Package

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Type Package

Title Some useful methods for Semi-continuous Data (aka mixed data)

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Description This package contains functions useful to work with semi-continuous data with point mass at 0 and continuous on the positive real line.

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LazyData TRUE

Imports truncnorm

RoxygenNote 6.1.1

R topics documented:

`hist.semicts` *Generates a histogram for the semi-continuous data provided*

Description

Generates a histogram for the semi-continuous data provided

Usage

```
## S3 method for class 'semicts'
hist(obj, xlab = "X", ylab = "Density", main = "",
  cols = c(rgb(0, 0, 1, 0.5), rgb(1, 0, 0, 0.5)),
  legends = c("Intensity", "Proportion of Zeros"))
```

Arguments

obj	an array of semi-continuous data
xlab	label for x-axis (has a default)
ylab	label for y-axis (has a default)
main	title (has a default)
cols	two colors as an array: one for the proportion of zeroes, and the other for the continuous data (has a default)
legends	names for the legend as an array of two elements (has a default)

Value

histogram object

Examples

```
x <- rsemicts(100, pzero=0.4, cts.density="lnorm", cts.params=c(1,1))
hist(x)
```

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hist1.semicts *Generates a histogram for the semi-continuous data provided*

Description

Generates a histogram for the semi-continuous data provided

Usage

```
hist1.semicts(obj, xlab = "x", ylab = "Density", main = "",
  cols = c(rgb(0, 0, 1, 0.5), rgb(1, 0, 0, 0.5)),
  legends = c("Intensity", "Proportion of Zeros"))
```

Arguments

obj	an array of semi-continuous data
xlab	label for x-axis (has a default)
ylab	label for y-axis (has a default)
main	title (has a default)
cols	two colors as an array: one for the proportion of zeroes, and the other for the continuous data (has a default)
legends	names for the legend as an array of two elements (has a default)

Value

histogram object

Examples

```
x <- rsemicts(100, pzero=0.4, cts.density="lnorm", cts.param=c(1,1))
hist(x)
```

`pred.perf` *Returns MPSE, MAD, average of positive predictions when the true value is zero (and vice-versa), proportion of matched zeroes, and proportion of matched positives.*

Description

Returns MPSE, MAD, average of positive predictions when the true value is zero (and vice-versa), proportion of matched zeroes, and proportion of matched positives.

Usage

```
pred.perf(y_pred, y)
```

Arguments

`y_pred`	A semicts object (for ex. returned from the rsemicts function)
`y`	A semicts object

Examples

```
x <- rsemicts(100, pzero=0.4, cts.density="lnorm", cts.param=c(1,1))
y <- rsemicts(100, pzero=0.4, cts.density="lnorm", cts.param=c(1,1))
pred.perf(x, y)
```

`rsemicts` *Generates a random sample from a semi-continuous distribution. Tested for truncated normal (truncnorm), log-normal (lnorm), and gamma distributions are supported for the continuous part of the distribution.*

Description

Generates a random sample from a semi-continuous distribution. Tested for truncated normal (truncnorm), log-normal (lnorm), and gamma distributions are supported for the continuous part of the distribution.

Usage

```
rsemicts(n, pzero = 0.5, r.func = NA, cts.density = "truncnorm",
  cts.param = list(a = 0, b = Inf, mean = 0, sd = 1))
```

Arguments

`n`	Number of random variables to generate
`pzero`	Point mass at 0
`cts.density`	Name of a continuous density with support on the positive real line. Supported values: truncnorm (default), lnorm, and gamma
`cts.param`	A list containing the parameters for cts.density (default: list(a=0, b=Inf, mean = 0, sd=1) for mean, standard deviation of truncated normal). For log-normal, it should be an array containing meanlog, and sdlog of the distribution. For gamma, an array of shape, and rate values must be supplied.

Value

An array of semi-continuous random variables.

Examples

```
rsemicts(100, pzero=0.4, cts.density="lnorm", cts.param=list(meanlog=0, sdlog=1))
rsemicts(1000, pzero=0.6, cts.density="gamma", cts.param = list(shape=1, rate=1))
rsemicts(100, pzero=0.6, cts.density="truncnorm", cts.param = list(a=0, b=Inf, mean = 0, sd=1))
```

`rsemicts.old` *Generates a random sample from a semi-continuous distribution. Currently, truncated normal (truncnorm), log-normal (lnorm), and gamma distributions are supported for the continuous part of the distribution.*

Description

Generates a random sample from a semi-continuous distribution. Currently, truncated normal (truncnorm), log-normal (lnorm), and gamma distributions are supported for the continuous part of the distribution.

Usage

```
rsemicts.old(n, pzero = 0.5, cts.density = "truncnorm",
  cts.params = c(1, 1))
```

Arguments

`n`	Number of random variables to generate
`pzero`	Point mass at 0
`cts.density`	Name of a continuous density with support on the positive real line. Supported values: truncnorm (default), lnorm, and gamma
`cts.params`	An array containing the parameters for cts.density (default: c(1,1) for mean, standard deviation of truncated normal). For log-normal, it should be an array containing meanlog, and sdlog of the distribution. For gamma, an array of shape, and rate values must be supplied.

Value

An array of semi-continuous random variables.

Examples

```
rsemicts(100, pzero=0.4, cts.density="lnorm", cts.param=c(1,1))
```

rtobit — *Generate a random sample from a latent normal distribution (tobit)*

Description

Generate a random sample from a latent normal distribution (tobit)

Usage

```
rtobit(n, mean = 1, sd = 1)
```

Arguments

n	Number of random variables to generate
mean	mean of the latent normal distribution
sd	standard deviation of the latent normal distribution

Value

An array of semi-continuous random variables.

Examples

```
rtobit(100)
```

summary.semicts — *Prints the proportion of zeroes, and summary of the positive data in the semicts object supplied.*

Description

Prints the proportion of zeroes, and summary of the positive data in the semicts object supplied.

Usage

```
## S3 method for class 'semicts'
summary(obj, ...)
```

Arguments

obj	A semicts object (for ex. returned from the rsemicts function)

Examples

```
x <- rsemicts(100, pzero=0.4, cts.density="lnorm", cts.param=c(1,1))
summary(x)
```

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