

Package ‘doubcens’

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Title Survivor Function Estimation for Doubly Interval-Censored Failure Time Data

Version 1.1

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Description Contains the discrete nonparametric survivor function estimation algorithm of De Gruttola and Lagakos for doubly interval-censored failure time data and the discrete nonparametric survivor function estimation algorithm of Sun for doubly interval-censored left-truncated failure time data [Victor De Gruttola & Stephen W. Lagakos (1989) <doi:10.2307/2532030>] [Jian-guo Sun (1995) <doi:10.2307/2533008>].

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DGLwghts

*Estimate Survivor Function using Doubly Interval-Censored Failure Time Data***Description**

Estimates the discrete Survivor Function from doubly interval-censored failure time data using the algorithm of De Gruttola and Lagakos.

Usage

```
DGLwghts(X_L, X_R, Z_L, Z_R)
```

Arguments

X_L	The left endpoint of the censoring interval for the initial event time
X_R	The right endpoint of the censoring interval for the initial event time
Z_L	The left endpoint of the censoring interval for the terminating event time
Z_R	The right endpoint of the censoring interval for the terminating event time

Details

Set $X_L = X_R$ if the initial event is observed. Set $Z_L = Z_R$ if the terminating event is observed. Set $X_L = -\text{INF}$ if the initial event is left-censored. Set $Z_R = \text{INF}$ if the terminating event is right-censored.

Value

DGLwghts returns a list containing the following components

x_val	A vector of mass points for initial event
w_new	A vector of estimated probabilities for x_val
t_val	A vector of mass points for terminating event
f_new	A vector of estimated probabilities for t_val
counter	Number of iterations required for convergence

References

De Gruttola, V. and Lagakos, S. (1989). Analysis of Doubly-Censored Survival Data, with Applications to AIDS. *Biometrics* 45 (1): 1-11.

Examples

```
test <- DGLwghts(c(1,1,1), c(1,2,1), c(1,2,3), c(Inf, Inf, Inf))
```

Sunwghts *Estimate Survivor Function using Doubly Interval-Censored Left-Truncated Failure Time Data*

Description

Estimates the discrete Survivor Function from doubly interval-censored left-truncated failure time data using the algorithm of Sun.

Usage

```
Sunwghts(Ei, Ri, Li, Ui, Bi1, Bi2)
```

Arguments

Ei	The left endpoint of the censoring interval for the initial event time
Ri	The right endpoint of the censoring interval for the initial event time
Li	The left endpoint of the censoring interval for the terminating event time
Ui	The right endpoint of the censoring interval for the terminating event time
Bi1	The left endpoint of the truncation interval for the terminating event time
Bi2	The right endpoint of the truncation interval for the terminating event time

Details

Set $E_i = R_i$ if the initial event is observed. Set $L_i = U_i$ if the terminating event is observed. Set $E_i = -\text{INF}$ if the initial event is left-censored. Set $R_i = \text{INF}$ if the terminating event is right-censored.

Value

Sunwghts returns a list containing the following components

uj	A vector of mass points for survival lengths
fnew	A vector of estimated probabilities for uj
counter	Number of iterations required for convergence

References

Sun, J. (1995). Empirical Estimation of a Distribution Function with Truncated and Doubly Interval-Censored Data and Its Applications to AIDS Studies. *Biometrics* 51 (3): 1096-1104.

Examples

```
test <- Sunwghts(c(1,2,1), c(4,4,4), c(5,8,9), c(5,9,10),
c(4.4,4.5,8), c(Inf, Inf, Inf))
```

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