

Package ‘tidydelta’

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Title Estimation of Standard Errors using Delta Method

Version 0.1.0

Description Delta Method implementation to estimate standard errors with known asymptotic properties within the 'tidyverse' workflow. The Delta Method is a statistical tool that approximates an estimator's behaviour using a Taylor Expansion. For a comprehensive explanation, please refer to Chapter 3 of van der Vaart (1998, ISBN: 9780511802256).

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Imports dplyr, numDeriv, purrr, rlang, tibble, cli

Suggests testthat (>= 3.0.0), tidyverse

Encoding UTF-8

RoxygenNote 7.3.2

Config/testthat/edition 3

URL <https://github.com/JavierMtzRdz/tidydelta>

BugReports <https://github.com/JavierMtzRdz/tidydelta/issues>

NeedsCompilation no

Author Javier Martinez-Rodriguez [aut, cre, cph]

Maintainer Javier Martinez-Rodriguez <javier.matz.rdz@gmail.com>

Repository CRAN

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`cases_ext`*Extract variables and their names from the formula*

Description

Extract variables and their names from the formula

Usage

```
cases_ext(formula, mean_dta = NULL, cov_dta = NULL)
```

Arguments

<code>formula</code>	A formula object specifying the variables of interest.
<code>mean_dta</code>	Vector containing the means of the variables.
<code>cov_dta</code>	Covariance matrix of the variables.

Value

list containing objects with variables and formula

`ext_bd_var`*Extract variables from a formula*

Description

Extracts variables from a formula string.

Usage

```
ext_bd_var(formula)
```

Arguments

<code>formula</code>	A formula object or a character string representing a formula.
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Value

A named character vector of extracted variables.

for_to_exp	<i>Convert a formula to an expression</i>
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Description

Converts a formula to an expression for further evaluation.

Usage

```
for_to_exp(formula)
```

Arguments

formula A formula object or a character string representing a formula.

Value

The evaluated expression.

tidydelta	<i>Delta Method implementation</i>
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Description

Estimates standard errors for transformations of random variables using Delta method.

Usage

```
tidydelta(  
  formula,  
  normality_eval = TRUE,  
  formula_vars = mean,  
  mean_dta = NULL,  
  cov_dta = NULL,  
  n = NULL,  
  conf_lev = 0.95  
)
```

Arguments

formula A formula object specifying the variables of interest.
normality_eval Logical value to run normality test in case of being possible.
formula_vars The function(s) to apply to the variables in the formula.
mean_dta Vector containing the means of the variables.
cov_dta Covariance matrix of the variables.

n	Sample size evaluation (in case that we can evaluate the confidence intervals with different hypnotic sample sizes).
conf_lev	Confidence level for confidence intervals.

Value

A tibble with columns for means, standard errors, and optionally, confidence intervals.

Examples

```
# Equivalent ways to use tidydelta()
library(tidyverse)

x <- rnorm(1000, mean = 5, sd = 2)
y <- rnorm(1000, mean = 15, sd = 3)

bd <- tibble(x, y)

tidydelta(~ y / x,
  conf_lev = .95
)

tidydelta(~ bd$y / bd$x,
  conf_lev = .95
)
bd %>%
  summarise(tidydelta(~ y / x,
    conf_lev = .95
  ))
```

where_env

Recursive search of environment

Description

Recursive search of environment containing object.

Usage

```
where_env(name, env = rlang::caller_env())
```

Arguments

name	Object searched
env	Initial environment to search

Value

A named character vector of extracted variables.

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