6.1.11 Dot Chart for Three Variables .................................. 127
6.1.12 Column Chart with Shares ..................................... 130
6.2 Pie Charts and Radial Diagrams .................................. 132
  6.2.1 Simple Pie Chart .............................................. 133
  6.2.2 Pie Charts, Labels Inside (Panel) ........................... 135
  6.2.3 Seat Distribution (Panel) .................................... 136
  6.2.4 Spie Chart .................................................. 139
  6.2.5 Radial Polygons (Panel) ..................................... 142
  6.2.6 Radial Polygons (Panel): Different Column
      Arrangement .................................................. 144
  6.2.7 Radial Polygons Overlay .................................... 145
6.3 Chart Tables ...................................................... 146
  6.3.1 Simplified Gantt Chart ...................................... 147
  6.3.2 Simplified Gantt Chart: Colours by People ............... 151
  6.3.3 Bump Chart ................................................. 152
  6.3.4 Heat Map .................................................. 155
  6.3.5 Mosaic Plot (Panel) ....................................... 158
  6.3.6 Balloon Plot .............................................. 160
  6.3.7 Tree Map .................................................. 162
  6.3.8 Tree Maps for Two Levels (Panel) ......................... 164
7 Distributions .................................................................. 169
  7.1 Histograms and Box Plots ....................................... 169
    7.1.1 Histograms Overlay ....................................... 169
    7.1.2 Column Charts Coloured with ColorBrewer (Panel) .... 171
    7.1.3 Histograms (Panel) ....................................... 174
    7.1.4 Box Plots for Groups: Sorted in Descending Order .... 177
    7.1.5 Box Plots for Groups: Sorted in Descending
      Order, Comparison of Two Polls ............................ 181
  7.2 (Population) Pyramids ............................................ 185
    7.2.1 Pyramid with Multiple Colours ............................ 186
    7.2.2 Pyramids: Emphasis on the Outer Areas (Panel) ...... 188
    7.2.3 Pyramids: Emphasis on the Inner Areas (Panel) ...... 191
    7.2.4 Pyramids with Added Line (Panel) ....................... 194
    7.2.5 Aggregated Pyramids ...................................... 195
    7.2.6 Bar Charts as Pyramids (Panel) .......................... 198
  7.3 Inequality ....................................................... 201
    7.3.1 Simple Lorenz Curve ...................................... 202
    7.3.2 Lorenz Curves Overlay .................................... 204
    7.3.3 Lorenz Curves (Panel) .................................... 207
    7.3.4 Comparison of Income Proportions with Bar
      Chart (Quintile) ............................................. 209
    7.3.5 Comparison of Income Proportions with Bar
      Chart (Decile) .............................................. 212
    7.3.6 Comparison of Income Proportion with
      Panel-Bar Chart (Quintile) ................................ 214
8 Time Series .......................................................... 217
8.1 Short Time Series .................................................. 217
  8.1.1 Column Chart for Developments ......................... 217
  8.1.2 Column Chart with Percentages for Growth Developments .......................................... 220
  8.1.3 Quarterly Values as Columns ............................... 223
  8.1.4 Quarterly Values as Lines with Value Labels ............ 225
  8.1.5 Short Time Series Overlaid ................................ 227
8.2 Areas Underneath and Between Time Series .................... 230
  8.2.1 Areas Between Two Time Series ............................ 230
  8.2.2 Areas as Corridor with Time Series (Panel) ............. 232
  8.2.3 Forecast Intervals (Panel) ................................. 234
  8.2.4 Forecast Intervals Index (Panel) ......................... 237
  8.2.5 Time Series with Stacked Areas ........................... 240
  8.2.6 Areas Under a Time Series ................................. 242
  8.2.7 Time Series with Trend (Panel) ............................ 245
8.3 Presentation of Daily, Weekly and Monthly Values ............. 248
  8.3.1 Daily Values with Labels ................................... 248
  8.3.2 Daily Values with Labels and Week Symbols (Panel) .... 250
  8.3.3 Daily Values with Monthly Labels ......................... 254
  8.3.4 Time Series from Weekly Values (Panel) .................. 255
  8.3.5 Monthly Values (Panel) .................................... 258
  8.3.6 Monthly Values with Monthly Labels ...................... 260
  8.3.7 Monthly Values with Monthly Labels (Layout) ........... 263
8.4 Exceptions and Special Cases ..................................... 266
  8.4.1 Time Series as Scatter Plot (Panel) ....................... 266
  8.4.2 Time Series with Missing Values .......................... 268
  8.4.3 Seasonal Ranges (Panel) .................................. 271
  8.4.4 Seasonal Ranges Stacked ................................... 273
  8.4.5 Season Figure (Seasonal Subseries Plot) with Data Table ........................................ 275
  8.4.6 Temporal Ranges ........................................... 278
9 Scatter Plots .......................................................... 281
9.1 Variants .............................................................. 283
  9.1.1 Scatter Plot Variant 1: Four Quadrants Differentiated by Colour ........................................ 283
  9.1.2 Scatter Plot Variant 2: Outliers Highlighted .......... 286
  9.1.3 Scatter Plot Variant 3: Areas Highlighted .............. 289
  9.1.4 Scatter Plot Variant 4: Superimposed Ellipse ........... 291
  9.1.5 Scatter Plot Variant 5: Connected Points ............... 294
9.2 Exceptions and Special cases ..................................... 297
  9.2.1 Scatter Plot with Few Points ............................... 297
  9.2.2 Scatter Plot with User-Defined Symbols ................ 299
  9.2.3 Map of Germany as Scatter Plot .......................... 302
10 Maps

10.1 Introductory Examples

10.1.1 Maps of Germany: Local Telephone Areas and Postcode Districts

10.1.2 Filtered Postcode Map

10.1.3 Map of Europe NUTS 2006 (Cut-out)

10.2 Points, Diagrams, and Symbols in Maps

10.2.1 Map of Germany with Selected Locations and Outline (Panel)

10.2.2 Map of Germany with Selected Locations (Pie Charts) and Outline

10.2.3 Map of Germany with Selected Locations (Columns) and Outline

10.2.4 Map of Germany as Three-Dimensional Scatter Plot

10.2.5 Map of North Rhine-Westphalia with Selected Locations (Symbols) and Outline

10.2.6 Map of Tunisia with Self-Defined Symbols

10.3 Choropleth Maps

10.3.1 Choropleth Map of Germany at District-Level

10.3.2 Choropleth Map of Germany at District-Level (Panel)

10.3.3 Choropleth Map of Europe at Country-Level

10.3.4 Choropleth Map of Europe at Country-Level (Panel)

10.3.5 World Choropleth Map: Regions

10.4 Exceptions and Special Cases

10.4.1 World Map with Orthodromes

10.4.2 City Maps with OpenStreetMap Data (Panel)

11 Illustrative Examples

11.1 Table with Symbols of the “Symbol Signs” Type Face

11.2 Polar Area Charts with Labels (Panel)

11.3 Polar Area Charts Without Labels (Panel)

11.4 Polar Area Chart (Poster)

11.5 Nighttime Map of Germany as Scatter Plot

11.6 Scatter Plot Gapminder

11.7 Map of Napoleon’s Russian Campaign in 1812/13, by Charles Joseph Minard, 1869

Appendix

A Data

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