Package 'CoxPlus'

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Type Package

Title Cox Regression (Proportional Hazards Model) with Multiple Causes and Mixed Effects

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Description A high performance package estimating Cox Model when an even has more than one causes. It also supports random and fixed effects, tied events, and time-varying variables.

License GPL (>= 3)

LazyData TRUE

Depends R (>= 3.1.0), Rcpp (>= 0.12.0)

Imports methods

LinkingTo Rcpp, RcppArmadillo

NeedsCompilation yes

Repository CRAN

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CoxPlus *Cox Regression (Proportional Hazards Model) with Multiple Causes and Mixed Effects*

Description

A high performance package estimating Proportional Hazards Model when an even can have more than one causes, including support for random and fixed effects, tied events, and time-varying variables.

Usage

```
fastCox(head, formula, par = list(), data = NULL)
```

Arguments

head	A data frame with 4~5 columns: start, stop, event, weight, strata (optional).
formula	A formula specifying the independent variables
par	A optional list of parameters controlling the estimation process
data	The dataset, a data frame containing observations on the independent variables

Value

A list containing the estimated parameters

References

1. Jing Peng, Ashish Agarwal, Kartik Hosanagar, and Raghuram Iyengar. Towards Effective Information Diffusion on Social Media Platforms: A Dyadic Analysis of Network Embeddedness. Working Paper.

2. Jing Peng, Ashish Agarwal, Kartik Hosanagar, and Raghuram Iyengar. Toward Effective Social Contagion: A Micro Level Analysis of the Impact of Dyadic Network Relationship. In Proceedings of the 2014 International Conference on Information Systems.

Examples

```
# Simulate a dataset. lam=exp(x), suvtime depends on lam
x = rnorm(5000)
suvtime = -log(runif(length(x)))/exp(x)
# Censor 80% of events
thd = quantile(suvtime, 0.2)
event = as.numeric(suvtime <= thd)
suvtime[suvtime>thd] = thd

# The estimates of beta should be very close to 1, the true value
head = cbind(start=0,stop=suvtime,event=event,weight=1)
est = fastCox(head,~x)
print(est$result)
```

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