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Ties Between Event Times and Jump Times in the Cox Model

The partial likelihood of the Cox-PH model is affected by ties between event times and moments where discrete time-varying covariates change. The default behaviour of current softwares will be discussed and proposals for simple methods for dealing with such ties will be outlined. Results of a simulation study show that current methods found in commonly used software can lead to biased estimates of the regression coefficient of a binary time-varying covariate and that two proposed methods reduce estimation bias. Illustrations of these methods will be presented.