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**Author:** Nicolaie, Mioara Alina  
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Stellingen

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Dynamic aspects of competing risks with application to medical data

1. In competing risks regression, the overall hazard ratio is equal to the weighted mean of cause-specific hazards ratios, where the weights are given by the relative hazards. (This thesis)

2. Vertical modelling is a useful approach for the analysis of competing risks data when the predictive relationship between covariates and cause-specific hazards or subdistribution hazards fails to fulfil the proportionality assumption of the Cox model. (This thesis)

3. Vertical modelling approaches the analysis of competing risks data with missing causes of failure in a natural way, at the least waste of available information and at highest degree of efficiency in the likelihood sense. (This thesis)

4. Our class of landmark models for dynamic prediction of competing risks can be viewed as a direct method for predicting the future; we have seen that it succeeds in two major ways: 1. it is robust to model misspecification and 2. it provides reduced bias in case the true underlying model is non-Markovian. (This thesis)

5. Classes of landmark models for the joint distribution $P(T,D)$ of time to event $T$ and type of event $D$ can be specified either as regression models of cause-specific hazards using their functional relationship with $P(T,D)$ or as direct regression models of $P(T,D)$ at a point. (This thesis)

6. An alternative direct approach for dynamic prediction in competing risks could be obtained by extending the direct binomial regression models of Scheike et al. (2008), Biometrika, 95: 205-220.

7. The reduced rank method of Fiocco et al. (2005) can be defined and fitted for the Fine and Gray proportional subdistribution hazards model under both left truncation and right censoring using the data reweighting approach of Geskus (2011), Biometrics 67: 39-49.

8. An interesting extension of the vertical modeling approach is obtained for a heterogeneous population comprising cured individuals, besides susceptible individuals, to the terminal, competing events. Nicolaie and Legrand (2013), Submitted.

9. If there’s one thing one could universalize about humans in their cultures is that they are diverse. Statisticians are supposed to understand and appreciate the beauty of this.

10. Every statistical model is positively biased toward the school of thought its author belongs to.

Mioara Alina Nicolaie