Package 'plotor'

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Type Package

Title Produces an Odds Ratio Plot from a Logistic Regression Model

Version 0.7.0

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Description Produces an Odds Ratio (OR) Plot to visualise the result of a logistic regression analysis.
Provide it with a binomial regression model produced by 'glm()' and it will convert the estimates to odds ratios with a 95% confidence interval and plot the results using 'ggplot2'.

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Encoding UTF-8

Imports broom, car, cli, detectseparation, dplyr, forcats, ggplot2, glue, gt, janitor, purrr, rlang, scales, stats, stringr, tibble, tidyselect

RoxygenNote 7.3.2

Suggests datasets, knitr, labelled, rmarkdown, svglite, testthat (>= 3.0.0), tidyr, vdiffr

VignetteBuilder knitr

URL https://github.com/craig-parylo/plotor, https://craig-parylo.github.io/plotor/

BugReports https://github.com/craig-parylo/plotor/issues

Config/testthat/edition 3

Depends R (>= 4.1.0)

NeedsCompilation no

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Repository CRAN

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`check_or` *Check OR*

Description

Performs a series of tests to ensure that assumptions for logistic regression are met, with optional detailed feedback if any tests fail.

Usage

```
check_or(glm_model_results, confint_fast_estimate = FALSE, details = TRUE)
```

Arguments

`glm_model_results`	Results from a binomial Generalised Linear Model (GLM), as produced by `stats::glm()`.
`confint_fast_estimate`	Boolean (default = `FALSE`) Use a faster estimate of the confidence interval? Note: this assumes normally distributed data, which may not be suitable for your data.
`details`	Boolean (default = `TRUE`) Show detailed feedback for any failed tests?

Value

Logical, `TRUE` if all assumption tests pass, `FALSE` if one or more tests fail

Examples

```
# Load the Titanic dataset
df <- datasets::Titanic |>
  dplyr::as_tibble() |>
  # convert aggregated counts to individual observations
  dplyr::filter(n > 0) |>
  tidyr::uncount(weights = n) |>
  # convert character variables to factors
  dplyr::mutate(dplyr::across(dplyr::where(is.character), as.factor))

# Perform logistic regression using `glm`
lr <- stats::glm(
  data = df,
```

```
  family = binomial,
  formula = Survived ~ Class + Sex + Age
)

# Check the model for logistic regression assumption violations
check_or(lr)
```

---

plot_or *Plot OR*

Description

Produces an Odds Ratio plot to visualise the results of a logistic regression analysis.

Usage

```
plot_or(glm_model_results, conf_level = 0.95, confint_fast_estimate = FALSE)
```

Arguments

glm_model_results	Results from a binomial Generalised Linear Model (GLM), as produced by stats::glm().
conf_level	Numeric value between 0.001 and 0.999 (default = 0.95) specifying the confidence level for the confidence interval.
confint_fast_estimate	Boolean (default = FALSE) indicating whether to use a faster estimate of the confidence interval. Note: this assumes normally distributed data, which may not be suitable for your data.

Value

The function returns an object of class gg and ggplot, which can be customised and extended using various ggplot2 functions.

See Also

- See vignette('using_plotor', package = 'plotor') for more details on usage.
- More details and examples can be found on the website: https://craig-parylo.github.io/plotor/index.html

Examples

```
# Load required libraries
library(plotor)
library(datasets)
library(dplyr)
library(ggplot2)
library(stats)
library(forcats)
library(tidyr)

# Load the Titanic dataset
df <- datasets::Titanic |>
  as_tibble() |>
  # convert aggregated counts to individual observations
  filter(n > 0) |>
  uncount(weights = n) |>
  # convert character variables to factors
  mutate(across(where(is.character), as.factor))

# Perform logistic regression using `glm`
lr <- glm(
  data = df,
  family = 'binomial',
  formula = Survived ~ Class + Sex + Age
)

# Produce the Odds Ratio plot
plot_or(lr)
```

---

table_or *Table OR*

Description

Produces a formatted table showing the outputs from the Odds Ratio analysis, including details on covariate characteristics and model results.

Usage

```
table_or(
  glm_model_results,
  conf_level = 0.95,
  output = "tibble",
  confint_fast_estimate = FALSE
)
```

Arguments

`glm_model_results`
: Results from a binomial Generalised Linear Model (GLM), as produced by `stats::glm()`.

`conf_level`
: Numeric value between 0.001 and 0.999 (default = 0.95) specifying the confidence level for the confidence interval.

`output`
: String describing of the output type (default = 'tibble'). Options include 'tibble' and 'gt'.

`confint_fast_estimate`
: Boolean (default = `FALSE`) indicating whether to use a faster estimate of the confidence interval. Note: this assumes normally distributed data, which may not be suitable for your data.

Details

The table includes the following information:

- Covariate characteristics:
  - Number of observations for each characteristic
  - Number of observiations resulting in the outcome of interest
  - Conversion rate of outcome by the number of observations
- Model results:
  - Estimated Odds Ratio, standard error and p-value
  - Calculated confidence interval for the specified confidence level
- A visualisation of the OR plot is also provided for an at-a-glance view of the model results

Includes details on the characteristics of the covariates, such as:

- the number of observations for each characteristic,
- the number of observations resulting in the outcome of interest,
- the conversion rate of outcome by the number of observations,

Details are calculated showing the:

- estimated Odds Ratio, standard error and p-value,
- calculated confidence interval for the confidence level,

Also included is a visualisation of the OR plot to provide an at-a-glance view of the model results.

Value

The returned object depends on the `output` parameter:

- If `output = 'tibble'`, the function returns an object of class "tbl_df", "tbl" and "data.frame".
- If `output = 'gt'`, the function returns an object of class "gt_tbl" and "list"

Examples

```
# Load the Titanic dataset
df <- datasets::Titanic |>
  dplyr::as_tibble() |>
  # convert aggregated counts to individual observations
  dplyr::filter(n > 0) |>
  tidyr::uncount(weights = n) |>
  # convert character variables to factors
  dplyr::mutate(dplyr::across(dplyr::where(is.character), as.factor))

# Perform logistic regression using `glm`
lr <- stats::glm(
  data = df,
  family = 'binomial',
  formula = Survived ~ Class + Sex + Age
)

# Produce the Odds Ratio table as a tibble
table_or(lr)

# Produce the Odds Ratio table as a gt object
table_or(lr, output = 'gt')
```

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