Package 'controlTest'

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Type Package

Title Quantile Comparison for Two-Sample Right-Censored Survival Data

Version 1.1.0

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Description Nonparametric two-sample procedure for comparing survival quantiles.

Encoding UTF-8

Imports survival (>= 2.41), graphics (>= 3.4.0), stats (>= 3.4.0)

LazyData true

License GPL-3

RoxygenNote 6.0.1

NeedsCompilation no

Repository CRAN

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Contents

`quantileControlTest` *Find standard error for survival quantile*

Description

Find standard error for survival quantile

Usage

```
quantileControlTest(timevar1, censor1, timevar2, censor2, q = 0.5, B = 1000,
  seed = 1234, plots = FALSE)
```

Arguments

timevar1	Vector of observed survival times for sample 1 (control).
censor1	Vector of censoring indicators for sample 1 (1 = uncensored, 0 = censored).
timevar2	Vector of observed survival times for sample 2 (treatment).
censor2	Vector of censoring indicators for sample 2 (1 = uncensored, 0 = censored).
q	Quantile of interest (Default is median).
B	Number of bootstrap samples.
seed	Seed number (for reproducibility).
plots	Logical. TRUE to show Kaplan-Meier plot

Details

It is important to note the possiblilty that the estimated quantile may not be estimable in our bootstrap samples. In such cases the largest observed survival time will be considered as an estimate for the quantile.

Value

Returns quantile estimate, bootstrapped standard error, test statistic, and two-sided p-value.

References

Li, G., Tiwari, R.C., and Wells, M. (1996). "Quantile Comparison Functions in Two-Sample Problems: With Applications to Comparisons of Diagnostic Markers." Journal of the American Statistical Association, 91, 689-698.

Chakraborti, S., and Mukerjee, R. (1989), "A Confidence Interval for a Measure Associated With the Comparison of a Treatment With a Control," South African Statistical Journal, 23, 219-230.

Gastwirth, J. L., and Wang, J. L. (1988), "Control Percentile Test for Censored Data," Journal of Statistical Planning and Inference, 18, 267-276.

Examples

```
#Reference: Survival Analysis Techniques for Censored and Truncated Data.
#Klein and Moeschberger (1997) Springer.
#Data: Chapter 7.6 Example 7.9 (p. 211)
library(controlTest)
t1 <- c(1, 63, 105, 129, 182, 216, 250, 262, 301, 301,
       342, 354, 356, 358, 380, 383, 383, 338, 394, 408, 460, 489,
       499, 523, 524, 535, 562, 569, 675, 676, 748, 778, 786, 797,
       955, 968, 1000, 1245, 1271, 1420, 1551, 1694, 2363, 2754, 2950)
t2 <- c(17, 42, 44, 48, 60, 72, 74, 95, 103, 108, 122, 144, 167, 170,
       183, 185, 193, 195, 197, 208, 234, 235, 254, 307, 315, 401, 445,
```

```
       464, 484, 528, 542, 547, 577, 580, 795, 855, 1366, 1577, 2060,
       2412, 2486, 2796, 2802, 2934, 2988)
c1 <- c(rep(1, 43), 0, 0)
c2 <- c(rep(1, 39), rep(0, 6))
quantileControlTest(t1, c1, t2, c2, q = 0.5, B = 500)
```

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quantileSE *Find standard error for survival quantile*

Description

Find standard error for survival quantile

Usage

```
quantileSE(timevar, censor, q = 0.5, B = 1000, alpha = 0.05,
  seed = 1991, plots = FALSE)
```

Arguments

timevar	Vector of observed survival times.
censor	Vector of censoring indicators (1 = uncensored, 0 = censored).
q	Quantile of interest (Default is median).
B	Number of bootstrap samples.
alpha	Significance level for confidence interval of quantile.
seed	Seed number (for reproducibility).
plots	Logical. TRUE to show Kaplan-Meier plot

Value

Returns quantile estimate, bootstrapped standard error, and (1 - alpha / 2) * 100

Examples

```
#Reference: Survival Analysis Techniques for Censored and Truncated Data.
#Klein and Moeschberger (1997) Springer.
#Data: Chapter 7.6 Example 7.9 (p. 211)
library(controlTest)
t1 <- c(1, 63, 105, 129, 182, 216, 250, 262, 301, 301,
       342, 354, 356, 358, 380, 383, 383, 338, 394, 408, 460, 489,
       499, 523, 524, 535, 562, 569, 675, 676, 748, 778, 786, 797,
       955, 968, 1000, 1245, 1271, 1420, 1551, 1694, 2363, 2754, 2950)
c1 <- c(rep(1, 43), 0, 0)
quantileSE(timevar = t1, censor = c1, q = 0.5, B = 500)
```

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