R documentation

of all in './man'

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R topics documented:

`loglike.series.exp` *log-likelihood function of masked data for a series system with exponentially distributed lifetimes.*

Description

log-likelihood function of masked data for a series system with exponentially distributed lifetimes.

Usage

```
loglike.series.exp(rate, masked.data)
```

Arguments

`rate`	rate parameter
`masked.data`	masked data

Value

log-likelihood of masked data wrt rate parameter

rmasked.data *Generate masked data from series system data*

Description

Generate masked data from series system data

Usage

```
rmasked.data(data, w = NULL, alpha = NULL)
```

Arguments

data	a data frame, first column failure time, second column failed component, remaining columns component lifetimes.
w	a vector of sizes for candidate sets
alpha	a vector of probabilities

Value

masked data

Examples

```
n = 100
t = rseries.exp(n,c(1,2,3))
w = rep(2,n)
alpha = rep(.9,n)
data = rmasked.data(t,w,alpha)
```

rseries.exp *rseries.exp*

Description

rseries.exp

Usage

```
rseries.exp(n, rate)
```

Arguments

n	sample size (each row is an observation)
rate	the j-th component has a failure rate rate_j

Value

matrix of n x length(rates) component lifetimes

Examples

```
# generate 10 samples (10 x 3 matrix of component lifetimes)
t = rseries.exp(n=10,rate=c(1,2,3))
```

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rseries.exp.mle.cov.bootstrap

bootstrap of the mle's sampling distribution

Description

bootstrap of the mle's sampling distribution

Usage

```
rseries.exp.mle.cov.bootstrap(masked.data, r)
```

Arguments

masked.data	sample of masked data
r	replicates

Value

mle and bootstrap estimate of its covariance matrix

---

rseries.lomax

rseries.lomax

Description

joint distribution of S,K,T1,...,Tm where

Usage

```
rseries.lomax(n, lambda, kappa)
```

Arguments

n	Numeric. Number of observations.
lambda	Numberic vector. The j-th component has lambda=lambda_j
kappa	Numberic vector. The j-th component has kappa=kappa_j

Details

```
Tj ~ lomax(theta_j*)
S = min{T1,...,Tm}
K = argmin_k {Tk : k=1,...,m}
```

Value

matrix of n x length(lambda) component lifetimes

Examples

```
# generate 10 samples (10 x 3 matrix of component lifetimes)
t = rseries.lomax(n=10,lambda=c(1,2,3),kappa=c(4,5,6))
```

`series.exp.info` *information matrix of the rate parameter of the series system with exponentially distributed component lifetimes. this is the expected info. if observed info is desired, then just evaluate the hessian of the log-likelihood function at the mle.*

Description

information matrix of the rate parameter of the series system with exponentially distributed component lifetimes. this is the expected info. if observed info is desired, then just evaluate the hessian of the log-likelihood function at the mle.

Usage

```
series.exp.info(n, rate)
```

Arguments

`n`	masked data sample size
`rate`	true rate (or mle)

Value

expected info

`series.exp.mle` *maximum likelihood estimator of the parameters of a series system with components that have exponentially distributed lifetimes given a sample of masked data.*

Description

maximum likelihood estimator of the parameters of a series system with components that have exponentially distributed lifetimes given a sample of masked data.

Usage

```
series.exp.mle(masked.data)
```

Arguments

`masked.data`	masked data

Value

mle of rate parameter

`series.exp.mle.cov` *sampling distribution of the mle is a multivariate normal with mean given by the true rate parameterfor a series system with exponentially distributed component lifetimes, given a sample of masked data.*

Description

sampling distribution of the mle is a multivariate normal with mean given by the true rate parameterfor a series system with exponentially distributed component lifetimes, given a sample of masked data.

Usage

```
series.exp.mle.cov(n, rate)
```

Arguments

`n`	sample size
`rate`	true rate parameter (or mle)

Value

multivariate normal of the mle's sampling distribution

Index