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Book Information

Title: Exploratory Multivariate Analysis by Example Using R

Authors: Francois Husson, Sebastien Le, Jerome Pages

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Review

Exploratory Multivariate Analysis by Example Using R provides a very good overview of the application of three multivariate analysis techniques: principal components analysis, correspondence analysis and hierarchical cluster analysis. Interestingly though, in their book the authors classify (simple) correspondence analysis and multiple correspondence analysis (which essentially lie on the same branch of the correspondence analysis family tree) as two separate analyses. Thus, the book comprises of four chapters (for each of the four techniques considered) where each methodology is treated with an applied (not mathematical) analyst in mind; Chapter 1 looks at principal component analysis, Chapter 2 examines (simple) correspondence analysis while its multivariate cousin is described in Chapter 3. Chapter 4 includes a treatment of hierarchical cluster analysis. Each chapter includes an overview of the key mathematical concepts which are described with an appropriate level of simplicity without resorting to the same technical rigour that other books consider. They also include a comprehensive treatment of the concepts and application that typically are seen in many books and articles on the subject. Despite the relative scarcity of topics considered in this book, the contents page and index are helpful and reflect the comprehensive nature in which each of the four topics is covered.

A key focus of the book is to demonstrate the application of their R package, *Factominer*, which two of the authors wrote on in 2008 [1]. There is a clear exposition of the use of the code throughout and it is clear that the book is used as a vehicle to help promote this package.

An appendix is included and largely consists of an overview of **FactomineR**. Interestingly, unlike many books on multivariate data analysis (even those aimed at a fairly elementary level) this book does not express the mathematical concepts in matrix form. This is clearly advantageous for those who are considering the book from an applied perspective. This, I think, is refreshing and is done well.

The authors state in their preface (page xii) that the book is “ . . . addressed to practitioners who are confronted with the analysis of data” where the “examples and intuition have been emphasised”. They have successfully achieved both of these aims and I therefore recommend the book to those who are interested in an introduction to these multivariate techniques. For those who wish to gain a deeper understanding of the topics, you won’t find it here, but it does provide a solid starting point for those just starting out. In fairness to the authors, in their short bibliography, they do point to other very useful texts where such insight may be gained. It is definitely a book to have in ones institutional/organisational, or even private, library.

Reference

[1] S. Lê, J. Josse, & F. Husson, *FactoMineR: an R package for multivariate analysis*, Journal of Statistical Software. 25 (1) (2008), pp. 1-18.

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