Package: mtvc (via r-universe)

September 5, 2024

Type Package

Title Multiple Counting Process Structure for Survival Analysis

Version 1.1.0

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Description Counting process structure is fundamental to model time
varying covariates. This package restructures dataframes in the
counting process format for one or more variables. F. W.
Dekker, et al. (2008) <doi:10.1038/ki.2008.328>.

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URL https://github.com/egonzato/mtvc

BugReports https://github.com/egonzato/mtvc/issues

Encoding UTF-8

LazyData true

RoxygenNote 7.2.3

Imports dplyr, tidyr

Depends R (>= 2.10)

Suggests testthat (>= 3.0.0)

Config/testthat/edition 3

Repository https://egonzato.r-universe.dev

RemoteUrl https://github.com/egonzato/mtvc

RemoteRef HEAD

RemoteSha ab4635422d8f1f055a9fad297bb24f63d3cfcbf6

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mtvc   *(mtvc) Multiple Time Varying Covariates*

Description

Restructure dataset into counting process format to model time varying variables

Usage

```
mtvc(data, dates, origin = "1970-01-01", start, stop, event, complications)
```

Arguments

data	Dataframe to be restructured. Has to be in wide format, with a line for each individual.
dates	Name of the columns that contains dates that point out when the variables of interest change value. If an individual does not experience the event of interest, then the respective date should be either a missing value or the origin date.
origin	Day from which the function starts counting days to convert into dates.
start	Date of first contact with the individual (i.e. first medical visit).
stop	Date of death or last visit of the follow-up.
event	Binary variable that indicates if the individual has experienced the event.
complications	Name of the columns that contain values of time varying covariates.

Details

Time varying variables are covariates that might change during the follow-up, so it is fundamental to apply the counting process structure to the data frame of interest, in order to allocate properly the right amount of time that each patient has contributed to the study in each health status.

Value

Dataset in counting process format.

References

1. F. W. Dekker, et al., Survival analysis: time-dependent effects and time-varying risk factors, Kidney International, Volume 74, Issue 8, 2008, Pages 994-997.

Examples

```
data(simwide)
cp.dataframe=mtvc(data=simwide,
origin='1970-01-01',
dates=c(FIRST_CHRONIC,FIRST_ACUTE,FIRST_RELAPSE),
complications=c(CHRONIC,ACUTE,RELAPSE),
```

```
  start=DATETRAN,
  stop=DLASTSE,
  event=EVENT)
```

| simwide | *This data frame contains variables that are time varying, which might change at a specific time point. In particular, are referred to Graft Versus Host Disease, both Acute and Chronic, and relapse, which is the recurrence of the disease. In addition, this data frame contains specific dates, that refer to the first and last visit of the patient, and the respective dates of each time varying covariate, day from which that variable will change its value.* |

Description

This data frame contains variables that are time varying, which might change at a specific time point. In particular, are referred to Graft Versus Host Disease, both Acute and Chronic, and relapse, which is the recurrence of the disease. In addition, this data frame contains specific dates, that refer to the first and last visit of the patient, and the respective dates of each time varying covariate, day from which that variable will change its value.

Usage

```
simwide
```

Format

A data frame with...

'simwide' A data frame with 80 rows and 577 columns:

EVENT Binary variable that indicates if the individual has experienced the event of interest.

DATETRAN Date that points out when follow-ip starts.

DLASTSE Date that points out when follow-ip ends, whether because of the end of the study or the death of the patient.

FIRST_ACUTE Date of diagnosis of acute GVHD, if not experienced there will be a missing value.

FIRST_CHRONIC Date of diagnosis of chronic GVHD, if not experienced there will be a missing value.

FIRST_RELAPSE Date of diagnosis of relapse, if not experienced there will be a missing value.

ACUTE Indicator variable for acute GVHD.

CHRONIC Indicator variable for chronic GVHD.

RELAPSE Indicator variable for relapse.

AGE Age of patients.

GENDER Gender of patients.

id Identifier of patients.

Source

Data simulated referring to Haematopoietic Stem Cells Transplantation (HSCT) settings.

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