The Frailty Model (Statistics for Biology and Health)

Luc Duchateau, Paul Janssen
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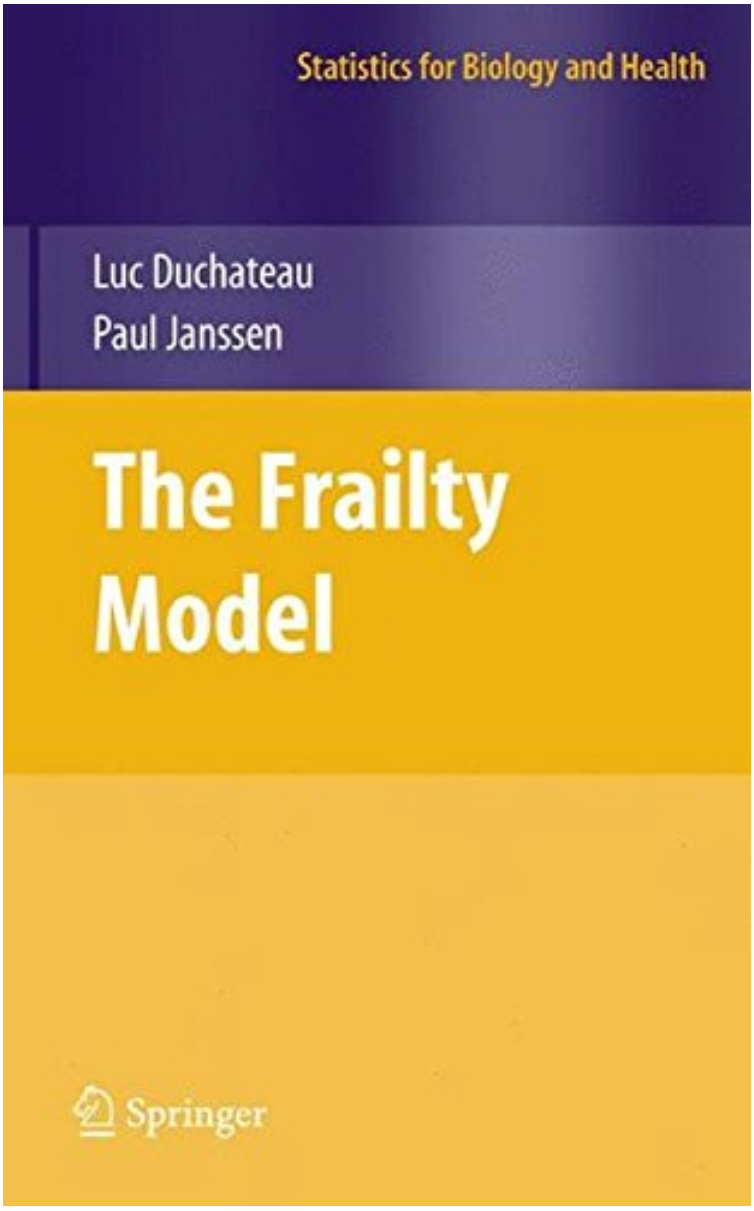

#3134749 in Books 2007-12-07Original language:EnglishPDF # 1 9.21 x .75 x 6.14l, 1.36 #File Name: 0387728341316 pages | File size: 66.Mb

Luc Duchateau, Paul Janssen : The Frailty Model (Statistics for Biology and Health) before purchasing it in order to gage whether or not it would be worth my time, and all praised The Frailty Model (Statistics for Biology and Health):

30 of 30 people found the following review helpful. first serious book dedicated to Frailty ModelsBy Michael R.

ChernickThe authors are academics who have done serious research in survival analysis and are very familiar with frailty models. The topic comes up when time to event data for one event is correlated with the time to event data for another or other events. This topic is sometimes referred to a subject in multivariate survival analysis or the analysis of clustered survival data.As a professional biostatistician with a keen interest in survival models I have attended professional meetings in recent years and heard the term Frailty Model mentioned but I didn't know what it was. There of course is the natural connotation of weakness as in a feeble or frail person. But the actual formal dtatisticial meaning was a mystery. Other books that I am very familar with deal in part with frailty models but this is to my knowledge the first serious text dedicated to this topic. It also covers related methods to accomplish the same goal such as copulas (another term common in recent books and literature but one I was not familiar with either). For example Philip Hougaard wrote the first advanced text on multivariate survival models and covers parametric forms of frailty models. Klein and Moeschberger wrote a generaal survival analysis book that includes a chapter on semi-parameric fraility models. It showa how the EM algorithm is used to estimate parameters of the models. Ibrahim and colleague wrote a book on Bayesian methods in survival analysis and cover the Bayesian approach to both semi-parametric and parametric fraility models. Therneau and Grambsch wrote a recent book on the Cox proportional hazard model and its extensions. It included information on semi-parametric frailty models using the penalized partial likelihood approach to estimation.This book is a well-written introduction to fraility models that includes all these methods provides real world examples and good explanations on how to interpret the results. The examples are illustrated using the freeware language R. This book could serve as either an undergraduate or graduate text in statistical methods and is a great reference for biostatisticians.

Readers will find in the pages of this book a treatment of the statistical analysis of clustered survival data. Such data are encountered in many scientific disciplines including human and veterinary medicine, biology, epidemiology, public health and demography. A typical example is the time to death in cancer patients, with patients clustered in hospitals. Frailty models provide a powerful tool to analyze clustered survival data. In this book different methods based on the frailty model are described and it is demonstrated how they can be used to analyze clustered survival data. All programs used for these examples are available on the Springer website.

From the reviews: "The book by Duchateau and Jansen is generally easy to follow. The book starts with introduction to the most popular parametric and semiparametric survival models. this book can be recommended also for undergraduate students in statistics. the book contains several further extensions of frailty models such as multifrailty and multilevel models with references. Therefore it is valuable also for researchers in survival analysis." (Tommi Hrknen, International Statistical , Vol. 76 (3), 2008) "This book focuses on frailty models and provides an in-depth discussion of the basics of frailty model methodology using numerous real data sets. The book is well structured and covers very nicely the material for frailty models. The book is directed towards statistical practitioners and graduate students but it may be useful to a broad interdisciplinary readership of researchers and practitioners in applied statistics, biomedicine and biostatistics. a reference book for a one-semester applied course in survival analysis focusing on frailties." (Filia Vonta, Journal of Applied Statistics, Vol. 36 (6), August, 2009) "This book studies so-called frailty models intended for time-to-event data with a cluster structure. provide a thorough presentation of the most current techniques used in this area of time-to-event analysis with emphasis on analysis of real data sets. The book is intended for students and applied statisticians. this book gives a good description of frailty models. It is well written and its many real applications and the availability of computer code make it a valuable resource for the applied statistician ." (Torben Martinussen, Biometrical Journal, Vol. 51 (3), 2009)From the Back CoverClustered survival data are encountered in many scientific disciplines including human and veterinary medicine, biology, epidemiology, public health and demography.Frailty models provide a powerful tool to analyse clustered survival data. In contrast to the large number of research publications on frailty models, relatively few statistical software packages contain frailty models. It is demanding for statistical practitioners and graduate students to grasp a good knowledge on frailty models from the existing literature. This book provides an in-depth discussion and explanation of the basics of frailty model methodology for such readers. The discussion includes parametric and semiparametric frailty models and accelerated failure time models. Common techniques to fit frailty models include the EM-algorithm, penalised likelihood techniques, Laplacian integration and Bayesian techniques. More advanced frailty models for hierarchical data are also included. Real-life examples are used to demonstrate how particular frailty models can be fitted and how the results should be interpreted. The programs to fit all the worked-out examples in the book are available from the Springer website with most of the programs developed in the freeware packages R and Winbugs. The book starts with a brief overview of some basic concepts in classical survival analysis, collecting what is needed for the reading on the more complex frailty models. Luc Duchateau is Associate Professor of Statistics at the Faculty of Veterinary Medicine of the Ghent University, Belgium. He is board member of the Quetelet Society (Belgian Region of the International Biometric Society) and of the International Biometric Society Channel Network. He has collaborated extensively with physicians in oncology and allergy, public health workers and veterinarians, and is an author of numerous papers in

statistical, medical and veterinarian journals. Paul Janssen is Professor of Statistics at the Centre for Statistics of the Hasselt University, Diepenbeek, Belgium. He is an elected member of the International Statistical Institute. He spent research visits at the Johns Hopkins University (Baltimore, USA) and the University of Washington (Seattle, USA). His research interests include survival analysis, nonparametric estimation, resampling techniques and asymptotic theory.