

Package ‘orderstats’

October 14, 2022

Type Package

Title Efficiently Generates Random Order Statistic Variables

Version 0.1.0

Author Christian Sims <christian_j_sims@yahoo.com>

Maintainer Christian Sims <christian_j_sims@yahoo.com>

Description

All the methods in this package generate a vector of uniform order statistics using a beta distribution and use an inverse cumulative distribution function for some distribution to give a vector of random order statistic variables for some distribution. This is much more efficient than using a loop since it is directly sampling from the order statistic distribution.

Imports stats

License GPL-2

LazyData TRUE

RoxygenNote 5.0.1

NeedsCompilation no

Repository CRAN

Date/Publication 2017-06-11 22:09:58 UTC

R topics documented:

order_probs	2
order_rcauchy	2
order_rchisq	3
order_rexp	4
order_rgamma	4
order_rlogis	5
order_rnorm	6

Index	7
--------------	----------

order_probs	<i>Gets order statistics from a 0-1 uniform distribution</i>
-------------	--

Description

Gets order statistics from a 0-1 uniform distribution

Usage

```
order_probs(draw_size, k, n)
```

Arguments

draw_size	- The size of the output sample
k	- The Kth smallest value from a sample
n	- The size the sample to compute the order statistic from

Value

A vector of random order statistic variables from a 0-1 uniform distribution

References

Gentle, James E. (2009), Computational Statistics, Springer, p. 63, ISBN 9780387981444

order_rcauchy	<i>Gets random order statistics from a cauchy distribution</i>
---------------	--

Description

Gets random order statistics from a cauchy distribution

Usage

```
order_rcauchy(draw_size = 1, location = 0, scale = 1, k = 1, n = 1)
```

Arguments

draw_size	- The size of the output sample
location	- The location parameter in the cauchy distribution
scale	- The scale parameter in the cauchy distribution
k	- The Kth smallest value from a sample
n	- The size of the sample to compute the order statistic from

Value

A vector of random order statistic variables from a cauchy distribution

Examples

```
order_rcauchy(10, 0, 1, 100, 10000)
```

order_rchisq	<i>Gets random order statistics from a chi-square distribution</i>
--------------	--

Description

Gets random order statistics from a chi-square distribution

Usage

```
order_rchisq(draw_size, df, k, n)
```

Arguments

- draw_size - The size of the output sample
- df - The degrees of the chi-square distribution
- k - The Kth smallest value from a sample
- n - The size of the sample to compute the order statistic from

Value

A vector of random order statistic variables from a chi-square distribution

Examples

```
order_rchisq(10, 1, 100, 10000)
```

order_rexp *Gets random order statistics from an exponential distribution*

Description

Gets random order statistics from an exponential distribution

Usage

```
order_rexp(draw_size, rate, k, n)
```

Arguments

draw_size - The size of the output sample
rate - The shape parameter in the exponential distribution
k - The Kth smallest value from a sample
n - The size of the sample to compute the order statistic from

Value

A vector of random order statistic variables from an exponential distribution

Examples

```
order_rexp(10, 0.005, 100, 10000)
```

order_rgamma *Gets random order statistics from a gamma distribution*

Description

Gets random order statistics from a gamma distribution

Usage

```
order_rgamma(draw_size, shape, scale, k, n)
```

Arguments

draw_size - The size of the output sample
shape - The shape parameter in the gamma distribution
scale - The scale parameter in the gamma distribution
k - The Kth smallest value from a sample
n - The size of the sample to compute the order statistic from

Value

A vector of random order statistic variables from a gamma distribution

Examples

```
order_rgamma(10, 20, 2, 100, 10000)
```

order_rlogis	<i>Gets random order statistics from a logistic distribution</i>
--------------	--

Description

Gets random order statistics from a logistic distribution

Usage

```
order_rlogis(draw_size, location, scale, k, n)
```

Arguments

- draw_size - The size of the output sample
- location - The location parameter in the logistic distribution
- scale - The scale parameter in the logistic distribution
- k - The Kth smallest value from a sample
- n - The size of the sample to compute the order statistic from

Value

A vector of random order statistic variables from a logistic distribution

Examples

```
order_rlogis(10, 0, 1, 100, 10000)
```

order_rnorm	<i>Gets random order statistics from a normal distribution</i>
-------------	--

Description

Gets random order statistics from a normal distribution

Usage

```
order_rnorm(draw_size = 1, mean = 0, sd = 1, k = 1, n = 1)
```

Arguments

draw_size	- The size of the output sample
mean	- The mean of the normal distribution
sd	- The standard deviation of the normal distribution
k	- The Kth smallest value from a sample
n	- The size of the sample to compute the order statistic from

Value

A vector of random order statistic variables from a normal distribution

Examples

```
order_rnorm(10, 0, 1, 100, 10000)
```

Index

order_probs, 2
order_rcauchy, 2
order_rchisq, 3
order_rexp, 4
order_rgamma, 4
order_rlogis, 5
order_rnorm, 6