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Visualizing Data Patterns with Micromaps

Dan Carr and Linda Williams Pickle

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Readership: Scientists wishing to explore and present spatial data with maps

Charting geographic data is difficult. Polygon map displays of data recorded by area are commonly used, though they suffer from large areas often having tiny populations while small areas have large populations, so that assessing spatial patterns can be tricky. Interactive software is one approach to making the displays more flexible and useful. Spatial displays called micromaps, a form of display using small multiples, have been suggested by Dan Carr, and applied and developed in collaboration with Linda Pickle, primarily to US health data. Graphics like these are immediately recognisable to people familiar with the areas shown, and the book mainly uses data for the fifty US States plus the District of Columbia. Overall, micromaps are an effective tool and the book explains them at length, with lots of examples, so that non-statisticians can understand and use them. Of course, this means that there is little statistical depth and although the authors frequently and properly recommend caution in overinterpreting the displays, they occasionally indulge in it themselves, for instance in discussing Figure 4.15 and Figure 5.3. Dealing with graphics requires many different skills and it is a strength of the book that the relevant topics in perception and cognition are well summarised in the second chapter.

While the book is attractively presented in full colour and there are many real examples, it is a bit surprising that these are not more striking. The authors have been using micromaps for many years and you would expect them to present their most insightful graphics in their book. When they stray from the US, as in Figure 6.3 where they display yield spreads for government bonds for a number of countries, they are not successful at all (and don't appear to have noticed that in the first of seven maps of the world, continental Europe and most of Asia are missing). In the final chapter there is a lengthy discussion of a fascinating dataset for Louisiana before and after Hurricane Katrina. Various types of micromaps are used and reveal interesting information. In some cases other kinds

of display would have been more effective and it is an opportunity missed not to show micromaps in conjunction with other displays.

There are several references to the availability of code, maps and data on the book's website. At the time of writing, this has not yet happened. Some excellent material is available on Dan Carr's own website (for instance, the Katrina dataset) and elsewhere, but not all that is promised in the book.

In general the graphic displays in this book are clear and straightforward, they are not cluttered with unnecessary decoration. Reasons for poor display and how poor display may be avoided are well covered in the second chapter. They suggested a way of presenting my final recommendation, which has been hidden in the layout of the review. In the form you are currently reading this will be difficult to spot. If you want a clue, think of the Book of Kells, and if you don't, look at the version of the review on my website.

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