject to change.

Usage

```
ggsced_get_panels(ggplot_grobs)
```

Arguments

ggplot_grobs	list of grobs prepared by ggplotGrob

Value

filtered list of grobs restricted to faceted levels

ggsced_internal_x_axis *ggsced_internal_x_axis*

Description

Internal helper class to draw a conventional x-axis per SCED publication suggestions.

Usage

```
ggsced_internal_x_axis(expansion = 0, lwd = 2, col = "black")
```

Arguments

expansion	Percentage of axis to pad (left/right) to break axis (Note: normalized parent units)
lwd	Width of axis line
col	Color of axis drawn (default = 'black')

Value

Rendering of customized x axis across facets

ggsced_internal_y_axis *ggsced_internal_y_axis*

Description

Internal helper class to draw a conventional y-axis per SCED publication suggestions.

Usage

```
ggsced_internal_y_axis(expansion = 0, lwd = 2, col = "black")
```

Arguments

expansion	Percentage of axis to pad (top/bottom) to break axis (Note: normalized parent units)
lwd	Width of axis line
col	Color of axis drawn (default = 'black')

Value

Rendering of customized y axis across facets

ggsced_name_dogleg *ggsced_name_dogleg*

Description

Grobs need to have unique names lest they get accidentally overwritten. This is a convenience naming function for the 'main' phase break within a facet level.

Usage

```
ggsced_name_dogleg(panel, index, n_leg)
```

Arguments

panel	name of the parent grob
index	index of the phase change in sequence
n_leg	leg in the phase change

Value

a name corresponding with unique phase-change grob element

ggsced_name_dogleg_lateral *ggsced_name_dogleg_lateral*

Description

Grobs need to have unique names lest they get accidentally overwritten. This is a convenience naming function for the 'lateral' part of a phase break within a facet level.

Usage

```
ggsced_name_dogleg_lateral(panel, index, n_leg)
```

Arguments

panel	name of the parent grob
index	index of the phase change in sequence
n_leg	leg in the phase change

Value

a name corresponding with unique phase-change grob element

ggsced_output_console *ggsced_output_console*

Description

Optional output function to support debugging (mainly for testing)

Usage

```
ggsced_output_console(msg, output)
```

Arguments

msg	Message to be output to console
output	Boolean to discern whether or not to output message

ggsced_prep_labels *ggsced_prep_labels*

Description

This function prepares a data frame for plotting labels in a ggplot object based on specified facets and label specifications. It validates the input parameters, checks for the presence of required columns, and constructs a new data frame containing the necessary information for plotting labels according to the provided specifications.

Usage

```
ggsced_prep_labels(
  data,
  facet_col,
  specs,
  x_col = "Session",
  y_col = "Value",
  default_hadj = 0.5,
  default_vadj = 0.5,
  default_text_size = NA_real_,
  default_font_face = "plain"
)
```

Arguments

data	A data frame containing the data to be used for plotting.
facet_col	The name of the column in ‘data‘ that contains the facet values.
specs	A named list where each name corresponds to a facet value and each entry is a list of label specifications. Each label specification should include at least the ‘label‘, ‘x‘, and ‘y‘ values, and can optionally include other aesthetics like ‘hadj‘, ‘vadj‘, ‘text_size‘, and ‘fontface‘.
x_col	The name of the column in ‘data‘ that contains the x-axis values (default is "Session").
y_col	The name of the column in ‘data‘ that contains the y-axis values (default is "Value").
default_hadj	The default horizontal adjustment to use for labels if not specified in the ‘specs‘ (default is 0.5).
default_vadj	The default vertical adjustment to use for labels if not specified in the ‘specs‘ (default is 0.5).
default_text_size	The default text size to use for labels if not specified in the ‘specs‘ (default is NA_real_).
default_font_face	The default font face to use for labels if not specified in the ‘specs‘ (default is "plain").

Value

A data frame containing the prepared label specifications for plotting, with additional columns for any extra aesthetics specified in the ‘specs‘.

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ggsced_prep_lines *ggsced_prep_lines*

Description

This function prepares a data frame for plotting lines in a ggplot object based on specified facets and line specifications. It validates the input parameters, checks for the presence of required columns, and constructs a new data frame containing the necessary information for plotting lines according to the provided specifications.

Usage

```
ggsced_prep_lines(
  data,
  facet_col,
  specs,
  x_col = "Session",
  default_linetype = 1
)
```

Arguments

data	A data frame containing the data to be used for plotting.
facet_col	The name of the column in ‘data‘ that contains the facet values.
specs	A named list where each name corresponds to a facet value and each entry is a list of line specifications. Each line specification should include at least the ‘x‘ value and can optionally include other aesthetics like ‘linetype‘.
x_col	The name of the column in ‘data‘ that contains the x-axis values (default is "Session").
default_linetype	The default linetype to use for lines if not specified in the ‘specs‘ (default is 1).

Value

A data frame containing the prepared line specifications for plotting, with additional columns for any extra aesthetics specified in the ‘specs‘.

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ggsced_scale_units *ggsced_scale_units*

Description

Internal helper to discern exactly where a vertical would need to be placed within a specific grob (i.e., panel grob). Uses the domain and phase change location as a reference to convert to npc units for gtable and grid.

Usage

```
ggsced_scale_units(session_value, domain_size)
```

Arguments

session_value	Session associated with phase-change line
domain_size	Total size of domain per panel specification

Value

A proportional value given value in a panel domain

ggsced_style_x *ggsced_style_x*

Description

This is a convenience element designed to support a more complete interpretation of SCED-specific style conventions through ggplot. Specifically, an axis is drawn with a specific manner of expansion to support the broken axis (i.e., non-connected x/y) expected of SCED-specific publication guidelines.

Usage

```
ggsced_style_x(expansion = 0, lwd = 2, col = "black")
```

Arguments

expansion	Percentage of axis to pad (left/right) to break axis (Note: normalized parent units)
lwd	Width of axis line
col	Color of axis drawn (default = 'black')

Value

Annotation to simulate a disconnected y-axis via expansion

ggsced_style_y *ggsced_style_y*

Description

This is a convenience element designed to support a more complete interpretation of SCED-specific style conventions through ggplot. Specifically, an axis is drawn with a specific manner of expansion to support the broken axis (i.e., non-connected x/y) expected of SCED-specific publication guidelines.

Usage

```
ggsced_style_y(expansion = 0, lwd = 2, col = "black")
```

Arguments

expansion	Percentage of axis to pad (top/bottom) to break axis (Note: normalized parent units)
lwd	Width of axis line
col	Color of axis drawn (default = 'black')

Value

Annotation to simulate a disconnected y-axis via expansion

Gilroyetal2015 *Plotting data from Gilroy et al. (2015)*

Description

This is data either extracted or included (with permission) to assist with illustrating and replicating the functionality of the package. Specifically, this data is used to illustrate conventions regarding a multiple probe design and how that may be constructed in this package.

Usage

```
Gilroyetal2015
```

Format

A data frame with 40 rows and 6 variables:

Participant Participant name

Session Session number

Condition Condition name

Responding Responding rates

PhaseNum Phase number

LineOff Offset for phase line

Source

<doi:https://doi.org/10.1016/j.rasd.2015.04.004>

Gilroyetal2021 *Plotting data from Gilroy et al. (2021)*

Description

Treatment data from Gilroy et al. (2021)

Usage

```
Gilroyetal2021
```

Format

A data frame with 69 rows and 7 variables:

Participant Participant name

Session Session number

Condition Functional analysis condition

Responding Rates of responding

Reinforcers Reinforcer deliveries

PhaseNum Sequenced phase number

LineOff Offset of phase line

Source

<doi:https://doi.org/10.1002/jaba.677>

`LozyEtAl2020Data` *Plotting data from Lozy et al. (2020)*

Description

Treatment data from Lozy et al. (2020)

Usage

```
LozyEtAl2020Data
```

Format

A data frame with 91 rows and 5 variables:

Session Session number

Participant Participant name

Phase Phase number

Response Response type

Value Response value

Source

<doi:https://doi.org/10.1002/jaba.702>

sced_phase_change_complex_lateral_grob

sced_phase_change_complex_lateral_grob

Description

This is a helper class to standardize drawing grobs

Usage

```
sced_phase_change_complex_lateral_grob(x0, x1, segment_name)
```

Arguments

x0	value corresponding to respective domain in npc units
x1	value corresponding to respective domain in npc units
segment_name	name associated with object

Value

graphical object

sced_phase_change_complex_lateral_post_grob

sced_phase_change_complex_lateral_post_grob

Description

This is a helper class to standardize drawing grobs

Usage

```
sced_phase_change_complex_lateral_post_grob(x, segment_name)
```

Arguments

x	value corresponding to respective domain in npc units
segment_name	name associated with object

Value

graphical object

`sced_phase_change_complex_lateral_pre_grob`
sced_phase_change_complex_lateral_pre_grob

Description

This is a helper class to standardize drawing grobs

Usage

```
sced_phase_change_complex_lateral_pre_grob(x, segment_name)
```

Arguments

`x`	value corresponding to respective domain in npc units
`segment_name`	name associated with object

Value

graphical object

`sced_phase_change_main_panel_grob`
sced_phase_change_main_panel_grob

Description

This is a helper class to standardize drawing grobs

Usage

```
sced_phase_change_main_panel_grob(x, segment_name)
```

Arguments

`x`	value corresponding to respective domain in npc units
`segment_name`	name associated with object

Value

graphical object

`sced_phase_change_simple_lateral_grob` *sced_phase_change_simple_lateral_grob*

Description

This is a helper class to standardize drawing grobs

Usage

```
sced_phase_change_simple_lateral_grob(x0, x1, segment_name)
```

Arguments

`x0`	value corresponding to respective domain in npc units
`x1`	value corresponding to respective domain in npc units
`segment_name`	name associated with object

Value

graphical object

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