

simul

(Documentation for R function)

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March 18, 2010

Description

The function *simul* generates N (possibly censored) failure time records from a Weibull distribution with user specified characteristics. The simulation itself is based on a Fortran program *simul.f* initially supplied to the Survival Kit. The generation of records can be influenced by fixed effects (up to 3) and a random effect with normal distribution (optional) that we will call a *sire* effect. Each of the N_S sires has N/N_S daughters (balanced design). A simple relationship matrix between sires (through "sires of sires") can also be generated. True parameter values are stored in file "true".

Usage

An example with default values:

```
simul(seed=1234,n=0,rho=0,tmed=0,tcens=0, nfix=0,nlevfix=c(0,0,0),  
      fixmin=c(0,0,0),fixmax=c(0,0,0),nsire=0, variance=0,  
      nss=0, wdNew=" ", wdSetBack=TRUE )
```

Arguments

seed Any integer number, to use as seed for random number generator. The default value is 1234.

n The number of records to simulate (max. 10000).

rho The value of Weibull (ρ) parameter. If $\rho = 1$: exponential; if $\rho > 1$ increasing hazard; if $\rho < 1$ decreasing hazard.

tmed The median value of survival time in days in absence of censoring.

tcens The censoring time. No censoring is assumed if 0 (default value) or a very large number is specified.

nfix Number of fixed effects (1 to 3).

nlevfix The vector for the number of levels per fixed effect. The number should be 0 if fixed effect is not used, otherwise maximum 500 for each effect.

fixmin The vector of smallest relative risk per fixed effect. The number should be 0 if fixed effect is not used, otherwise a positive real number.

fixmax The vector of largest relative risk per fixed effect. The number should be 0 if fixed effect is not used, otherwise a positive real number. It's value should be larger than for the corresponding value in *fixmin*.

nsire The number of levels for the random effect. If 0 is specified (default value) no random effect is assumed. The maximum value is 500.

variance A real number for the true variance of the normal distribution for the random effect. If one wants to model a sire effect, this value is between 0 and 0.1.

nss The number of sires of sires to simulate via related sires. If 0 is specified (default value) pedigree file is not created. The maximum value is 100 and the pedigree is stored in the file *pedigs*.

wdNew Sets the R working directory to one specified by the user (for example: "C:/newDirectory").

wdSetBack If FALSE is specified here, the R working directory remains the same as set in *wdNew*.

Common problems

- R is case sensitive (i.e. $a \neq A$)!
- When using keyword *wdNew* the double quotation marks " " marks are needed.
- For new working directory definition in *wdNew* the / sign should be used instead of Windows standard \.
- If the "cannot change working directory" message appears, check the path specified with keyword *wdNew*.
- The working directory could be set back manually at any time in R with command: `setwd("c:/anyDirectoryYouWant")`
- The *c* before the vectors is needed in all cases. This is an R function for *combine*

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Acknowledgements

The funding of the project "Correlated random effects in survival analysis applied to problems in genetics and epidemiology of dairy cattle and human populations" by the *Austrian Science Fund* is acknowledged.

References

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