

Package ‘sgmean’

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Type Package

Title Proportional Trimmed Mean

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Description Computes a proportional trimmed mean that resolves the integer truncation problem of base R's `mean(..., trim)`. When $k = \text{trim} * n$ is non-integer, a fractional discount $(1 - \text{delta})$ is applied to boundary observations, where $\text{delta} = k - \text{floor}(k)$. The resulting estimator is continuous in α for any fixed n , syntactically identical to `mean(..., trim)`, and compatible with the 'Statgraphics' implementation. See Gaviria Chaverra (2026) [doi:10.32614/CRAN.package.sgmean](https://doi.org/10.32614/CRAN.package.sgmean).

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Encoding UTF-8

Suggests knitr, rmarkdown, testthat (>= 3.0.0)

Config/testthat/edition 3

URL <https://github.com/jcarlosgaviria/sgmean>

BugReports <https://github.com/jcarlosgaviria/sgmean/issues>

Config/roxygen2/version 8.0.0

VignetteBuilder knitr

NeedsCompilation no

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Description

Computes a proportional trimmed mean that resolves the integer truncation problem of base R’s `mean(..., trim)`. When $k = \text{trim} \times n$ is non-integer, a fractional discount $(1 - \delta)$ is applied to boundary observations, where $\delta = k - \lfloor k \rfloor$.

Usage

```
sgmean(x, trim = 0.05, na.rm = FALSE)
```

Arguments

x	A numeric vector.
trim	Fraction of observations to trim symmetrically from each end of the sorted data. Must be in $[0, 0.5)$.
na.rm	Logical. Should missing values be removed before computation? Default is FALSE.

Details

The proportional trimmed mean generalizes `mean(..., trim)` by treating $k = \text{trim} \times n$ as a continuous parameter. Three cases are handled:

- k = 0** Returns the arithmetic mean.
- 0 < k < 1 (Type A)** Applies a discount $(1 - k)$ to $X_{(1)}$ and $X_{(n)}$.
- k exact integer** Reduces to `mean(..., trim)`, producing identical results to R base.
- k > 1, non-integer (Type B)** Eliminates $\lfloor k \rfloor$ observations from each tail and applies a fractional discount $(1 - \delta)$ to the new boundary observations, where $\delta = k - \lfloor k \rfloor$.

Value

A single numeric scalar.

References

Gaviria Chaverra, J. C. (2026). `sgmean`: A Proportional Trimmed Mean for R Compatible with Statgraphics. *The R Journal*.

Examples

```
# Type A distortion:  $k = 0.05 * 15 = 0.75$ 
x <- c(850, 920, 980, 1050, 1120, 1180, 1250,
      1320, 1400, 1480, 1550, 1700, 1850, 2100, 8500)
mean(x, trim = 0.05)    # 1816.667 – no trimming applied ( $k^* = 0$ )
sgmean(x, trim = 0.05)  # 1499.074 – proportional discount applied

# Type B distortion:  $k = 0.10 * 15 = 1.50$ 
mean(x, trim = 0.10)    # 1376.923 – effective trim 6.7%
sgmean(x, trim = 0.10)  # 1365.833 – effective trim 10% (Statgraphics)

# Control:  $k = 1/15 * 15 = 1$  (exact integer)
mean(x, trim = 1/15)    # identical to sgmean
sgmean(x, trim = 1/15)  # identical to mean(..., trim)
```

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