

Package ‘censNID’

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Title censored NID samples

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Depends R (>= 2.1.0),

Description Implements AS138, AS139.

License GPL (>= 2)

NeedsCompilation yes

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cenNID	<i>mle estimation for censored normal</i>
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Description

MLE estimation using AS 138 for censored and confined normal.

Usage

```
cenNID(y, L=rep(-Inf, length(y)), U=rep(Inf, length(y)))
```

Arguments

y	observations
L	lower bound for each observation that is equal to -Inf when none, default -Inf
U	upper bound for each observation that is equal to Inf when none, default Inf

Value

a list with the following components:

est	matrix with mean and sd and their se
covMat	covariance matrix
nobs	number of complete observations
itercount	number of iterations
ifault	fault indicator. 0-converged. -1:convergence not obtained in default number of allowed iterations. -2:fewer than 2 complete observations. -3:error with confined estimator initial values (should not occur in R version). -4:invalid specification for limits with confined observation.

Author(s)

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References

M. S. Wolynetz (1979). Algorithm AS 138: Maximum Likelihood Estimation from Confined and Censored Normal Data. *Journal of the Royal Statistical Society. Series C (Applied Statistics)*, Vol. 28, No. 2, pp. 185-195

See Also

[censNID](#)

Examples

```
set.seed(32173217)
n<-100
z <- rnorm(n)
U <- rep(Inf, n)
L <- rep(-Inf, n)
cy <- -1
ind <- z > cy
m <- sum(as.integer(ind))
y <- c(z[ind], rep(cy, n-m))
L[(m+1):n] <- cy
cenNID(y, L, U)
```

censNID	<i>mle NID sample with single censor point</i>
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Description

Uses AS 138

Usage

```
censNID(y, n, cy, ctyp = c("left", "right"))
```

Arguments

y	complete observations
n	sample size
cy	sensor point
ctyp	either "left" or "right", default is "left"

Value

a list with the following components:

est	matrix with mean and sd and their se
covMat	covariance matrix
nobs	number of complete observations
itercount	number of iterations
ifault	fault indicator. 0-converged. -1:convergence not obtained in default number of allowed iterations. -2:fewer than 2 complete obserations. -3:error with confined estimator initial values (should not occur in R version). -4:invalid specification for limits with confined observation.

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M. S. Wolynetz (1979). Algorithm AS 138: Maximum Likelihood Estimation from Confined and Censored Normal Data. *Journal of the Royal Statistical Society. Series C (Applied Statistics)*, Vol. 28, No. 2, pp. 185-195

See Also

[cenNID](#)

Examples

```
#Test data
z <- rep((-2):2, rep(3, 5))
cy <- -1.5
y <- z[z>= cy]
censNID(y, length(z), cy)

#Test left-censoring
set.seed(32173217)
n <- 100
z <- rnorm(n)
cy <- -1
ind <- z > cy
y <- z[ind]
censNID(y, n, cy)

#Test right-censoring
set.seed(32173217)
n <- 100
z <- rnorm(n)
cy <- 1
ind <- z < cy
y <- z[ind]
censNID(y, n, cy, ctyp="right")
```

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