

Package ‘causalplot’

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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

Author Sebastian van Baalen [aut, cre, cph] (ORCID:
<<https://orcid.org/0000-0003-3098-5587>>)

Maintainer Sebastian van Baalen <sebastian.van-baalen@pcr.uu.se>

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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()) {  
  runApp()  
}
```

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

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