

Package ‘utile.visuals’

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Title Create Visuals for Publication

Version 0.3.1

Description A small set of functions to aid in the production of visuals in ggplot2. Includes minimalist themes with transparent backgrounds and tools for building survival curves with risk tables.

License LGPL (>= 2)

URL <https://github.com/efinite/utile.visuals>

BugReports <https://github.com/efinite/utile.visuals/issues>

Encoding UTF-8

Depends R (>= 3.4.0)

Imports dplyr, ggplot2, gridExtra, purrr

Suggests survival, broom, grid

RoxygenNote 7.1.2

NeedsCompilation no

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| | |
|--------------|---|
| append_table | <i>Append a ggplot2 table to the bottom of a ggplot2 plot</i> |
|--------------|---|

Description

Aligns axes and combines a ggplot2 plot and table into a single plot. Can handle legends.

Usage

```
append_table(
  plot = NULL,
  table = NULL,
  plot.height = 1,
  table.height = 0.1,
  plot.width = 1,
  extract.legend = TRUE,
  legend.width = 0.2,
  legend.offset = -15
)
```

Arguments

| | |
|----------------|---|
| plot | Required. ggplot2::ggplot() object. If a legend is present, it will be extracted. |
| table | Required. ggplot2::ggplot object. If a legend is present, it will be removed and ignored. |
| plot.height | Optional. Numeric. Height of plot relative to table. Defaults to 1. |
| table.height | Optional. Numeric. Height of table relative to plot. Defaults to 0.1. |
| plot.width | Optional. Numeric. Width of plot relative to legend. Ignored if no legend present in plot. Defaults to 1. |
| extract.legend | Optional. Logical. Indicates whether to extract the legend from the plot and reinsert it adjacent to the final combined plot. May be undesired if legend already embedded within the plot area. Defaults to TRUE. |
| legend.width | Optional. Numeric. Width of legend relative to plot. Ignored if no legend present in plot or 'extract.legend'=FALSE. Defaults 0.2. |
| legend.offset | Optional. Numeric. Vertical offset of legend. Used to raise or lower. Ignored if no legend present in plot or 'extract.legend'=FALSE. Defaults to -15. |

Value

A ggplot2 tableGrob object. Use grid::grid.draw() to open in RStudio viewer. Works with ggplot2::ggsave() out of the box.

Note

To ensure proper alignment, double check that both plots use the same scale and breaks!

Examples

```

library(survival)
library(ggplot2)
library(broom) # tidy() model data
library(grid) # grid.draw() finished plot

# Data with group names specified
data_diabetic <- diabetic
data_diabetic$trt <- as.factor(data_diabetic$trt)
levels(data_diabetic$trt) <- c('None', 'Laser')

# Survival Model
fit <- survfit(Surv(time, status) ~ trt, data = data_diabetic)

# Kaplan Meier (KM) Plot
plot_km <- ggplot(
  data = tidy(fit),
  mapping = aes(x = time, y = estimate)
) +
  geom_step(aes(color = strata)) +
  geom_stepconfint(aes(ymin = conf.low, ymax = conf.high, fill = strata), alpha = 0.3) +
  coord_cartesian(c(0, 50)) + # Note scale set here!
  scale_x_continuous(expand = c(0.02,0)) +
  labs(x = 'Time', y = 'Freedom From Event') +
  scale_color_manual(
    values = c('#d83641', '#1A45A7'),
    name = 'Treatment',
    labels = c('Laser', 'None'),
    aesthetics = c('colour', 'fill')) +
  theme_basic()

# Risk Table
tbl_risk <- ggrisktable(fit, c(0, 10, 20, 30, 40, 50)) +
  coord_cartesian(c(0, 50)) +
  scale_x_continuous(expand = c(0.02,0)) +
  theme_risk()

# Combine KM plot and risk table
plot_cmbd <- append_table(
  plot = plot_km,
  table = tbl_risk
)

# Draw in RStudio viewer
grid.newpage()
grid.draw(plot_cmbd)

```

Description

Produces a step function confidence interval for survival curves. Essentially the `geom_step()` for confidence intervals which `ggplot2` does not provide.

Usage

```
geom_stepconfint(
  mapping = NULL,
  data = NULL,
  stat = "identity",
  position = "identity",
  na.rm = FALSE,
  ...
)
```

Arguments

| | |
|-----------------------|--|
| <code>mapping</code> | Aesthetic mappings with <code>aes()</code> function. Like <code>geom_ribbon()</code> , you must provide columns for <code>x</code> , <code>ymin</code> (lower limit), <code>ymax</code> (upper limit). |
| <code>data</code> | The data to be displayed in this layer. Can inherit from <code>ggplot</code> parent. |
| <code>stat</code> | The statistical transformation to use on the data for this layer, as a string. Defaults to 'identity'. |
| <code>position</code> | Position adjustment, either as a string, or the result of a call to a position adjustment function. |
| <code>na.rm</code> | If <code>FALSE</code> , the default, missing values are removed with a warning. If <code>TRUE</code> , missing values are silently removed. |
| <code>...</code> | Optional. Any other <code>ggplot geom_ribbon()</code> arguments. |

Note

Adapted from the `survminer` package <<https://github.com/kassambara/survminer>>.

Examples

```
library(survival)
library(broom)
library(ggplot2)

fit <- survfit(Surv(time, status) ~ trt, data = diabetic)
fit <- survfit0(fit) # connect origin

ggplot(
  data = tidy(fit),
  mapping = aes(x = time, y = estimate)
) +
  geom_step(aes(color = strata)) +
  geom_stepconfint(aes(ymin = conf.low, ymax = conf.high, fill = strata), alpha = 0.3) +
  coord_cartesian(c(0, 50)) +
  scale_x_continuous(expand = c(0.02, 0)) +
```

```
labs(x = 'Time', y = 'Freedom From Event') +
scale_color_manual(
  values = c('#d83641', '#1A45A7'),
  name = 'Treatment',
  labels = c('None', 'Laser'),
  aesthetics = c('colour', 'fill')) +
theme_basic()
```

ggrisktable*Create a ggplot2 table showing the number at risk*

Description

A simple wrapper function which calculates the numbers at risk for a survival model and a given set of time points then creates a ggplot2 table with them.

Usage

```
ggrisktable(
  fit = NULL,
  times = NULL,
  text.color = "black",
  strata.order = NULL
)
```

Arguments

| | |
|---------------------------|---|
| <code>fit</code> | Required. <code>survival::survfit()</code> object. |
| <code>times</code> | Required. Numeric. One or more time points to calculate the number at risk for. |
| <code>text.color</code> | Optional. Character. Color of text within table. Defaults to 'black'. |
| <code>strata.order</code> | Optional. Character. Ordered names of strata factor levels. |

Value

An unformatted ggplot2 table showing the number at risk.

Examples

```
library(survival)

fit <- survfit(Surv(time, status) ~ trt, data = diabetic)

ggrisktable(
  fit = fit,
  times = c(0, 10, 20, 30, 40, 50),
  strata.order = c('0', '1')
) + theme_risk()
```

| | |
|-------------|-------------------------------------|
| theme_basic | <i>Minimalist theme for ggplot2</i> |
|-------------|-------------------------------------|

Description

A ggplot2 theme which removes most background elements.

Usage

```
theme_basic(  
  base_size = 12,  
  base_family = "",  
  base_color = "black",  
  base_line_size = base_size/14,  
  base_rect_size = base_size/14  
)
```

Arguments

base_size Optional. Numeric. Base font size. Defaults to 14.
base_family Optional. Numeric. Base font family. Defaults to ?.
base_color Optional. Character. Base color for lines and text. Defaults to black.
base_line_size Optional. Numeric. Base line element size. Defaults to base_size/22.
base_rect_size Optional. Numeric. Base rectangle element size. Defaults to base_size/22.

Note

Recommend exporting as PNG or TIFF to preserve background transparency.

| | |
|------------|--|
| theme_risk | <i>Minimalist risk table theme for ggplot2</i> |
|------------|--|

Description

A ggplot2 theme which removes most background elements.

Usage

```
theme_risk(  
  base_size = 12,  
  base_family = "",  
  base_color = "black",  
  base_line_size = base_size/14,  
  base_rect_size = base_size/14  
)
```

Arguments

- `base_size` Optional. Numeric. Base font size. Defaults to 10.
- `base_family` Optional. Numeric. Base font family. Defaults to ?.
- `base_color` Optional. Character. Base color for lines and text. Defaults to black.
- `base_line_size` Optional. Numeric. Base line element size. Defaults to `base_size/22`.
- `base_rect_size` Optional. Numeric. Base rectangle element size. Defaults to `base_size/22`.

Note

Recommend exporting as PNG or TIFF to preserve background transparency.

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