Preface to the English Edition

This book is a translation of the German book “Datendesign mit R” that was published 2014 by Open Source Press. Due to the encouraging strong interest in the German edition Springer Verlag offered to publish an English translation. First of all I would like to thank Ralf Gerstner from Springer for this and for his helpful suggestions for improvement, as well as Annika Brun for translating most of the text, Colin Marsh for copy editing, and Katja Diederichs for converting all scripts from German to English. Last year I benefited a lot from a communication with Antony Unwin. His book “Graphical Data Analysis with R” can be seen as complementary to my own: while this one focusses on presentation of graphics, you will benefit from his book if you are interested in exploring data graphically.

Bonn, Germany

Thomas Rahlf
Some 20 years ago, when I reviewed a score of books on statistical graphics and graphic-based data analysis, things were completely different: there were proprietary formats and operating systems, their character sets were incompatible, and graphic and statistical software was expensive. Since the turn of the century, the situation has changed fundamentally: the Internet has come of age, open-source projects have attracted more and more followers, and a handful of enthusiasts provided version 1.0 of the free statistical programming language R. Many developers were inspired to collaborate on this project. R reached version 3 in 2013, and in addition to the basic software, more than 7000 freely available extension packs are currently available. Companies and organisations such as Google, Facebook or the CIA are using R for their data analysis. Its graphic capabilities are again and again emphasised as its strong point. Pretty much all technologies relevant for data visualisation are quickly integrated into R. Through numerous functions, detailed designs of every imaginable figure, creation of maps and much more are made possible. All it takes is to know how—and that is where this book wants to contribute.

What This Book Wants to Be—and What It Doesn’t Want to Be

This book is not an introduction that systematically explains all the graphic tools R has to offer. Rather, its aim is to use 100 complete script examples to introduce the reader to the basics of designing presentation graphics, and to show how bar and column charts, population pyramids, Lorenz curves, box plots, scatter plots, time series, radial polygons, Gantt charts, heat maps, bump charts, mosaic and balloon charts, and a series of different thematic map types can be created using R’s Base Graphics System. Every example uses real data and includes step-by-step explanations of the figures and their programming. The selection is based on my
personal experiences—it is likely that readers will find one or another illustration lacking, and consider some too detailed. However, a large scope should be covered. This book is aimed at:

- **R experts**: You can most likely skip Part I. For you, the examples are particularly useful, especially the code.
- **Readers that have heard of R and maybe even tried R before and are not daunted by programming**: you will profit from both parts.
- **Beginners**: for you, the finished graphics pictured here will be most helpful. You will see what R can do. Or, in other words: you will realise that there is such a tool as R, and that it can be used to create graphics you have wanted to create for a long time, but merely never knew how. The code will be too complicated for you, but you may be able to commission others to do your graphics programming in R.

### Windows, Mac, and Linux

All of the scripts and working steps will yield identical results when executed in Windows, Mac OS X or Linux. All of the examples were created in Mac OS X and then tested in Ubuntu 12.04 and an evaluation copy of Windows 8.1.

### Acknowledgements

The following people deserve my thanks for hints, comments, feedback, data, discussions or help: Gregor Aisch, Insa Bechert, Evelyn Brislinger, Giuseppe Casalicchio, Arnulf Christl, Katja Diederichs, Günter Faes, Mira Hassan, Mark Heckmann, Daniel Hienert, Bruno Hopp, Uwe Ligges, Lorenz Matzat, Meinhard Moschner, Stefan Müller, Paul Murrell, David Phillips, Duncan Temple Lang, Martijn Tennekes, Patrick R. Schmid, Thomas Schraitle, Valentin Schröder, Torsten Steiner, Michael Terwey, Katrin Weller, Bernd Weiss, Nils Windisch, Benjamin Zapilko, and Lisa Zhang. This manuscript particularly benefited from discussions with an infographic designer and a data journalist. Stefan Fichtel looked over every figure and provided critical feedback. For selected figures, he designed his own suggestions; this has been an invaluable help. We did not always agree, and I have disregarded his advice here or there. Therefore, any remaining errors and shortcomings are mine. Björn Schwentker went to the trouble of proof reading large parts of the manuscript. I am very grateful for his valuable notes which have surely made some parts of the text clearer and more readable. Finally, I want to thank Markus Wirtz for tackling the experiment of ultimately printing everything into a book.
On the Internet

The figures are conceived for different final output options. The format of the book implies that some details have become very small, e.g. in maps and radial column charts. Particularly for such cases, please refer to the book’s website, on which all figures are available in high resolution or as vector graphics in PDF format:

http://www.datavisualisation-r.com

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Data Visualisation with R
100 Examples
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2017, XV, 385 p. 181 illus., 162 illus. in color., Hardcover
ISBN: 978-3-319-49750-1