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way this book manages to combine clarity and rigour with “general interestingness” is any indication of how Arianrhod conducts her teaching, then her students at Monash are very fortunate indeed.

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Automatic Sequences: Theory, Applications, Generalizations

Jean-Paul Allouche and Jeffrey Shallit

Cambridge University Press 2003

ISBN 0-521-82332-3

Beautifully presented in a concise and scholarly manner, this book develops the fascinating theory of sequences generated by one of the most basic models of computation; namely, finite automata. Generalizations of such sequences, including Sturmian words and k -regular sequences, are also considered, and the strength of the theory is made evident through selected applications in number theory (in particular, formal power series and transcendence in positive characteristic), physics, and computer science. A topic such as this incorporates results from both mathematics and computer science, and consequently, papers on the subject are widespread in the literature, having been studied under different guises and with inconsistent notation. Allouche and Shallit, however, manage to successfully combine a myriad of concepts from a range of seemingly disparate disciplines to form a coherent and extremely informative resource for anyone from the professional researcher to the inquisitive undergraduate student.

Chapters 1 through to 5 provide us with the required background knowledge on

stringology, number theory and algebra, numeration systems, finite automata, and automatic sequences. The book then delves into interesting generalizations of automatic sequences, such as the class of morphic sequences, of which automatic sequences form a sub-class. Other generalizations include characteristic words, multi-dimensional sequences, and sequences over infinite alphabets. Of particular interest to experts in this field are the relatively new results on transcendence of formal power series and automatic real numbers, given in Chapters 12 and 13. And the enthusiastic reader is sure to revel in the total of 460 exercises and 85 open problems, which, together with a very comprehensive list of references and bibliographical notes, certainly invoke the urge for further exploration.

Applicable to practically all areas of mathematics and computer science, this book is sure to become a much celebrated text on infinite sequences of symbols and their applications. A worthy addition to every mathematician’s bookcase!

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Option Theory with Stochastic Analysis: An Introduction to Mathematical Finance

F.E. Benth

Springer Heidelberg 2004

ISBN 3-540-40502-X

The book under review was written as a text for an introductory level course (although we read in the Preface that it was used “in a course for students... preparing for a *master* in finance and insurance mathematics”) on option theory (in continuous time