

# Package: uni.shrinkage (via r-universe)

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**Type** Package

**Title** Shrinkage Estimation for Univariate Normal Mean

**Version** 1.0.0

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**Description** Implement a shrinkage estimation for the univariate normal mean based on a preliminary test (pretest) estimator. This package also provides the confidence interval based on pivoting the cumulative density function. The methodologies are published in Taketomi et al.(2024) <[doi:10.1007/s42081-023-00221-2](https://doi.org/10.1007/s42081-023-00221-2)> and Taketomi et al.(2024-)(under review).

**License** GPL-2

**Encoding** UTF-8

**RoxygenNote** 7.3.2

**NeedsCompilation** no

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**Repository** CRAN

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 uni.pt

*Shrinkage Estimation for the Univariate Normal Mean based on a Preliminary Test Estimator*


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### Description

This function computes a preliminary test (pretest) estimate for the univariate normal mean. This function also computes the confidence interval based on a pretest estimator.

### Usage

```
uni.pt(y, s, alpha=0.05, gamma=0.05, gamma1=NA, gamma2=NA, conf.int=TRUE)
```

### Arguments

y	A vector of normal distributed data
s	Standard deviation of y
alpha	Significance level for the preliminary hypothesis test. This parameter satisfies $0 < \alpha < 1$ . The default is $\alpha=0.05$ .
gamma	A constant that $1-\gamma$ is the confidence level. This constant satisfies $0 < \gamma < 1$ . The default is $\gamma=0.05$ .
gamma1	A constant for the $1-\gamma$ confidence level that satisfies $\gamma_1+\gamma_2=\gamma$ . This argument is optional.
gamma2	A constant for the $1-\gamma$ confidence level that satisfies $\gamma_1+\gamma_2=\gamma$ . This argument is optional.
conf.int	An indicator whether confidence interval is in the output or not. The default is <code>conf.int=TRUE</code>

### Value

Sample_mean	Sample mean of y
PT	Pretest estimator for the normal mean based on y
Lower.pivotCI	Lower limit of the confidence interval
Upper.pivotCI	Upper limit of the confidence interval

### Author(s)

Nanami Taketomi, Takeshi Emura

### References

Taketomi N, Shih JH, Emura T.(2024-). Confidence interval for the univariate normal mean based on a pretest estimator.(under review)

**Examples**

```
mu=0  
s=10  
y=rnorm(20,mu,s)  
uni.pt(y,s)
```

```
mu=1.5  
s=10  
y=rnorm(20,mu,s)  
uni.pt(y,s,alpha=0.10)
```

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