Short Book Reviews
Editor: Simo Puntanen

Bayesian Item Response Modeling: Theory and Applications
Jean-Paul Fox
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Readership: Researchers (including applied statisticians, psychometricians, and social scientists) as well as graduate students interested in Bayesian Item Response Theory.

This book develops a comprehensive treatment of Bayesian item response modelling with applications in a variety of disciplines, including education, medicine, psychology, and sociology.

The book is mostly self-contained. It starts by describing the typical structure of item response data and discussing some of the most common item response models, such as the Rasch model. On the other hand, it provides an excellent summary of the basic elements of Bayesian inference, emphasizing the power and flexibility of the combination of hierarchical modelling, use of latent variables, and sampling-based (MCMC) methods. Subsequent chapters show how this approach can be used to analyze item response data from more complex designs such as those involving response times or randomized responses.

Several empirical examples are presented throughout to illustrate the methods and the usefulness of the Bayesian approach. The author has programmed many of the models and methods described in the book. WinBUGS, R, and S+ code, together with the corresponding data sets, are all available via a website associated with the book.

Each chapter ends with a section of carefully thought-out exercises covering both the mathematical aspects of the models and their application to the analysis of interesting real-life data. Most sections also include a "Further Reading" section with additional discussion and pointers to the relevant literature.

This book will equally cater for those users who just want to apply the models to analyze their data, and more technical users willing to get a deeper understanding of the models and to adapt the provided code in order to implement their own algorithms.

Eduardo Gutiérrez-Peña: *eduardo@stats.iimas.unam.mx*
Department of Probability and Statistics, National University of Mexico
Apdo. Postal 20-726, México, D.F., Mexico