

# Package: tidydelta (via r-universe)

October 17, 2024

**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

**Roxygen** list(markdown = TRUE)

**RoxygenNote** 7.3.2

**Config/testthat/edition** 3

**URL** <https://github.com/JavierMtzRdz/tidydelta>,  
<https://javiermtzrdz.github.io/tidydelta/>

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

**Repository** <https://javiermtzrdz.r-universe.dev>

**RemoteUrl** <https://github.com/javiermtzrdz/tidydelta>

**RemoteRef** HEAD

**RemoteSha** 4cec75da145135107d5452d3dce3f8fe30f59894

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cases_ext	<i>Extract variables and their names from the formula</i>
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**Description**

Extract variables and their names from the formula

**Usage**

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

**Arguments**

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

**Value**

list containing objects with variables and formula

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ext_bd_var	<i>Extract variables from a formula</i>
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**Description**

Extracts variables from a formula string.

**Usage**

```
ext_bd_var(formula)
```

**Arguments**

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

A named character vector of extracted variables.

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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.

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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
  ))
```

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where\_env

*Recursive search of environment*


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**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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