

Package ‘flatr’

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Type Package
Title Transforms Contingency Tables to Data Frames, and Analyses Them
Version 0.01.0
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Description Contingency Tables are a pain to work with when you want to run regressions. This package takes them, flattens them into a long data frame, so you can more easily analyse them! As well, you can calculate other related statistics. All of this is done so in a 'tidy' manner, so it should tie in nicely with 'tidyverse' series of packages.
Depends R(>= 3.4.2), stats, dplyr, tibble, magrittr
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flatten_ct	<i>Flatten i*j*k contingency tables into tidy data.</i>
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Description

flatten_ct() takes a i*j*k array, and turns it into a tibble

Usage

flatten_ct(data)

Arguments

`data` An $i*j*k$ array.

Value

A tibble with 3 columns.

Examples

```
flatten_ct(lung_cancer)
```

<code>goodness_of_fit</code>	<i>Calculate the χ^2 and G^2 Statistics</i>
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Description

Calculates the goodness of fit test statistics for contingency tables

Usage

```
goodness_of_fit(model, response, type = "Chisq", ...)
```

Arguments

`model` a GLM regression model.

`response` a string with the same name as the response column in the data

`type` either "Chisq" or "Gsq", which determines the type of goodness of fit test that is ran. Defaults to "Chisq".

`...` Further arguments passed to or from other methods.

Value

A list with class "ct_goodness_of_fit" containing the following components:

`test` the type of test used.

`model` the name of the inputted model.

`statistic` The value of the test statistic as determined by the type parameter

`df` The number of degrees of freedom. This equals the number of combinations for explanatory variables less the number of parameters in the model

`p.value` The p-value calculated under a Chi-Squared distribution.

Examples

```
lung_logit <-
  lung_cancer %>%
  flatten_ct() %>%
  glm(
    Lung ~ City + Smoking
    ,family = binomial
    ,data = .
  )

goodness_of_fit(model = lung_logit, response = "Lung", type = "Chisq")
lung_logit %>%
  goodness_of_fit(response = "Lung", type = "Gsq")
lung_cancer %>%
  flatten_ct() %>%
  glm(
    Lung ~ City + Smoking
    ,family = binomial
    ,data = .
  ) %>%
  goodness_of_fit(response = "Lung", type = "Chisq")
```

lung_cancer

*Lung Cancer by whether or not a person smokes and City.***Description**

Based on data in Z. Liu, Int. J. Epidemiol., 21: 197–201, 1992.

Usage

```
lung_cancer
```

Format

An Array with 2*2*8 dimensions

Smoking Whether or not a person smokes.

Lung Whether or not a person has lung cancer.

City Name of the city a person lives in.

Examples

```
lung_cancer
```

```
print.ct_goodness_of_fit
```

Print method for goodness_of_fit()

Description

Creates a nice looking output for the goodness_of_fit() function

Usage

```
## S3 method for class 'ct_goodness_of_fit'  
print(x, ...)
```

Arguments

x	A list
...	Further arguments passed to or from other methods.

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