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BOOK REVIEW

Dieter Rasch, Rob Verdooren and Jürgen Pilz: Applied statistics: theory and problem solutions with R

John Wiley & Sons, 2020, 472 pp., $100.00 (Hardcover), ISBN: 978-1-119-55152-2

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This book has been written "for people that have to apply statistical methods in their research but whose main interest is not in theorems and proofs" (from the preface). Its structure follows Rasch and Schott (2018) which in a way can be seen as the theoretical twin of the present volume, with proofs and everything including exercises. Problems to be solved numerically, and loads of them, are however provided on almost every page of the present book. In particular, from the outset the reader is assumed to be familiar with the statistical software package R with which these problems are supposed to be solved. There is a short introduction to R in the Chapter 1, but this will not suffice for the uninitiated. From there on all statistical procedures are exemplified via R commands starting with point estimation in Chapter 2, one and two sample testing problems in Chapter 3 and confidence estimation in Chapter 4. Chapters 5, 6 and 7 are devoted to the analysis of variance (fixed effects, random effects and mixed models), which reflects the major research interest of the authors. These also show up in the chapter on regression analysis, where similar to the rest of the book, the major focus is on life sciences.

Chapter 10 on multiple decision problems addresses issues such as multiple testing which so far are not standard in introductory texts, but are obviously ubiquitous in almost all applications. Chapter 11 on Generalised Linear Models and Chapter 12 on Spatial Statistics have no counterpart in Rasch and Schott (2018), which testifies to the rather recent addition of geostatistics to the range of methods decent statisticians are supposed to know about. And at the very end, also the copula-concept, unknown in general statistics textbooks until quite recently, enters the discussion.

It has often been mentioned that statistics is no spectator sport. In a sense this book takes this point to the extreme by letting the reader work through myriads of examples so that at the end he or she cannot but understand what he or she has been doing. Or

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as the Romans used to say: per aspera ad astra. In summary, this is a book well suited for self-study and getting acquainted with how statistics works in practice.

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Reference

Rasch D, Schott D (2018) Mathematical statistics. Wiley, Hoboken