Package ‘dhh’

October 13, 2022

Title  A Heavy-Headed Distribution
Version  0.0.1
Description  The density, cumulative distribution, quantiles, and i.i.d random variables of a heavy-headed distribution. For more information, please see the vignette.
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R topics documented:

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Density Function Of The Heavy-Headed Distribution

Description

This function gives the values of the density of the heavy-headed distribution.

Usage

dhh(x, a=0, b=1, alpha=0.1)

Arguments

- **x**: x is a vector of real values, at which the values of the density will be calculated.
- **a, b**: The interval (a,b) is the support of the distribution. The default values for a and b are 0 and 1, respectively.
- **alpha**: It is a positive parameter of the distribution. Its default value is set to be 0.1. When alpha = 1, the distribution is uniform. When alpha > 1, the density at a is zero.

Details

See the references.

Value

It returns the values of the density at x.

Author(s)

Runlong Tang

References


See Also

phh qhh rhh
Examples

dhh(0.5)
dhh(0.5, 0, 1, 0.1)
dhh(c(0.5, 0.7))

curve(dhh, -1, 2)
curve(dhh(x, a=0, b=1, alpha=0.1), -1, 2)
curve(dhh(x, a=0, b=10, alpha=0.1), -1, 11)

Cumulative Distribution Function (CDF) Of The Heavy-Headed Distribution

Description
This function gives the values of the CDF of the heavy-headed distribution.

Usage

phh(x, a = 0, b = 1, alpha = 0.1)

Arguments

x x is a vector of real values, at which the values of the CDF will be calculated.

a, b The interval (a,b) is the support of the distribution. The default values for a and b are 0 and 1, respectively.

alpha It is a positive parameter of the distribution. Its default value is set to be 0.1. When alpha = 1, the distribution is uniform. When alpha > 1, the density at a is zero.

Details
See the references.

Value
It returns the values of the CDF at x.

Author(s)
Runlong Tang
References


See Also
dhh qhh rhh

Examples

phh(0)
phh(1)
phh(0.5)
phh(0.5, 0, 1, 0.1)
phh(c(0.5, 0.7))
curve(phh, from = -1, to = 2)
curve(phh(x, a=0, b=1, alpha=0.1), -1, 2)
curve(phh(x, a=0, b=10, alpha=0.1), -1, 11)
curve(phh(x, a=0, b=100, alpha=0.1), -1, 11)

qhh

Quantiles Of The Heavy-Headed Distribution

Description

This function gives the quantiles of the heavy-headed distribution.

Usage

qhh(p, a = 0, b = 1, alpha = 0.1)

Arguments

p

p is a vector of probabilities, at which the quantiles of the CDF will be calculated.

a,b

The interval (a,b) is the support of the distribution. The default values for a and
b are 0 and 1, respectively.

alpha

It is a positive parameter of the distribution. Its default value is set to be 0.1.
When alpha = 1, the distribution is uniform. When alpha > 1, the density at a is zero.
Details

See the references.

Value

It returns the quantiles of the CDF at p.

Author(s)

Runlong Tang

References


See Also

dhh phh rhh

Examples

qhh(0.9)
qhh(0.9, a=0, b=1, alpha=0.1)
qhh(0.9, a=0, b=10, alpha=0.1)
qhh((1:9)/10)
curve(qhh, from = 0.1, to = 0.9)
curve(qhh(x, 0, 1, 0.1), from = 0.1, to = 0.9)
curve(qhh(x, a=10, b=100, alpha = 0.1), from = 0.1, to = 0.9)

rhh Random Variables of Of The Heavy-Headed Distribution

Description

This function generate i.i.d. random variables following the heavy-headed distribution.

Usage

rhh(n, a = 0, b = 1, alpha = 0.1)
Arguments

n               It is the number of the random variables.
a, b            The interval (a,b) is the support of the distribution. The default values for a and b are 0 and 1, respectively.
alpha          It is a positive parameter of the distribution. Its default value is set to be 0.1. When alpha = 1, the distribution is uniform. When alpha > 1, the density at a is zero.

Details

See the references.

Value

It returns a vector of n random variables following the heavy-headed distribution.

Author(s)

Runlong Tang

References


See Also

dhh phh qhh

Examples

rhh(1)
rhh(2)
hist(rhh(10000), freq=FALSE)
curve(dhh, add = TRUE, col = 2)
dhh(c(0.1, 0.01, 0.001, 0.0001, 0.00001))
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