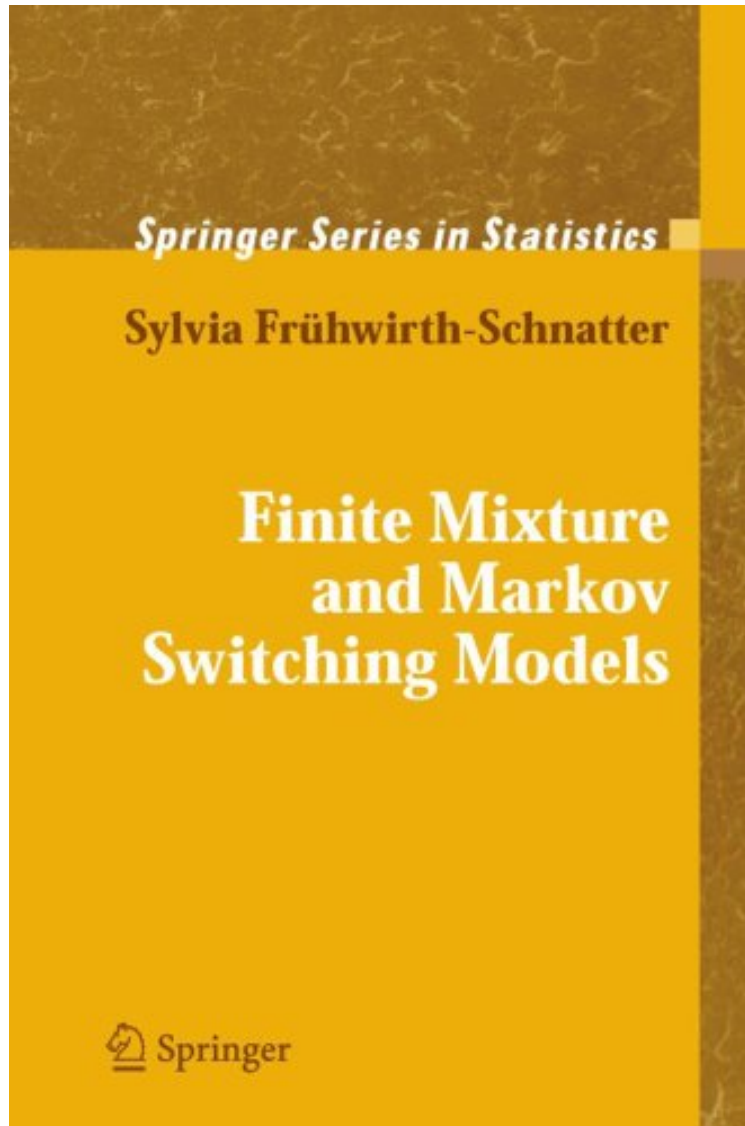


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Finite Mixture and Markov Switching Models (Springer Series in Statistics)

Sylvia Frühwirth-Schnatter
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Sylvia Frühwirth-Schnatter : Finite Mixture and Markov Switching Models (Springer Series in Statistics) before purchasing it in order to gauge whether or not it would be worth my time, and all praised Finite Mixture and Markov Switching Models (Springer Series in Statistics):

1 of 2 people found the following review helpful. Solid, complete, and practical - superb reading! By LOV This is by far the most complete treatment of Markov switching modeling. Each chapter would lead you to a fulfilling experience. The book is technical but written in a way that is relatively easy to read and highly practical. The codes are

written in Matlab, not necessarily something that everyone uses, but users could convert them to other languages. Overall, the book is simply awesome! 3 of 4 people found the following review helpful. A good book By J. Chen This is a very good book for Finite Mixture Modelling. Clear and comprehensive. I have done a large scale of literature review in this area and found this is definitely one of the best understandable materials. It is much better than the work by Marin, J.M., Mengersen, K. and Robert, C.P, which is very dry and confusing to me. My criteria for a book are: 1. it is not confusing at the beginning; 2. it answers your question immediately when you get one; 3. when you read it again you always understand a bit more. This book has done 1 and 3 very well and 2 well. The only disappointing point is that the author did not give the matlab code as she promised in the appendix and her website. This is a bit unacceptable.

WINNER OF THE 2007 DEGROOT PRIZE! The prominence of finite mixture modelling is greater than ever. Many important statistical topics like clustering data, outlier treatment, or dealing with unobserved heterogeneity involve finite mixture models in some way or other. The area of potential applications goes beyond simple data analysis and extends to regression analysis and to non-linear time series analysis using Markov switching models. For more than the hundred years since Karl Pearson showed in 1894 how to estimate the five parameters of a mixture of two normal distributions using the method of moments, statistical inference for finite mixture models has been a challenge to everybody who deals with them. In the past ten years, very powerful computational tools emerged for dealing with these models which combine a Bayesian approach with recent Monte simulation techniques based on Markov chains. This book reviews these techniques and covers the most recent advances in the field, among them bridge sampling techniques and reversible jump Markov chain Monte Carlo methods. It is the first time that the Bayesian perspective of finite mixture modelling is systematically presented in book form. It is argued that the Bayesian approach provides much insight in this context and is easily implemented in practice. Although the main focus is on Bayesian inference, the author reviews several frequentist techniques, especially selecting the number of components of a finite mixture model, and discusses some of their shortcomings compared to the Bayesian approach. The aim of this book is to impart the finite mixture and Markov switching approach to statistical modelling to a wide-ranging community. This includes not only statisticians, but also biologists, economists, engineers, financial agents, market researcher, medical researchers or any other frequent user of statistical models. This book should help newcomers to the field to understand how finite mixture and Markov switching models are formulated, what structures they imply on the data, what they could be used for, and how they are estimated. Researchers familiar with the subject also will profit from reading this book. The presentation is rather informal without abandoning mathematical correctness. Previous notions of Bayesian inference and Monte Carlo simulation are useful but not needed.

From the reviews: "At first glance, the numerous equations and formulas may seem to be daunting for psychologists with limited statistical background; however, the descriptions and explanations of the various models are actually quite reader friendly (more so than many advanced statistical textbooks). The author has done an excellent job of inviting newcomers to enter the world of mixture models, more impressively, the author did so without sacrificing mathematical and statistical rigor. Mixture models are appealing in many applications in social and psychological studies. This book not only offers a gentle introduction to mixture models but also provides more in depth coverage for those who look beyond the surface. I believe that psychologists who are interested in related models (e.g., latent class models, latent Markov models, and latent class regression models) will benefit greatly from this book. I highly recommend this book to all psychologists who are interested in mixture models." (Hsiu-Ting Yu, *PSYCHOMETRIKA*?VOL. 74, NO. 3, 559ndash;560 SEPTEMBER 2009) "The book is impressive in its mathematical and formal correctness, in generality and in details....it would be helpful as an additional reference among a wider range of available textbooks in the area. [I]t will find many friends among experts and newcomers to the world of mixture models." (Atanu Biswas, *Biometrics*, Issue 63, September 2007) "Finite mixture distributions are important for many models. Therefore they constitute a very active field of research. This book gives an up to date overview over the various models of this kind. hellip; The aim of this book is to impart the finite mixture and Markov switching approach to statistical modeling to a wide-ranging community. hellip; For the frequentists, it offers a good opportunity to explore the advantages of the Bayesian approach in the context of mixing models." (Gheorghe Pitis, *Zentralblatt MATH*, Vol. 1108 (10), 2007) "Readership: Statisticians, biologists, economists, engineers, financial agents, market researchers, medical researchers or any other frequent user of statistical models. The first nine chapters of the book are concerned with static mixture models, and the last four with Markov switching models. hellip; especially valuable for students, serving to demonstrate how different statistical techniques, which superficially appear to be unrelated, are in fact part of an integrated whole. This book struck me as being particularly clearly written ndash; it is a pleasure to read." (David J. Hand, *International Statistical* , Vol. 75 (2), 2007) "The book is excellent, giving a most readable overview of the topic of finite mixtures, aimed at a broad readership hellip; . Students will like the text because of the pedagogical writing style; researchers will definitely welcome the broad treatment of the subject. Both will benefit from the extensive and up-to-date bibliography hellip; as well as the well-organized index. No doubt, this book is a valuable addition to the field of statistics and will surely find its rightful place in many a statistician's s

library." (Valerie Chavez-Demoulin, *Journal of the American Statistical Association*, Vol. 104 (485), March, 2009)

From the Back Cover

The prominence of finite mixture modelling is greater than ever. Many important statistical topics like clustering data, outlier treatment, or dealing with unobserved heterogeneity involve finite mixture models in some way or other. The area of potential applications goes beyond simple data analysis and extends to regression analysis and to non-linear time series analysis using Markov switching models. For more than the hundred years since Karl Pearson showed in 1894 how to estimate the five parameters of a mixture of two normal distributions using the method of moments, statistical inference for finite mixture models has been a challenge to everybody who deals with them. In the past ten years, very powerful computational tools emerged for dealing with these models which combine a Bayesian approach with recent Monte simulation techniques based on Markov chains. This book reviews these techniques and covers the most recent advances in the field, among them bridge sampling techniques and reversible jump Markov chain Monte Carlo methods. It is the first time that the Bayesian perspective of finite mixture modelling is systematically presented in book form. It is argued that the Bayesian approach provides much insight in this context and is easily implemented in practice. Although the main focus is on Bayesian inference, the author reviews several frequentist techniques, especially selecting the number of components of a finite mixture model, and discusses some of their shortcomings compared to the Bayesian approach. The aim of this book is to impart the finite mixture and Markov switching approach to statistical modelling to a wide-ranging community. This includes not only statisticians, but also biologists, economists, engineers, financial agents, market researcher, medical researchers or any other frequent user of statistical models. This book should help newcomers to the field to understand how finite mixture and Markov switching models are formulated, what structures they imply on the data, what they could be used for, and how they are estimated. Researchers familiar with the subject also will profit from reading this book. The presentation is rather informal without abandoning mathematical correctness. Previous notions of Bayesian inference and Monte Carlo simulation are useful but not needed. Sylvia Frühwirth-Schnatter is Professor of Applied Statistics and Econometrics at the Department of Applied Statistics of the Johannes Kepler University in Linz, Austria. She received her Ph.D. in mathematics from the University of Technology in Vienna in 1988. She has published in many leading journals in applied statistics and econometrics on topics such as Bayesian inference, finite mixture models, Markov switching models, state space models, and their application in marketing, economics and finance.