gambling. The book under review is the second edition of a highly successful text (the German original has seen seven editions since 2002) which uses the same strategy of explaining the tools of the trade—probability theory, combinatorics, a bit of algebra and a good deal of logic—using real-world examples. As the title indicates, there are three basic types of games: purely random games ('luck' as in roulette), combinatorial games ('logic' as in chess) and strategic games ('white lies' as in rock-paper-scissors). The randomness arises, accordingly, from different sources: from pure chance, from complexity, and from partial information, respectively. Interpreting these three basic types as extremes, like the vertices of a triangle, all other games of chance arise as mixtures of two or even three of these extremes.

The author discusses more than 30 different games in 46 sections and three parts, the parts referring to the three basic types of games. A fourth part with 5 further sections concerns philosophical, technical and legal issues. Typically, a section introduces a game by asking a concrete question, then the rules of the game are explained, and the mathematical tools developed. In this way a reader working through Part I (games of chance) will have covered a good deal of elementary probability theory. Since the problems come bite-sized and are often independent of each other, the text is suitable for selective reading as well as for classroom problems or group & self-study projects. At the end of many sections, further developments are sketched, with hints to the literature.

Overall, this is a well-written and entertaining text, which should be useful when teaching probability courses at school or college. Some chapters are surprising (e.g. the discussion of how to turn a biased coin into a fair one by repeated trials), and the discussion of Markov chains in connection with various games and the treatment of blackjack is excellent.

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RENÉ L. SCHILLING
Fakultät Mathematik
Institut für Mathematische Stochastik
TU Dresden D-01062 Dresden, Germany
e-mail: *rene.schilling@tu-dresden.de*

Mathletics by Wayne L. Winston, Scott Nestler and Konstantinos Pelechrinis, pp 423, £14.99 (paper), ISBN 978-0-69117-762-5, Princeton University Press (2022)

This fascinating book shares some of the secret techniques used by statisticians to analyse performance in baseball, American football and basketball. Over 100 pages are devoted to each of these sports, and there are followed by slightly briefer discussions of soccer, hockey, volleyball, golf and e-sports. Finally the authors turn their attention to seven aspects of sports gambling, with some more technical methods and more miscellaneous approaches.

The authors are passionate and very well informed. Their writing is very clear and easy to follow, but does not hold back from giving detailed and complex information.

It is clear that the rise in the amount of data being recorded in sport makes it possible for intensive analysis to take place. There is much discussion of the methods used to resolve questions about who is the better player, within each sport using a variety of metrics to explain how such questions can be resolved.

Challenging statistical techniques, including multi-variate analysis, Markov chains, significance tests, Bayesian approaches and matrix factorisation, are detailed and explained well. The authors give clear explanations of many different formulae and show how the reader can re-create the analysis using spreadsheets.

This book is a rich source of mathematics and statistics in action and would give illuminating real-world examples of statistics being used outside our relatively constrained textbook and examination questions.

For a teacher or student with a passion and good understanding of the sports in this book I am sure this would be an engrossing and very interesting read. Sadly, although I found the analysis interesting, I fear my sports knowledge is a little too weak to appreciate fully how illuminating the analysis can be.

I would heartily recommend this book for a sports fan, particularly one who is grabbed by the data available and wishes to know more about how the data can be used to shed light on the performance of individuals and teams. There are clear examples which might be used in some of our A-level lessons to give practical examples for some of the techniques we usually teach.

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PETER HALL
Beacon Academy,
Crowborough,
East Sussex TN6 1LP
e-mail: *mathsast@gmail.com*

The art of mathematics—take two, tea time in Cambridge, by Béla Bollobás, pp 333, £19.99 (paper), ISBN 978-1-10897-826-2, Cambridge University Press (2022)

'Recreational' mathematics is what mathematicians love to do after—or in-between—more 'serious' mathematics. Quite often, recreational mathematics is some kind of a social event, where toy problems and other brain teasers are tossed around during coffee breaks and between office doors. Béla Bollobás's book contains 128 such problems from various fields of mathematics, ranging from analysis, geometry and number theory to probability and combinatorics. Some of the problems are 'easy' (like the Monty Hall problem), while some can be pretty hard (e.g. those involving prime numbers), but all of them can be solved in at most 4 pages. In some sense it is a modern and slightly more challenging continuation of the long tradition of recreational mathematics books by Lewis Carroll, W.W. Rouse Ball, Martin Gardner or Hugo Steinhaus, just to mention a few. Still, most of the brain-teasers should be accessible to undergraduates and even interested high-school students.

As the title indicates, this is already the second instalment and the structure of the presentation is similar to the first book. There are problems (32 pages), most of them have hints (11 pages) and all are fully solved in the third part of the book (286 pages). The solutions give an alternative, more mathematical statement of the problem (which is often part of the solution) and they come with detailed comments and a short bibliography. As one would expect, the selection reflects the author's (good!) taste, yet there is some loose connection between the problems: all of them are linked to mathematicians which have some relation to Cambridge.

While it is clear that one should not (even try to) read this book from cover-to-cover, I think that it is best read in company, when one can immediately discuss the one or the other problem and when there is less incentive to give up and look at hints and solutions. Béla Bollobás's book is the perfect coffee-table book for any maths department's common room.

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RENÉ L. SCHILLING
Fakultät Mathematik
Institut für Mathematische Stochastik
TU Dresden D-01062 Dresden, Germany
e-mail: *rene.schilling@tu-dresden.de*