

# Package ‘ezplot’

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**Type** Package

**Title** Functions for Common Chart Types

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**Description** Wrapper for the 'ggplot2' package that creates a variety of common charts (e.g. bar, line, area, ROC, waterfall, pie) while aiming to reduce typing.

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**Encoding** UTF-8

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agg_data	<i>Aggregates data</i>
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---

### Description

Aggregates data

**Usage**

```
agg_data(  
  data,  
  cols = names(data),  
  group_by = NULL,  
  agg_fun = function(x) sum(x, na.rm = TRUE),  
  group_by2 = NULL,  
  env = parent.frame()  
)
```

**Arguments**

data	A data.frame.
cols	Named character vector of column names.
group_by	Vector of grouping columns.
agg_fun	Function to use for aggregating.
group_by2	Vector of grouping column names to use for delayed (post aggregation) calculation.
env	Environment for extra variables.

**Value**

An aggregated data.frame.

**Examples**

```
library(tsibble)  
library(tsibbledata)  
agg_data(ansestt, c("Passengers", count = "1"))  
agg_data(ansestt["Class"])  
agg_data(ansestt[c("Class", "Passengers")])  
agg_data(ansestt, "Passengers", "Class")  
agg_data(ansestt, "Passengers", c("Class", "Airports"))  
agg_data(ansestt, c(x = "Airports", y = "Passengers"), c(x = "Airports"))  
agg_data(ansestt, c(x = "Class", y = "1", group = "Airports"), c(x = "Class", group = "Airports"))
```

---

area\_plot

*area\_plot*

---

**Description**

Aggregates a data.frame and creates a stacked area chart.

**Usage**

```

area_plot(
  data,
  x,
  y = "1",
  group = NULL,
  facet_x = NULL,
  facet_y = NULL,
  size = 11,
  reorder = c("group", "facet_x", "facet_y"),
  palette = ez_col,
  labels_y = if (position == "fill") { function(x) ez_labels(100 * x, append =
    "%") } else { ez_labels },
  labels_x = NULL,
  use_theme = theme_ez,
  position = c("stack", "fill"),
  facet_scales = "fixed",
  facet_ncol = NULL,
  legend_ncol = NULL,
  env = parent.frame()
)

```

**Arguments**

data	A data.frame.
x	A named character value. Evaluates to a column.
y	A named character value. Evaluates to a column.
group	A character value. Evaluates to a column.
facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
size	theme size for use_theme(). Default is 14.
reorder	A character vector specifying the group variables to reorder. Default is c("group", "facet_x", "facet_y").
palette	Colour function.
labels_y	label formatting function
labels_x	label formatting function
use_theme	ggplot theme function
position	Either "stack" (default) or "fill"
facet_scales	Option passed to scales argument in facet_wrap or facet_grid. Default is "fixed".
facet_ncol	Option passed to ncol argument in facet_wrap or facet_grid. Default is NULL.
legend_ncol	Number of columns in legend.
env	environment for evaluating expressions.

**Value**

A ggplot object.

**Examples**

```
library(tsibble)
library(tsibbledata)
area_plot(ansett, x = "as.Date(Week)", y = "Passengers")
area_plot(ansett,
  x = "as.Date(Week)", y = c("Weekly Passengers" = "Passengers"), "Class")
area_plot(ansett, "as.Date(Week)",
  y = c("Weekly Passengers" = "Passengers"),
  group = "substr(Airports, 5, 7)",
  facet_x = "substr(Airports, 1, 3)",
  facet_y = "Class",
  facet_scales = "free_y")
```

---

bar\_plot

*bar\_plot*


---

**Description**

bar\_plot

**Usage**

```
bar_plot(
  data,
  x,
  y = "1",
  group = NULL,
  facet_x = NULL,
  facet_y = NULL,
  size = 11,
  width = NULL,
  reorder = c("group", "facet_x", "facet_y"),
  palette = ez_col,
  labels_y = if (position == "fill") { function(x) ez_labels(100 * x, append =
    "%") } else { ez_labels },
  labels_x = identity,
  label_pos = c("auto", "inside", "top", "both", "none"),
  rescale_y = 1.1,
  label_cutoff = 0.12,
  use_theme = theme_ez,
  position = "stack",
  facet_scales = "fixed",
```

```

  legend_ncol = NULL,
  coord_flip = FALSE
)

```

### Arguments

data	A data.frame.
x	A named character value. Evaluates to a column.
y	A named character value. Evaluates to a column.
group	A character value. Evaluates to a column.
facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
size	theme size for use_theme(). Default is 14.
width	Width of bar.
reorder	A character vector specifying the group variables to reorder. Default is c("group", "facet_x", "facet_y").
palette	Colour function.
labels_y	label formatting function
labels_x	label formatting function
label_pos	Position of labels. Can be "auto", "inside", "top", "both" or "none".
rescale_y	Rescaling factor for y-axis limits
label_cutoff	Cutoff size (proportion of y data range) for excluding labels
use_theme	ggplot theme function
position	Either "stack" (default) or "fill"
facet_scales	Option passed to scales argument in facet_wrap or facet_grid. Default is "fixed".
legend_ncol	Number of columns in legend.
coord_flip	logical (default is FALSE). If TRUE, flips the x and y coordinate using ggplot2::coord_flip()

### Value

A ggplot object.

### Examples

```

library(tsibble)
library(tsibbledata)
library(lubridate)
bar_plot(ansett, "year(Week)", "Passengers", size = 16)
bar_plot(ansett, "year(Week)", "Passengers", "Class")
bar_plot(ansett, "Airports", c("Share of Passengers" = "Passengers"), "Class", position = "fill")
bar_plot(ansett, "Airports", "Passengers", "Class", reorder = NULL, label_pos = "both")
bar_plot(ansett, "Airports",
  c(Passengers = "ifelse(Class == 'Economy', Passengers, -Passengers)"),
  "Class", label_pos = "both")
bar_plot(ansett, "year(Week)", "Passengers", "Class", label_pos = "both", coord_flip = TRUE)

```

---

calendar_plot	<i>calendar_plot</i>
---------------	----------------------

---

**Description**

calendar\_plot

**Usage**

```
calendar_plot(data, x, y, ...)
```

**Arguments**

data	A data.frame.
x	date column
y	A named character value. Evaluates to a column.
...	additional arguments for tile_plot

**Examples**

```
library(tsibbledata)
calendar_plot(vic_elec, "Time", "Demand", zlim = c(NA, NA))
```

---

density_plot	<i>density_plot</i>
--------------	---------------------

---

**Description**

creates a density plot

**Usage**

```
density_plot(
  data,
  x,
  group = NULL,
  facet_x = NULL,
  facet_y = NULL,
  palette = ez_col,
  adjust = 1,
  alpha = 0.5,
  facet_scales = "fixed",
  facet_ncol = NULL,
  legend_ncol = NULL,
  env = parent.frame()
)
```

**Arguments**

data	A data.frame.
x	A named character value. Evaluates to a column.
group	A character value. Evaluates to a column.
facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
palette	Colour function.
adjust	multiply bandwidth adjustment
alpha	alpha
facet_scales	Option passed to scales argument in facet_wrap or facet_grid. Default is "fixed".
facet_ncol	Option passed to ncol argument in facet_wrap or facet_grid. Default is NULL.
legend_ncol	Number of columns in legend.
env	environment for evaluating expressions.

**Examples**

```
library(tsibbledata)
density_plot(mtcars, "wt", "cyl")
density_plot(subset(tsibbledata::olympic_running, Length == 100 & Year >= 1980),
             "Time", "Year - Year % 10", "Sex", facet_scales = "free", facet_ncol = 1, adjust = 2)
```

---

distribution\_plot      *distribution\_plot*

---

**Description**

distribution\_plot

**Usage**

```
distribution_plot(
  data,
  x,
  facet_x = NULL,
  nbins = 20,
  use_theme = theme_ez,
  size = 11,
  env = parent.frame()
)
```



**Arguments**

data	A data.frame.
x	A named character value. Evaluates to a column.
facet_x	A character value. Evaluates to a column.
nbins	Number of bins for histogram. Default is 20.
use_theme	ggplot theme function
size	theme size for use_theme(). Default is 14.
env	environment for evaluating expressions.

**Examples**

```
n = 100
df = data.frame(residuals = rnorm(n),
                group1 = sample(c("a", "b"), n, replace = TRUE))
distribution_plot(df, "residuals")
distribution_plot(df, "residuals", "group1")
```

---

 ez\_app

 ez\_app
 

---

**Description**

ez\_app

**Usage**

```
ez_app(data = NULL)
```

**Arguments**

data	A data frame
------	--------------

**Examples**

```
## Not run:
library(tsibble)
library(tsibbledata)
ez_app(ansett)

## End(Not run)
```

---

ez_col	<i>Color palette interpolation</i>
--------	------------------------------------

---

**Description**

Color palette interpolation

**Usage**

```
ez_col(n = 50, palette = NULL)
```

**Arguments**

n	number of colours
palette	palette to interpolate from

**Value**

rgb

**Examples**

```
ez_col(15)
ez_col(2, c("blue", "red"))
ez_col(3, c("blue", "red"))
```

---

ez_jet	<i>ez_jet</i>
--------	---------------

---

**Description**

color palette for

**Usage**

```
ez_jet(
  n = 100,
  palette = c("dodgerblue4", "steelblue2", "olivedrab3", "darkgoldenrod1", "brown")
)
```

**Arguments**

n	Number of colours to return.
palette	Vector of colours.

**Examples**

```
ez_jet(100)
ez_jet(1)
```

---

ez\_labels

*Function for formatting numeric labels*

---

**Description**

Function for formatting numeric labels

**Usage**

```
ez_labels(  
  x,  
  prepend = "",  
  append = "",  
  as_factor = FALSE,  
  round = Inf,  
  signif = Inf  
)
```

**Arguments**

x	numeric
prepend	character
append	character
as_factor	logical
round	numeric passed to round()
signif	numeric passed to signif()

**Value**

y

**Examples**

```
ez_labels(10^(0:10))  
ez_labels(2000, append = " apples")  
ez_labels(0:10, append = " apples", as_factor = TRUE)  
ez_labels(c(0, 0.1, 0.01, 0.001, 0.0001))
```

---

ez_png	<i>ez_png</i>
--------	---------------

---

## Description

Saves ggplot or ezplot objects to png (with useful defaults).

## Usage

```
ez_png(  
  g,  
  file,  
  width = 1200,  
  height = 600,  
  res = 72,  
  resx = 1,  
  ...,  
  vp = NULL,  
  dir.create = FALSE,  
  check = TRUE  
)
```

## Arguments

<code>g</code>	A ggplot or ezplot object.
<code>file</code>	A png file path.
<code>width</code>	Image width (in pixels). Default is 1200.
<code>height</code>	Image height (in pixels). Default is 600.
<code>res</code>	Resolution (PPI) of output image. Default is 72.
<code>resx</code>	Resolution multiplier. Default is 1.
<code>...</code>	Further arguments to pass to <code>png()</code> .
<code>vp</code>	A viewport object created with <code>grid::viewport</code> .
<code>dir.create</code>	Logical. If TRUE, creates the directory to save into. Default is FALSE.
<code>check</code>	Logical. If TRUE, opens png file after saving. Default is TRUE.

---

ez_server	<i>ez_server</i>
-----------	------------------

---

**Description**

ez\_server

**Usage**

ez\_server(data)

**Arguments**

data	A data frame
------	--------------

---

ez_ui	<i>ez_ui</i>
-------	--------------

---

**Description**

ez\_ui

**Usage**

ez\_ui(data)

**Arguments**

data	A data frame
------	--------------

---

get_incr	<i>get_incr</i>
----------	-----------------

---

**Description**

returns the minimum increment between sorted unique values of a vector

**Usage**

get\_incr(x)

**Arguments**

x	A numeric or date vector
---	--------------------------

---

histogram_plot	<i>histogram_plot</i>
----------------	-----------------------

---

### Description

creates a histogram plot

### Usage

```
histogram_plot(
  data,
  x,
  y = "count",
  group = NULL,
  facet_x = NULL,
  facet_y = NULL,
  palette = ez_col,
  position = "stack",
  bins = 30,
  alpha = 0.5,
  facet_scales = "fixed",
  facet_ncol = NULL,
  legend_ncol = NULL,
  env = parent.frame()
)
```

### Arguments

data	A data.frame.
x	A named character value. Evaluates to a column.
y	A named character value. Evaluates to a column.
group	A character value. Evaluates to a column.
facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
palette	Colour function.
position	Either "stack" (default) or "fill"
bins	number of bins
alpha	fill alpha
facet_scales	Option passed to scales argument in facet_wrap or facet_grid. Default is "fixed".
facet_ncol	Option passed to ncol argument in facet_wrap or facet_grid. Default is NULL.
legend_ncol	Number of columns in legend.
env	environment for evaluating expressions.

**Examples**

```

histogram_plot(airquality, "Wind", group = "Month")
histogram_plot(airquality, "Wind", "density", facet_x = "Month")

```

ks\_plot

*ks\_plot***Description**

ks plot

**Usage**

```

ks_plot(
  data,
  fitted,
  actual,
  palette = ez_col,
  size_line = 1,
  size = 11,
  env = parent.frame()
)

```

**Arguments**

data	A data.frame.
fitted	Vector of fitted values
actual	Vector of actual values
palette	Colour function.
size_line	width of line for geom_line(). Default is 1.
size	theme size for use_theme(). Default is 14.
env	environment for evaluating expressions.

**Examples**

```

ks_plot(mtcars, "-disp", "am")
x = c(rnorm(100), rnorm(100) + 2)
label = c(rep('low', 100), rep('high', 100))
ks_plot(data.frame(x, label), "x", "label")
ks_plot(data.frame(x, label = factor(label, c('low', 'high'))), "x", "label")

```

lift\_plot

*lift\_plot***Description**

precision-recall plot

**Usage**

```
lift_plot(
  data,
  fitted,
  actual,
  group = NULL,
  facet_x = NULL,
  facet_y = NULL,
  size_line = 1,
  size = 11,
  env = parent.frame()
)
```

**Arguments**

data	A data.frame.
fitted	Vector of fitted values
actual	Vector of actual values
group	A character value. Evaluates to a column.
facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
size_line	width of line for geom_line(). Default is 1.
size	theme size for use_theme(). Default is 14.
env	environment for evaluating expressions.

**Examples**

```
library(ggplot2)
n = 1000
df = data.frame(actual = sample(c(FALSE, TRUE), n, replace = TRUE),
                 runif = runif(n))
df[["fitted"]] = runif(n) ^ ifelse(df[["actual"]] == 1, 0.5, 2)

density_plot(df, "fitted", "actual")

lift_plot(df, "fitted", "actual")
lift_plot(df, "fitted", "actual") + scale_y_log10()
```



```
lift_plot(df, "runif", "actual", size_line = 0.5)

library(dplyr, warn.conflicts = FALSE)
lift_plot(df, "fitted", "actual", "sample(c(1, 2), n(), TRUE)")

lift_plot(df, "fitted", "actual",
          "sample(c(1, 2), n(), TRUE)",
          "sample(c(3, 4), n(), TRUE)")

lift_plot(df, "fitted", "actual",
          "sample(c(1, 2), n(), TRUE)",
          "sample(c(3, 4), n(), TRUE)",
          "sample(c(5, 6), n(), TRUE)")
```

---

line\_plot

*line\_plot*

---

## Description

Creates line plots.

## Usage

```
line_plot(
  data,
  x,
  y = "1",
  group = NULL,
  facet_x = NULL,
  facet_y = NULL,
  yoy = FALSE,
  size_line = 1,
  size = 11,
  reorder = c("group", "facet_x", "facet_y"),
  palette = ez_col,
  labels_y = ez_labels,
  use_theme = theme_ez,
  facet_scales = "fixed"
)
```

## Arguments

data	A data.frame.
x	A named character value. Evaluates to a column.
y	A named character value. Evaluates to a column.
group	A character value. Evaluates to a column.

facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
yoy	Logical used to indicate whether a YOY grouping should be created. Default is FALSE.
size_line	width of line for geom_line(). Default is 1.
size	theme size for use_theme(). Default is 14.
reorder	A character vector specifying the group variables to reorder. Default is c("group", "facet_x", "facet_y")
palette	Colour function.
labels_y	label formatting function
use_theme	ggplot theme function
facet_scales	Option passed to scales argument in facet_wrap or facet_grid. Default is "fixed".

**Value**

A ggplot object.

**Examples**

```
library(tsibble)
library(tsibbledata)
line_plot(ansett, x = "Week", y = "Passengers")
line_plot(ansett, x = "Week", y = "Passengers", "Class")
line_plot(pelt, "Year", "Hare")
line_plot(pelt, "Year", c("Hare", "Lynx"))
line_plot(pelt, "Year", "Hare", use_theme = ggplot2::theme_bw)
line_plot(pelt, "Year", c("Hare Population" = "Hare"))
```

---

model\_plot

*model\_plot*

---

**Description**

model\_plot

**Usage**

```
model_plot(
  data,
  x,
  actual,
  fitted,
  facet_x = NULL,
  point_size = 2,
  res_bins = NA_real_,
  size = 11
)
```

**Arguments**

<code>data</code>	A data.frame.
<code>x</code>	A named character value. Evaluates to a column.
<code>actual</code>	A character value. Evaluates to a logical or binary column.
<code>fitted</code>	A character value. Evaluates to a numeric column.
<code>facet_x</code>	A character value. Evaluates to a column.
<code>point_size</code>	Numeric. Default is 2.
<code>res_bins</code>	Number of bins in the residual distribution. Default value (NA) doesn't show the distribution.
<code>size</code>	theme size for <code>use_theme()</code> . Default is 14.

**Value**

A ggplot object.

**Examples**

```
y = rnorm(26)
df = data.frame(ID = 1:26, actual = y + rnorm(26), fitted = y, id = letters)
model_plot(df, "ID", "actual", "fitted")
model_plot(df, "id", "actual", "fitted")
model_plot(df, "ID", "actual", "fitted", res_bins = 10)
model_plot(df, "id", "actual", "fitted", res_bins = 10)
```

---

nameifnot

*nameifnot*


---

**Description**

Names unnamed elements of a character vector.

**Usage**

```
nameifnot(x, make.names = FALSE)
```

**Arguments**

<code>x</code>	A character vector.
<code>make.names</code>	Logical. Whether to force names of <code>x</code> to be valid variable names. Default is FALSE.

**Value**

A named vector.

---

na_plot	<i>na_plot</i>
---------	----------------

---

**Description**

Visual representation of the NAs in a data.frame

**Usage**

```
na_plot(data, palette = ez_col)
```

**Arguments**

data	A data.frame.
palette	Colour function.

**Value**

A ggplot object.

**Examples**

```
na_plot(airquality)
```

---

not_numeric	<i>not_numeric</i>
-------------	--------------------

---

**Description**

Returns names of non-numeric columns.

**Usage**

```
not_numeric(x)
```

**Arguments**

x	A data.frame.
---	---------------

**Value**

A character vector.

---

no_null	<i>no_null</i>
---------	----------------

---

**Description**

Converts "NULL" character to NULL.

**Usage**

```
no_null(x)
```

**Arguments**

x	A character vector.
---	---------------------

**Value**

y

**Examples**

```
no_null(NULL)
no_null("NULL")
no_null("NOPE")
```

---

perf	<i>perf</i>
------	-------------

---

**Description**

Precision recall calculation

**Usage**

```
perf(fitted, actual, x_measure, y_measure)
```

**Arguments**

fitted	Vector with values between 0 and 1
actual	Vector with two levels
x_measure	metric for ROCR::performance
y_measure	metric for ROCR::performance

**Examples**

```
ezplot::perf(runif(1), sample(c(TRUE, FALSE), 1, replace = TRUE), "rpp", "lift")
ezplot::perf(runif(10), sample(c(TRUE, FALSE), 10, replace = TRUE), "rpp", "lift")
ezplot::perf(runif(5), sample(c(TRUE, FALSE), 5, replace = TRUE), "rec", "prec")
ezplot::perf(runif(5), sample(c(TRUE, FALSE), 5, replace = TRUE), "fpr", "tpr")
ezplot::perf(runif(5), sample(c(TRUE, FALSE), 5, replace = TRUE), "cutoff", "tpr")
```

---

performance\_plot      *performance\_plot*

---

**Description**

plots binary classification performance metrics

**Usage**

```
performance_plot(
  data,
  fitted,
  actual,
  group = NULL,
  facet_x = NULL,
  facet_y = NULL,
  x = "fpr",
  y = "tpr",
  auc = c("title", "group"),
  size_line = 1,
  size = 11,
  env = parent.frame()
)
```

**Arguments**

data	A data.frame.
fitted	A character value. Evaluates to a numeric column.
actual	A character value. Evaluates to a logical or binary column.
group	A character value. Evaluates to a column.
facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
x	ROCR::performance() measure
y	ROCR::performance() measure
auc	character vector indicating which AUC values should be displayed. Options are 'title' and 'group'
size_line	width of line for geom_line(). Default is 1.
size	theme size for use_theme(). Default is 14.
env	environment for evaluating expressions.

**Examples**

```

performance_plot(mtcars, "-disp", "am")
performance_plot(mtcars, "-disp", "am", "cyl")
performance_plot(mtcars, "-disp", "am", "cyl", x = "rec", y = "prec")
performance_plot(mtcars, "-disp", "am", x = "rpp", y = "gain")
performance_plot(mtcars, "-disp", "am", x = "rpp", y = "lift")
performance_plot(mtcars, "-disp", "am", x = "cutoff", y = "tpr")

```

---

perf\_df

*perf\_df*


---

**Description**

perf\_df

**Usage**

```
perf_df(fitted, actual, quantiles = NULL)
```

**Arguments**

fitted	A character value. Evaluates to a numeric column.
actual	A character value. Evaluates to a logical or binary column.
quantiles	Number of quantiles to show. If NULL, uses distinct values of fitted for the cutoffs rather than showing quantiles.

**Examples**

```

perf_df(mtcars$mpg, mtcars$am)
perf_df(mtcars$mpg, mtcars$am, quantiles = 4)
perf_df(mtcars$mpg, mtcars$am, quantiles = 10)
perf_df(mtcars$wt, mtcars$am==0)

```

---

pie\_plot

*pie\_plot*


---

**Description**

Creates pie charts.

**Usage**

```
pie_plot(
  data,
  x,
  y = "1",
  facet_x = NULL,
  facet_y = NULL,
  labels_y = function(x) ez_labels(x * 100, append = "%", round = round, signif =
    signif),
  size = 11,
  label_cutoff = 0.04,
  round = Inf,
  signif = 3,
  palette = ez_col,
  reorder = c("x", "facet_x", "facet_y"),
  label_x = 0.8,
  legend_ncol = NULL
)
```

**Arguments**

<code>data</code>	A data.frame.
<code>x</code>	A named character value. Evaluates to a column.
<code>y</code>	A named character value. Evaluates to a column.
<code>facet_x</code>	A character value. Evaluates to a column.
<code>facet_y</code>	A character. Evaluates to a column.
<code>labels_y</code>	label formatting function
<code>size</code>	theme size for <code>use_theme()</code> . Default is 14.
<code>label_cutoff</code>	Cutoff size (proportion of y data range) for excluding labels
<code>round</code>	Option for rounding label.
<code>signif</code>	Option for retaining significant figures in label.
<code>palette</code>	Colour function.
<code>reorder</code>	A character vector specifying the group variables to reorder. Default is <code>c("group", "facet_x", "facet_y")</code> .
<code>label_x</code>	Position of label from centre of pie. 0 is the centre of the pie and 1 is the outer edge.
<code>legend_ncol</code>	Number of columns in legend.

**Value**

ggplot object



**Examples**

```
library(tsibble)
library(tsibbledata)
pie_plot(ansestt, "Class", "Passengers")
pie_plot(ansestt, "Class", "Passengers", reorder = NULL, label_x = 0.5)
pie_plot(ansestt, "Class", "Passengers", "Airports", reorder = NULL, label_x = 0.5)
```

---

prec\_rec

*prec\_rec*

---

**Description**

Precision recall calculation

**Usage**

```
prec_rec(fitted, actual)
```

**Arguments**

fitted	Vector with values between 0 and 1
actual	Vector with two levels

**Examples**

```
ezplot::prec_rec(runif(1), sample(c(TRUE, FALSE), 1, replace = TRUE))
ezplot::prec_rec(runif(5), sample(c(TRUE, FALSE), 5, replace = TRUE))
```

---

pr\_plot

*pr\_plot*

---

**Description**

precision-recall plot

**Usage**

```
pr_plot(
  data,
  fitted,
  actual,
  group = NULL,
  facet_x = NULL,
  facet_y = NULL,
  palette = ez_col,
  size_line = 1,
  size = 11,
  labs = "short",
  env = parent.frame()
)
```

**Arguments**

data	A data.frame.
fitted	Vector of fitted values
actual	Vector of actual values
group	A character value. Evaluates to a column.
facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
palette	Colour function.
size_line	width of line for geom_line(). Default is 1.
size	theme size for use_theme(). Default is 14.
labs	'short' or 'long'
env	environment for evaluating expressions.

**Examples**

```
library(ggplot2)
n = 1000
df = data.frame(actual = sample(c(FALSE, TRUE), n, replace = TRUE),
                runif = runif(n))
df[["fitted"]] = runif(n) ^ ifelse(df[["actual"]] == 1, 0.5, 2)

density_plot(df, "fitted", "actual")

pr_plot(df, "fitted", "actual")
pr_plot(df, "runif", "actual", size_line = 0.5)

library(dplyr, warn.conflicts = FALSE)
pr_plot(df, "fitted", "actual", "sample(c(1, 2), n(), TRUE)")

pr_plot(df, "fitted", "actual",
```

```

      "sample(c(1, 2), n(), TRUE)",
      "sample(c(3, 4), n(), TRUE)")

pr_plot(df, "fitted", "actual",
        "sample(c(1, 2), n(), TRUE)",
        "sample(c(3, 4), n(), TRUE)",
        "sample(c(5, 6), n(), TRUE)")

```

---

quick\_facet

*Quick facet*


---

### Description

Applies faceting to ggplot objects when `g[["data"]]` has a `facet_x` or `facet_y` column.

### Usage

```
quick_facet(g, ncol = NULL, ...)
```

### Arguments

<code>g</code>	A ggplot object.
<code>ncol</code>	Number of facet columns.
<code>...</code>	Arguments to pass to <code>facet_grid</code> or <code>facet_wrap</code> .

---

reorder\_levels

*Order levels of factor columns using fct\_reorder*


---

### Description

Order levels of factor columns using `fct_reorder`

### Usage

```

reorder_levels(
  data,
  cols = c("group", "facet_x", "facet_y"),
  y = "y",
  .desc = rep(TRUE, length(cols))
)

```

**Arguments**

<code>data</code>	A data.frame.
<code>cols</code>	Names of columns to reorder.
<code>y</code>	Numeric column for order priority.
<code>.desc</code>	A logical vector of length 1 or <code>ncol(data)</code> . Default is TRUE for all columns in <code>cols</code> .

**Value**

A data.frame.

**Examples**

```
str(ezplot::reorder_levels(mtcars, "cyl", "1"))
str(ezplot::reorder_levels(mtcars, "cyl", "1", FALSE))
str(ezplot::reorder_levels(mtcars, "cyl", "mpg"))
```

---

roc

*roc*

---

**Description**

Calculates ROC and AUC

**Usage**

```
roc(fitted, actual)
```

**Arguments**

<code>fitted</code>	Vector with values between 0 and 1
<code>actual</code>	Vector with two levels

**Examples**

```
ezplot::roc(runif(1), sample(c(TRUE, FALSE), 1, replace = TRUE))
ezplot::roc(runif(3), sample(c(TRUE, FALSE), 3, replace = TRUE))
```

---

`roc_plot`*roc\_plot*

---

**Description**`roc_plot`**Usage**

```
roc_plot(  
  data,  
  fitted,  
  actual,  
  group = NULL,  
  facet_x = NULL,  
  facet_y = NULL,  
  palette = ez_col,  
  size_line = 1,  
  size = 11,  
  env = parent.frame()  
)
```

**Arguments**

<code>data</code>	A data.frame.
<code>fitted</code>	Vector of fitted values
<code>actual</code>	Vector of actual values
<code>group</code>	A character value. Evaluates to a column.
<code>facet_x</code>	A character value. Evaluates to a column.
<code>facet_y</code>	A character. Evaluates to a column.
<code>palette</code>	Colour function.
<code>size_line</code>	width of line for <code>geom_line()</code> . Default is 1.
<code>size</code>	theme size for <code>use_theme()</code> . Default is 14.
<code>env</code>	environment for evaluating expressions.

**Examples**

```
library(ggplot2)  
n = 1000  
df = data.frame(actual = sample(c(FALSE, TRUE), n, replace = TRUE),  
                runif = runif(n))  
df[["fitted"]] = runif(n) ^ ifelse(df[["actual"]] == 1, 0.5, 2)  
  
ggplot(df) +  
  geom_density(aes(fitted, fill = actual), alpha = 0.5)
```

```
roc_plot(df, "actual", "actual")
roc_plot(df, "fitted", "actual")
roc_plot(df, "runif", "actual", size_line = 0.5)

library(dplyr, warn.conflicts = FALSE)
roc_plot(df, "fitted", "actual", "sample(c(1, 2), n(), TRUE)")

roc_plot(df, "fitted", "actual",
         "sample(c(1, 2), n(), TRUE)",
         "sample(c(3, 4), n(), TRUE)")

roc_plot(df, "fitted", "actual",
         "sample(c(1, 2), n(), TRUE)",
         "sample(c(3, 4), n(), TRUE)",
         "sample(c(5, 6), n(), TRUE)")
```

---

save\_png

*save\_png*

---

## Description

Saves ggplot or ezplot objects to png.

## Usage

```
save_png(g, file, width, height, res, ..., vp = NULL)
```

## Arguments

<code>g</code>	A ggplot or ezplot object.
<code>file</code>	A png file path.
<code>width</code>	Width of output image.
<code>height</code>	Height of output image.
<code>res</code>	Resolution of output image.
<code>...</code>	Further arguments to pass to <code>png()</code> .
<code>vp</code>	A viewport object created with <code>grid::viewport</code> .

---

scatter_plot	<i>scatter plot</i>
--------------	---------------------

---

## Description

create a scatter plot

## Usage

```
scatter_plot(  
  data,  
  x,  
  y,  
  group = NULL,  
  palette = ez_col,  
  size = 11,  
  point_size = 2.5,  
  env = parent.frame()  
)
```

## Arguments

data	A data.frame.
x	A named character value. Evaluates to a column.
y	A named character value. Evaluates to a column.
group	A character value. Evaluates to a column.
palette	Colour function.
size	theme size for use_theme(). Default is 14.
point_size	Numeric. Default is 2.
env	environment for evaluating expressions.

## Examples

```
scatter_plot(mtcars, "wt", "hp")  
scatter_plot(mtcars, "wt", "hp", "factor(cyl)")  
scatter_plot(mtcars, "factor(cyl)", "hp")
```

---

secondary_plot	<i>secondary_plot creates a plot with a secondary y-axis</i>
----------------	--

---

### Description

secondary\_plot creates a plot with a secondary y-axis

### Usage

```
secondary_plot(
  data,
  x,
  y1 = "1",
  y2 = "1",
  facet_x = NULL,
  facet_y = NULL,
  palette = ez_col,
  size_line = 1,
  labels_y1 = ez_labels,
  labels_y2 = ez_labels,
  ylim1 = NULL,
  ylim2 = NULL,
  reorder = c("facet_x", "facet_y"),
  size = 11
)
```

### Arguments

data	A data.frame.
x	A named character value. Evaluates to a column.
y1	Variable to plot on the left-hand axis
y2	Variable to plot on the right-hand axis
facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
palette	Colour function.
size_line	line size
labels_y1	label formatting function
labels_y2	label formatting function
ylim1	(optional) left axis limits
ylim2	(optional) right axis limits
reorder	A character vector specifying the group variables to reorder. Default is c("group", "facet_x", "facet_y")
size	theme size for use_theme(). Default is 14.



**Value**

A ggplot object.

**Examples**

```
library(tsibble)
library(tsibbledata)
secondary_plot(pelt, "Year", "Hare", "Lynx")
secondary_plot(pelt, "Year", c("Hare Population" = "Hare"), c("Lynx Population" = "Lynx"))
secondary_plot(aus_production, "Quarter",
  c("Quarterly Beer Production (megalitres)" = "Beer"),
  c("Quarterly Cement Production (tonnes)" = "Cement"),
  "lubridate::quarter(Quarter)",
  ylim1 = c(0, 600), ylim2 = c(0, 3000),
  size = 10)
```

---

side\_plot

*side\_plot*


---

**Description**

side\_plot

**Usage**

```
side_plot(
  data,
  x,
  y = "1",
  labels_y = ez_labels,
  size = 11,
  palette = ez_col,
  signif = 3,
  reorder = TRUE,
  rescale_y = 1.25
)
```

**Arguments**

data	A data.frame.
x	A named character value. Evaluates to a column.
y	A named character value. Evaluates to a column.
labels_y	label formatting function
size	theme size for use_theme(). Default is 14.
palette	Colour function.
signif	Number of significant digits.
reorder	A character vector specifying the group variables to reorder. Default is c("group", "facet_x", "facet_y").
rescale_y	Rescaling factor for y-axis limits

**Examples**

```
side_plot(mtcars, "gear", "1", rescale_y = 4/3)
side_plot(mtcars, "cyl", c("Cars with <120 HP" = "hp < 120"))
side_plot(mtcars, "cyl", c(count = "ifelse(cyl == 4, 1, -1)", "hp <= 120"))
side_plot(mtcars, "cyl", c("hp <= 120", "~ - wt / cyl"), rescale_y = 1.5)
side_plot(mtcars, "cyl", c("1", "-1"))
```

---

text_contrast	<i>text_contrast</i>
---------------	----------------------

---

**Description**

text\_contrast

**Usage**

```
text_contrast(x)
```

**Arguments**

x                      Vector of colours.

**Value**

Vector indicating whether black or white should be used for text overlaid on x.

**Examples**

```
text_contrast("#000000")
text_contrast("black")
```

---

theme_ez	<i>Default theme</i>
----------	----------------------

---

**Description**

Default theme

**Usage**

```
theme_ez(base_size = 11, base_family = "")
```

**Arguments**

base\_size              base font size  
base\_family            base fond family

**Value**

theme

**Examples**

```
library(ggplot2)
ggplot(mtcars) + geom_point(aes(cyl, mpg)) + theme_ez()
```

---

tile\_plot

*tile\_plot*

---

**Description**

Creates tile plots.

**Usage**

```
tile_plot(
  data,
  x,
  y,
  z = c(Count = "1"),
  facet_x = NULL,
  facet_y = NULL,
  size = 11,
  facet_ncol = NULL,
  labels_x = NULL,
  labels_y = NULL,
  labels_z = ez_labels,
  zlim = function(x) c(pmin(0, x[1]), pmax(0, x[2])),
  palette = ez_jet,
  reorder = c("facet_x", "facet_y")
)
```

**Arguments**

data	A data.frame.
x	A named character value. Evaluates to a column.
y	A named character value. Evaluates to a column.
z	A named character. Evaluates to a column and is mapped to the fill colour of the tiles.
facet_x	A character value. Evaluates to a column.
facet_y	A character. Evaluates to a column.
size	theme size for use_theme(). Default is 14.
facet_ncol	Option passed to ncol argument in facet_wrap or facet_grid. Default is NULL.

labels_x	label formatting function
labels_y	label formatting function
labels_z	label formatting function
zlim	argument for <code>scale_fill_gradientn</code> (limits = zlim)
palette	Colour function.
reorder	A character vector specifying the group variables to reorder. Default is <code>c("group", "facet_x", "facet_y")</code>

### Examples

```
## Not run:
library(tsiibbledata)
library(dplyr)
nyc_bikes %>%
  mutate(duration = as.numeric(stop_time - start_time)) %>%
  filter(between(duration, 0, 16)) %>%
  tile_plot(c("Hour of Day" = "lubridate::hour(start_time) + 0.5"),
           c("Ride Duration (min)" = "duration - duration %% 2 + 1"))

## End(Not run)
```

---

unpack\_cols

*Unpack cols argument to agg\_data*

---

### Description

Unpack cols argument to `agg_data`

### Usage

```
unpack_cols(x)
```

### Arguments

x cols

### Value

list

### Examples

```
ezplot::unpack_cols("x")
ezplot::unpack_cols(c(x = "x", y = "x + y", expr = "~ x + y"))
```

---

variable_plot	<i>variable_plot</i>
---------------	----------------------

---

## Description

Plots variables (multiple "y" values) broken out as vertical facets.

## Usage

```
variable_plot(
  data,
  x,
  y,
  group = NULL,
  facet_x = NULL,
  palette = ez_col,
  size = 14,
  labels_y = ez_labels,
  geom = "line",
  size_line = 1,
  legend_ncol = NULL,
  ylab = NULL,
  yoy = FALSE,
  switch = "y",
  rescale_y = 1
)
```

## Arguments

<code>data</code>	A data.frame.
<code>x</code>	A named character value. Evaluates to a column.
<code>y</code>	A named character value. Evaluates to a column.
<code>group</code>	A character value. Evaluates to a column.
<code>facet_x</code>	A character value. Evaluates to a column.
<code>palette</code>	Colour function.
<code>size</code>	theme size for <code>use_theme()</code> . Default is 14.
<code>labels_y</code>	label formatting function
<code>geom</code>	Either "line", "col" or "bar". Default is "line"
<code>size_line</code>	width of line for <code>geom_line()</code> . Default is 1.
<code>legend_ncol</code>	Number of columns in legend.
<code>ylab</code>	y label text
<code>yoy</code>	Logical used to indicate whether a YOY grouping should be created. Default is FALSE.

switch	Option to switch location of variable (facet) labels. Default is 'y' (yes) which shows facet strips on left side of panels.
rescale_y	Rescaling factor for y-axis limits

### Examples

```
library(tsibble)
library(tsibbledata)
variable_plot(ansett, "Week", "Passengers", facet_x = "Class")
variable_plot(ansett, "Week", "Passengers", facet_x = "Class", yoy = TRUE)
variable_plot(pelt, "Year", c("Lynx", "Hare"), "round(Year, -1)")
variable_plot(hh_budget, "Year", c("Debt", "Expenditure"), "Country")
variable_plot(PBS, "Type", "Scripts", "Concession", switch = "y", geom = "col")
## Not run:
variable_plot(subset(hh_budget, Year > 2013), "Year",
              c("Debt\n(% of disposable income)" = "Debt",
                "Expenditure\nGrowth (%)" = "Expenditure",
                "Unemployment (%)" = "Unemployment"),
              facet_x = "Country", geom = "bar")
variable_plot(subset(hh_budget, Year > 2013), "Year",
              c("Debt\n(% of disposable income)" = "Debt",
                "Expenditure\nGrowth (%)" = "Expenditure",
                "Unemployment (%)" = "Unemployment"),
              group = "Country", geom = "bar")

## End(Not run)
```

---

waterfall\_plot

*waterfall\_plot*

---

### Description

function for creating waterfall charts

### Usage

```
waterfall_plot(
  data,
  x,
  y,
  group,
  size = 11,
  labels = ez_labels,
  label_rescale = 1,
  y_min = "auto",
  rescale_y = 1.1,
  n_signif = 3,
  rotate_xlabel = FALSE,
```

```

    bottom_label = TRUE,
    ingroup_label = FALSE,
    n_x = 2,
    env = parent.frame()
  )

```

### Arguments

<code>data</code>	A data.frame.
<code>x</code>	A named character value. Evaluates to a column.
<code>y</code>	A named character value. Evaluates to a column.
<code>group</code>	A character value. Evaluates to a column.
<code>size</code>	theme size for <code>use_theme()</code> . Default is 14.
<code>labels</code>	Function for formatting labels.
<code>label_rescale</code>	Scaling factor for chart labels (relative to axis labels).
<code>y_min</code>	Minimum limit of y axis.
<code>rescale_y</code>	Rescaling factor for y-axis limits
<code>n_signif</code>	Number of significant figures in labels.
<code>rotate_xlabel</code>	Logical.
<code>bottom_label</code>	Logical.
<code>ingroup_label</code>	Logical. Shows in-group percentage change.
<code>n_x</code>	Number of x levels to show in chart.
<code>env</code>	environment for evaluating expressions.

### Examples

```

library(tsibbledata)
waterfall_plot(aus_retail,
               "lubridate::year(Month)",
               "Turnover",
               "sub(' Territory', '\nTerritory', State)",
               rotate_xlabel = TRUE)
waterfall_plot(aus_retail,
               "lubridate::year(Month)",
               "Turnover",
               "sub(' Territory', '\nTerritory', State)",
               rotate_xlabel = TRUE,
               label_rescale = 0.5,
               ingroup_label = TRUE,
               bottom_label = FALSE,
               n_x = 3,
               size = 20,
               y_min = 0)

```

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