

Package ‘CPE’

April 17, 2009

Title Concordance Probability Estimates in Survival Analysis

Version 1.4

Depends R (>= 2.0.0)

Author Qianxing Mo, Mithat Gonen and Glenn Heller

Maintainer Qianxing Mo <moq@mskcc.org>

Description Functions to calculate concordance probability estimates in survival analysis

LazyData no

License GPL (>= 2)

Repository CRAN

Date/Publication 2008-08-31 11:01:22

R topics documented:

phcpe	1
Index	4

phcpe	<i>Gonen & Heller Concordance Probability Estimate for the Cox Proportional Harzards model</i>
-------	--

Description

A function to calculate Gonen & Heller concordance probability estimate (CPE) for the Cox proportional harzards model.

Usage

```
phcpe(coxfit, CPE.SE=FALSE, out.ties=FALSE)
```

Arguments

<code>coxfit</code>	a <code>coxph</code> or <code>cph</code> object
<code>CPE.SE</code>	a logical value indicating whether the standard error of the CPE should be calculated
<code>out.ties</code>	If <code>out.ties</code> is set to <code>FALSE</code> , pairs of observations tied on covariates will be used to calculate the CPE. Otherwise, they will not be used.

Value

<code>CPE</code>	Concordance Probability Estimate
<code>CPE.SE</code>	the Standard Error of the Concordance Probability Estimate

Author(s)

Qianxing Mo, Mithat Gonen and Glenn Heller; moq@mskcc.org

References

Mithat Gonen and Glenn Heller. (2005). Concordance probability and discriminatory power in proportional hazards regression. *Biometrika*, 92, 4, pp.965-970

Examples

```
### create a simple data set for testing
set.seed(199)
nn <- 1000
time <- rexp(nn)
status <- sample(0:1, nn, replace=TRUE)
covar <- matrix(rnorm(3*nn), ncol=3)
survd <- data.frame(time, status, covar)
names(survd) <- c("time", "status", "x1", "x2", "x3")

library(survival)
coxph.fit <- coxph(Surv(time, status)~x1+x2+x3, data=survd)

### Calculate CPE only (needs much less time).
library(CPE)
phcpe(coxph.fit)
phcpe(coxph.fit, out.ties=TRUE)
#result is identical because the covariates are not tied #

### Calculate CPE and CPE.SE
phcpe(coxph.fit, CPE.SE=TRUE)
phcpe(coxph.fit, CPE.SE=TRUE, out.ties=TRUE)

*** For unknown reason, 'coxph.fit' may need to be removed before running cph() ***
rm(coxph.fit)

library(Design)
```

```
cph.fit <- cph(Surv(time, status)~x1+x2+x3, data=survd,method="breslow")

### Calculate CPE only (needs much less time).
phcpe(cph.fit)
phcpe(cph.fit,out.ties=TRUE)

### Calculate CPE and CPE.SE
phcpe(cph.fit, CPE.SE=TRUE)
phcpe(cph.fit, CPE.SE=TRUE,out.ties=TRUE)
```

Index

*Topic **survival**
phcpe, 1

phcpe, 1