



Unified Competing Risks Limited Failure Models: Bayesian Approaches and Identifiability Issues

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Limited failure or cure rate models postulate a fraction of units to be eventually failure free. These models can be formulated in different ways, such as a mixture cure model or the alternative bounded cumulative intensity model. The issue of identifiability has been a topic of substantial research both in the limited failure model as well as in the competing risks literature. We propose unified competing risks limited failure models and examine the identifiability of the proposed models. We establish that identifiability is of concern in general model formulation, but it can be regained with modeling restrictions. We develop Bayesian analysis of the proposed models, and discuss methodological and computational issues related to model fitting and model selection.