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Discrete data analysis with R. Visualization and modeling techniques for categorical and count data.

Chapman & Hall/CRC Texts in Statistical Science. Boca Raton, FL: CRC Press (ISBN 978-1-4987-2583-5/hbk+ebook; 978-1-4987-2588-0/ebook). xvii, 544 p. £ 63.99 (2016).

Publisher's description: This book presents an applied treatment of modern methods for the analysis of categorical data, both discrete response data and frequency data. It explains how to use graphical methods for exploring data, spotting unusual features, visualizing fitted models, and presenting results.

The book is designed for advanced undergraduate and graduate students in the social and health sciences, epidemiology, economics, business, statistics, and biostatistics as well as researchers, methodologists, and consultants who can use the methods with their own data and analyses. Along with describing the necessary statistical theory, the authors illustrate the practical application of the techniques to a large number of substantive problems, including how to organize data, conduct an analysis, produce informative graphs, and evaluate what the graphs reveal about the data.

The first part of the book contains introductory material on graphical methods for discrete data, basic R skills, and methods for fitting and visualizing one-way discrete distributions. The second part focuses on simple, traditional nonparametric tests and exploratory methods for visualizing patterns of association in two-way and larger frequency tables. The final part of the text discusses model-based methods for the analysis of discrete data.

The data sets and R software used, including the authors' own vcd and vcdExtra packages, are available at `http://cran.r-project.org`.