Package 'causalplot'

May 8, 2026

Type Package

Title Create Publication-Ready Causal Diagrams

Version 0.2.1

Description Creates publication-ready causal diagrams using 'ggplot2'. Provides simple templates for common causal diagrams (e.g., mediating mechanisms and parallel pathways) with customizable labels, colors, fonts, and export-friendly defaults.

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Encoding UTF-8

RoxygenNote 7.3.2

Imports ggforce, ggplot2, ggtext

Suggests shiny, shinythemes

URL https://github.com/sebastianvanbaalen/causalplot

BugReports https://github.com/sebastianvanbaalen/causalplot/issues

NeedsCompilation no

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Repository CRAN

Date/Publication 2026-03-16 19:00:02 UTC

Contents

causal_plot *Create a causal plot*

Description

Draw a simple causal diagram using ggplot2, with rounded boxes and arrows.

Usage

```
causal_plot(
  labels = NULL,
  type = "1111",
  fill_variables = "grey80",
  fill_mechanisms = "grey90",
  corner_radius = 0.12,
  font = "sans",
  text_size = 4,
  text_color = "black",
  wrap_width = 24,
  arrow_length = grid::unit(3, "mm"),
  arrow_linewidth = 0.6,
  box_ratio = 0.8,
  xlim = NULL,
  ylim = NULL
)
```

Arguments

labels	Character vector of labels. If NULL, defaults are used.
type	Character. Layout template.
fill_variables	Fill color for the first and last box (variables).
fill_mechanisms	Fill color for the in-between boxes (mechanisms).
corner_radius	Rounded corner radius. Either a grid::unit() or a numeric (interpreted as cm).
font	Font family for labels (e.g., "sans", "serif"). Default is "sans".
text_size	Numeric label size.
text_color	Label color.
wrap_width	Integer. Approximate wrap width for labels (in characters).
arrow_length	grid::unit for arrowhead size.
arrow_linewidth	Numeric line width for arrows.
box_ratio	Numeric. Passed to coord_fixed(ratio = box_ratio). Default 0.8.
xlim	Numeric vector of length 2, or NULL for auto-computed limits.
ylim	Numeric vector of length 2, or NULL for auto-computed limits.

Details

Supported templates:

- "111" : IV -> mech -> DV (3 boxes)
- "1111": IV -> mech1 -> mech2 -> DV (4 boxes)
- "11111": IV -> mech1 -> mech2 -> mech3 -> DV (4 boxes)
- "1121": IV -> one box -> two boxes -> DV (5 boxes)
- "1211": IV (center) -> two boxes -> one box -> DV (5 boxes)
- "1221": IV (center) -> two parallel paths -> DV (center) (6 boxes)
- "bathtub": like "1221" but only bottom path + dashed direct IV->DV (4 boxes)
- "111_moderator": like "111" but with a moderator variable
- "111_confounder": like "111" but with a confounder variable
- "211" : two IVs -> shared mechanism -> DV (4 boxes)
- "221" : two IVs -> two parallel mechanisms -> DV (5 boxes)
- "2221": two IVs -> two parallel mechanism steps -> DV (7 boxes)

Labels are wrapped to a maximum of 5 lines. If a label would wrap to more than 5 lines (given `wrap_width`), an error is thrown.

Value

A ggplot object.

Examples

```
# Simple three-box causal diagram
causal_plot(type = "111")

# With custom labels
causal_plot(
  labels = c("Education", "Income", "Health"),
  type = "111"
)
```

---

run_app *Launch the causalplot Shiny app*

Description

Opens an interactive Shiny application for building causal diagrams and typology plots using the causalplot package.

Usage

```
run_app(...)
```

Arguments

...	Additional arguments passed to runApp.

Value

This function does not return a value; it launches a Shiny app.

Examples

```
if (interactive()) {
  run_app()
}
```

---

typology *Create a 2x2 typology diagram*

Description

Draw a 2x2 typology diagram with four labeled quadrants, double-headed axis arrows, and axis labels using ggplot2. The diagram consists of a single rounded outer box divided into four quadrants by dashed midlines, with double-headed arrows indicating the two dimensions.

Usage

```
typology(
  type_labels = c("Type 1", "Type 2", "Type 3", "Type 4"),
  x_axis_label = "Dimension 2",
  y_axis_label = "Dimension 1",
  x_axis_values = c("Low", "High"),
  y_axis_values = c("Low", "High"),
  fill = "grey90",
  border_color = NA,
  line_color = "grey50",
  line_linewidth = 0.5,
  corner_radius = 0.12,
  font = "sans",
  text_size = 4,
  text_color = "black",
  axis_text_size = 3.5,
  wrap_width = 20,
  arrow_length = grid::unit(2, "mm"),
  arrow_linewidth = 0.5,
  box_ratio = 0.8,
  xlim = NULL,
  ylim = NULL
)
```

Arguments

type_labels	Character vector of length 4. Labels for each quadrant, in order: top-left, top-right, bottom-left, bottom-right. Default: c("Type 1", "Type 2", "Type 3", "Type 4").
x_axis_label	Character. Label for the horizontal axis (top). Default: "Dimension 2".
y_axis_label	Character. Label for the vertical axis (left side). Default: "Dimension 1".
x_axis_values	Character vector of length 2. Labels for the left (low) and right (high) ends of the x-axis. Default: c("Low", "High").
y_axis_values	Character vector of length 2. Labels for the top and bottom ends of the y-axis. Default: c("Low", "High").
fill	Fill color for the outer box. Default: "grey90".
border_color	Color of the outer box border. Default: NA (no border).
line_color	Color of the dashed dividing lines. Default: "grey50".
line_linewidth	Numeric. Line width for the dashed dividing lines. Default: 0.5.
corner_radius	Rounded corner radius. Either a grid::unit() or a numeric (interpreted as cm). Default: 0.12.
font	Font family for labels (e.g., "sans", "serif"). Default: "sans".
text_size	Numeric. Text size for type labels. Default: 4.
text_color	Color for all text labels. Default: "black".
axis_text_size	Numeric. Text size for axis labels and endpoint values. Default: 3.5.
wrap_width	Integer. Approximate wrap width for type labels (in characters). Default: 20.
arrow_length	grid::unit for arrowhead size. Default: grid::unit(2, "mm").
arrow_linewidth	Numeric line width for axis arrows. Default: 0.5.
box_ratio	Numeric. Passed to coord_fixed(ratio = box_ratio). Default: 0.8.
xlim	Numeric vector of length 2, or NULL for auto-computed limits.
ylim	Numeric vector of length 2, or NULL for auto-computed limits.

Details

The type_labels vector maps to quadrants as follows:

- type_labels[1]: top-left (high y-axis, low x-axis)
- type_labels[2]: top-right (high y-axis, high x-axis)
- type_labels[3]: bottom-left (low y-axis, low x-axis)
- type_labels[4]: bottom-right (low y-axis, high x-axis)

Value

A ggplot object.

Examples

```
# Basic typology with defaults
typology()

# Custom labels
typology(
  type_labels = c("Foxes", "Eagles", "Mice", "Snakes"),
  x_axis_label = "Speed",
  y_axis_label = "Size",
  x_axis_values = c("Slow", "Fast"),
  y_axis_values = c("Small", "Large")
)
```

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