references. The reader needs a very good knowledge of mathematics in general, and of probability theory in particular, to follow the presentation.

This reviewer agrees with the author's claim that the book should be accessible to serious researchers and graduate students in probability and statistics. It may attract also pure and applied mathematicians in other areas.

Another interesting maybe non-random coincidence is that the book was published on the eve of the year 2006. This is the year when the scientific community marked the centenary of the birth of Bruno de Finetti, the Italian mathematician whose famous theorem on the structure of infinite exchangeable random sequences initiated the study of probabilistic symmetries. In May 2006 a special workshop 'Probabilistic symmetries and their applications' was organized by the Fields Institute and University of Ottawa, Canada. Not surprisingly, the keynote speaker was Professor Kallenberg.

My expectation is that this book will be met with interest by a wide range of probabilists, not only by those who are already working in this area. Finally, young researchers may find an inspiration when working on the material that is discussed in the book.

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Testing Statistical Hypotheses, 3rd edn
E. L. Lehmann and J. P. Romano, 2005
New York, Springer
xiv + 786 pp., £50.00
ISBN 0-387-98864-5

Published under 'Springer texts in statistics', this is the third edition of the classic text that has helped innumerable students and researchers all over the world. This is an attempt to review a book with an immensely readable long history which was recounted by the celebrated first author in Lehmann (1997). The main additions now are asymptotic optimality and multiple testing. Part I of the book has 10 chapters on small sample theory, part II consists of five chapters on large sample theory and an appendix gives auxiliary mathematical results.

The book begins by discussing various statistical decision problems, followed by the measure theoretic background. Uniformly most powerful tests are discussed in Chapter 3; then we find the notions of unbiasedness, exponential families and testing for independence in 2×2 tables. Applications of unbiasedness to normal distributions are discussed in Chapter 5; then come invariant tests, admissibility, rank tests and linear hypotheses. Tests based on the minimax principle are discussed in Chapter 8. Chapter 9 discusses multiple testing and Scheffé's S-method, and Chapter 10 is on conditional inference.

Part II begins with an introduction to large sample theory and moves on to quadratic mean differentiability, contiguity and likelihood methods in parametric models. Asymptotic optimality is discussed in Chapter 13 and goodness-of-fit tests follow in Chapter 14. The final chapter is entitled 'General large sample methods'. Problems at the end of every chapter complement the theory and notes give useful historical remarks and material for further reading and reference. As a text and reference, this book is essential for any statistics library. Many more generations of students and researchers will definitely benefit from the vast *repertoire* of ideas that this book contains.

Reference

Lehmann, E. L. (1997) Testing statistical hypotheses: the story of a book. *Statist. Sci.*, **12**, 4–52.

Sreenivasan Ravi
Mysore

Introductory Stochastic Analysis for Finance and Insurance
X. S. Lin, 2006
New York, Wiley
xvi + 224 pp., £50.50
ISBN 0-471-71642-1

This is a well-written book covering essential topics from probability, stochastic processes and stochastic calculus and addressed to a wide audience of readers. The main illustrations are from the area of finance and insurance; however, the same knowledge can be applied with the same success in other areas.

The material has been carefully chosen; all notions are well explained. The range of topics that are presented is quite impressive, from elementary probability to the Feynman–Kac formula and Girsanov's theorem. It is nice to see both strong mathematical arguments and interesting applications.

The names of the chapters indicate well the content of the book: 1, 'Introduction'; 2, 'Overview of probability theory'; 3, 'Discrete-time stochastic processes'; 4, 'Continuous-time stochastic processes'; 5, 'Stochastic calculus: basic topics'; 6, 'Stochastic calculus: advanced topics'; 7, 'Applications in insurance'; 'References'; 'Topic index'.

As a matter of coincidence, when I was almost finishing my notes for the review, some excellent news was announced worldwide. The International Mathematical Union has established a new prize called the 'Gauss prize' which will be awarded every fourth year to a scientist as recognition of great contributions to mathematics with outstanding applications. The first Gauss prize winner was named at the opening ceremony of the International Congress of Mathematicians, Madrid, August 21st–30th, 2006: not surprisingly, it was awarded to Professor Kiyosi Itô!

The book under review demonstrates clearly that Itô's calculus is one of the most beautiful branches of contemporary mathematics with amazing applications in other areas. The book is strongly recommended.

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Correspondence Analysis and Data Coding with Java and R
F. MURTAGH, 2005
Boca Raton, Chapman and Hall–CRC
230 pp., £44.99
ISBN 1-584-88528-9

This book provides a readable introduction to the theory and application of correspondence analysis, and is suitable for senior undergraduate or post-graduate study. A good knowledge of R is assumed on the part of the reader (or the Java software can be used instead). The book briefly discusses the history of the field, highlighting the work of J. P. Benzécri and the 'French school', where much of the early work on this technique took place. There is a useful chapter on data coding, which demonstrates the flexibility of this method in handling various types of data in the same analysis. Practical examples are from a variety of fields, with many (and a chapter) devoted to the analysis of text. This book has recently been reviewed elsewhere (de Leeuw, 2005; Holmes, 2006) and therefore the present review examines it purely from a user's perspective.

A criticism of this book is the structure and organization of some of the chapters, particularly when illustrating examples. It breaks with the logical flow that many texts use: discussion of the method, technique, principle or concept to be demonstrated; introduction of the data set; use of software to conduct the analysis; display of numerical and graphical results; and, finally, discussion or interpretation of the output. The R algorithms that are used are at the end of each section or chapter and readers must flip back and forth, making the relationship between the original data, the coded or transformed data, the implementation in R and output somewhat unclear. The functions to implement the analyses are more an afterthought, rather than an integral part of the process. All of the information is present; it just requires some extra work to link it all together. Having the functions available as a package on the Comprehensive R Archive Network would have certainly been useful. In addition, reference could have been made to other packages on that network that contain correspondence analysis functions, if only to draw readers' attention to these.

The author does not state who the intended audience is, but it is probably not applied researchers. There are no examples from the social sciences (excluding the economics example) or marketing; however, readers who are interested in the analysis of text are well catered for. Overall, the book provides a useful introduction to correspondence analysis but requires a little patience on the part of the reader.

References
Holmes, S. (2006) Review of Fionn Murtagh's book: *Correspondence Analysis and Data Coding with Java and R*. *R News*, **6**, no. 4, 41–43.
de Leeuw, J. (2005) Book review 5. *J. Statist. Softwr.*, **14**.

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Analysis of Integrated and Cointegrated Time Series with R
B. PFAFF, 2006
Springer, New York
£30.50
ISBN 0-387-27959-8

The book contains three parts, each covered by R code examples.

Part 1 gives the theoretical properties of some stationary time series models (e.g. autoregressive moving average) and proposes the types of trend and stationarity via difference method. It discusses random walks, integrated processes and long memory processes and determines the autocorrelation and spectral density functions of fractionally integrated processes. Properties of spurious regression and the concepts of co-integration and error correction models for the univariate and multivariate case are given.

Part 2 introduces some statistical tests for unit root processes showing the use of each test with applications to real data sets. Two cases of integrated time series are investigated: the first is the presence of structural breaks; the other has seasonal unit roots.

Part 3 proposes the Engle–Granger two-step procedure that is used in co-integration tests for single equations. It also shows the co-integration