Series Editor's Introduction

The **Advanced Quantitative Techniques** series has already published a number of books on models and techniques for categorical data analysis. These can all be thought of as extensions of the classical log-linear analysis model studied in great detail by Goodman, Clogg, Haberman, Bishop, Andersen, and many others.

Clogg and Shihadeh studied extensions to ordinal variables, with an emphasis on low-dimensional tables. Heinen compared latent class models and latent trait models with discrete outcomes. The latent variables are used to describe the relationships in data structures which can be quite high-dimensional. In this new volume in the series Vermunt takes the generalizations yet another step further. Categorical data are now studied in time, and a framework is developed which includes event history analysis and log-linear analysis with latent variables, and eventually combines the two.

Social scientists have realized for many years that event history analysis, in which individuals move in time through a finite number of states, is a very useful tool to describe their data. Initially, simple Markov chains were studied by Goodman, Anderson, and Billingsley. These simple models could be studied with multinomial (log-linear) methods, but they were rather limited in the types of data they could handle. In the 1970s, event history analysis got a huge impetus from the work of Hannan, Tuma, Singer, and

others, who showed how to deal with continuous time. Unfortunately, much of this work was incomprehensible to practicing social scientists, because a fairly high level of mathematical sophistication is required to deal with continuous-time processes in a rigorous manner.

It took about ten years to translate the theoretical results, which are intimately linked with work of Cox, Aalen and Gill in survival analysis, into practical procedures that appealed to social scientists. Allison, for instance, showed the intimate link with logistic regression. Vermunt discusses event history analysis in a more general framework, and relates it throughout the discussion with log-linear models with or without latent variables. Discussing something which is relatively new and complicated by relating it along the way to things that are more simple and more familiar is a great didactic strategy, and in this book it works really well.

The book is quite comprehensive. There are long introductions to log-linear analysis and to latent variable models, and the appendixes cover computational procedures and available software in great detail. event history analysis is discussed in its basic form in Chapter 4, which extends Chapter 2 on log-linear analysis. Chapter 5 on event history analysis with latent variables and missing data extends Chapter 3 on latent variables and missing data in a similar way. The steps from the simple models to the more complicated ones are clearly described, and thus the reader can start at a relatively low level and proceed slowly to the very general class of models described in later chapters.

One of the major advantages of anchoring event history analysis in log-linear, logit, and latent variable methods is that not much mathematics is required to follow the discussion. Most of the material is written in a language that is by now familiar to many social scientists. Although the book is basically Vermunt's dissertation, unlike most other dissertations that I know of, it could actually be used quite easily as the basis of a graduate course. It is a fine textbook, and at the same time an excellent research monograph. This is a rare combination, but a very valuable one. We hope the group at Tilburg University will produce more examples of this type of book in the future.

<div align="right">JAN DE LEEUW</div>
<div align="center">Professor and Director, Interdivisional Program in Statistics, UCLA</div>