Data Visualization for Political Social Work

Andy Grogan-Kaylor

July 15, 2019

Contents

1 How to Navigate This Presentation (scroll down □)

1.1 Navigation

- **o** for outline

- **f** for full screen
- **alt-click** for zoom

2 Outline of Conversation

2.1 Our Discussion Today

- Purpose: Focus on the *conceptual language* of data viz.
- **Not** a deep dive into the technical tools for doing dataviz.
- Whatever tool you are using (Paper and Pencil, Markers on Whiteboard, Excel, Google Sheets, R), what are some conceptual considerations in making a data visualization?
- Considerations for being part of a *team* conversation about visualizing data.
- More specific technical resources at end.

3 Basic Considerations (scroll down □)

3.1 The Nature of Your Variables Determines the Nature of Your DataViz

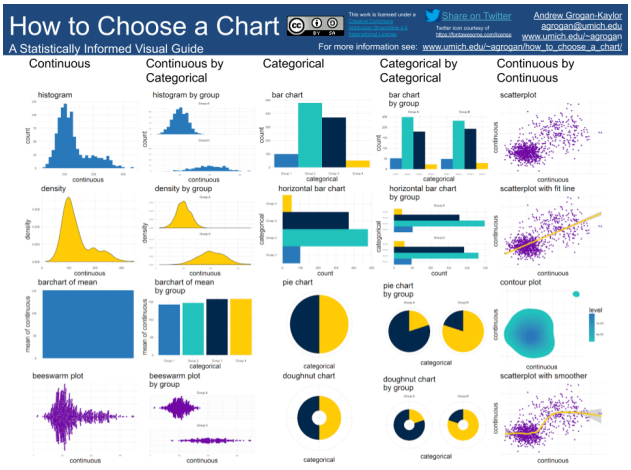
- Deciding upon the right data visualization to represent your data can be a daunting process.
- I believe that a *starting point* for this thinking is some basic statistical thinking about the *type* of variables that you have.
- At the broadest level, variables may be conceptualized as *categorical* variables, or *continuous* variables.

3.2 Variable Types

- *categorical variables* represent unordered categories like *neighborhood*, or *religious affiliation*, or *place of residence*.
- *continuous variables* represent a continuous scale like a *mental health scale*, or a *measure of life expectancy*.

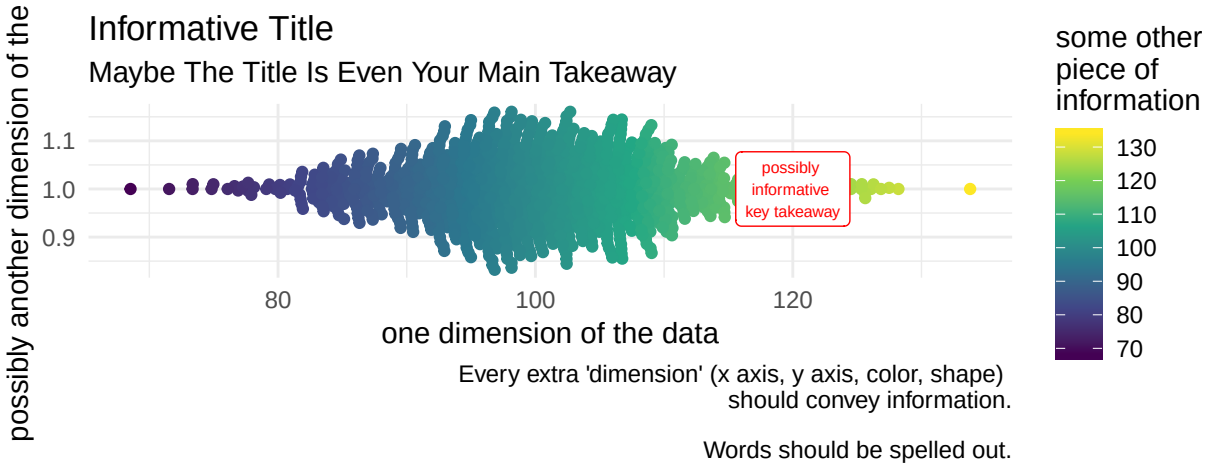
3.3 Visualization Possibilities

How To Choose A Chart



4 Story-Telling (scroll down)

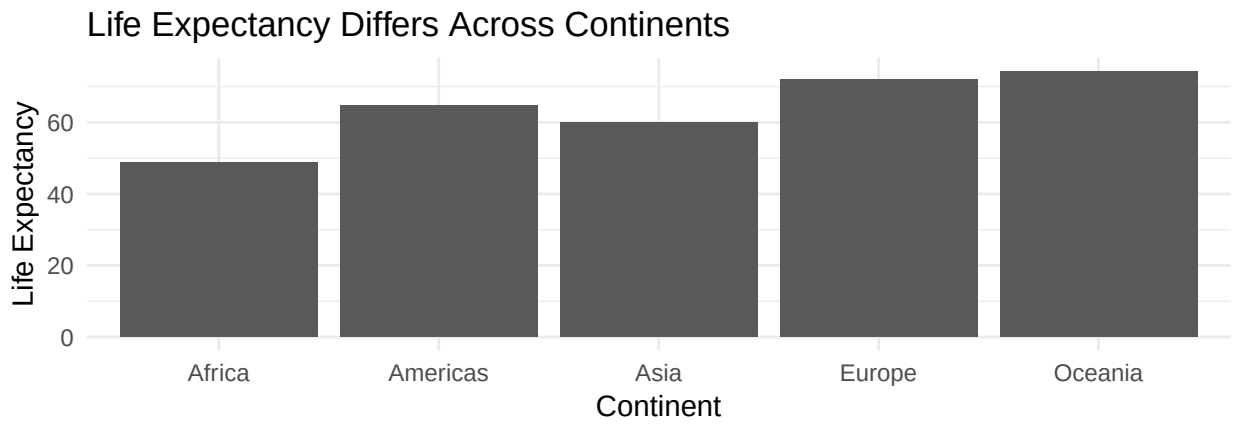
4.1 Your Graph Should Be A Self-Contained Story



4.2 Your Graph Should Be Embedded In A Story

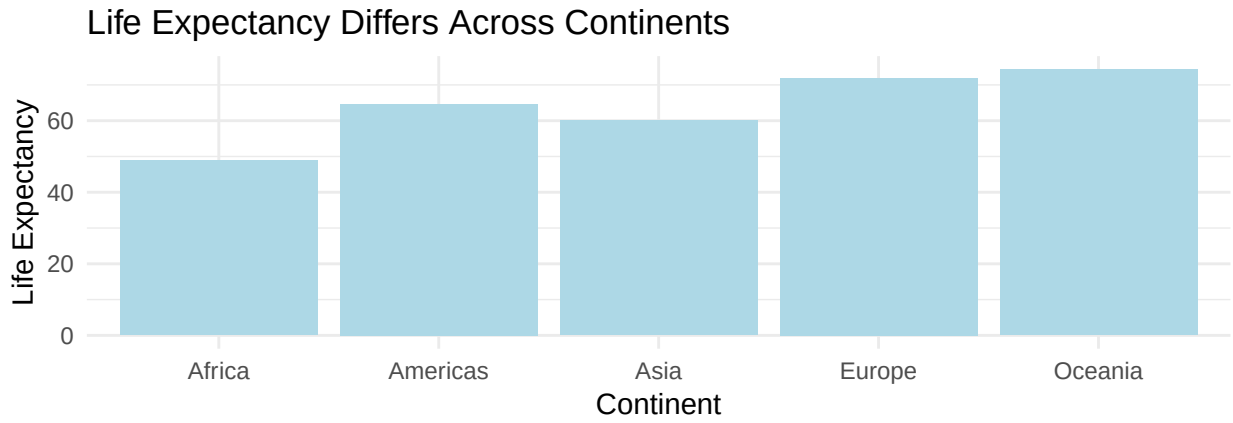
5 Color (scroll down)

5.1 Greyscale Graph



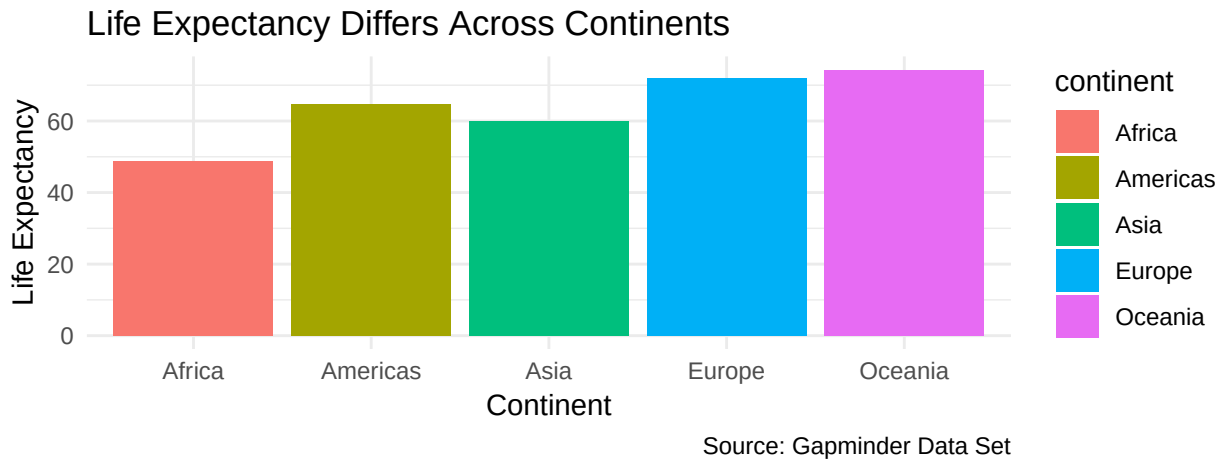
Source: Gapminder Data Set

5.2 Color is Organizational Identity

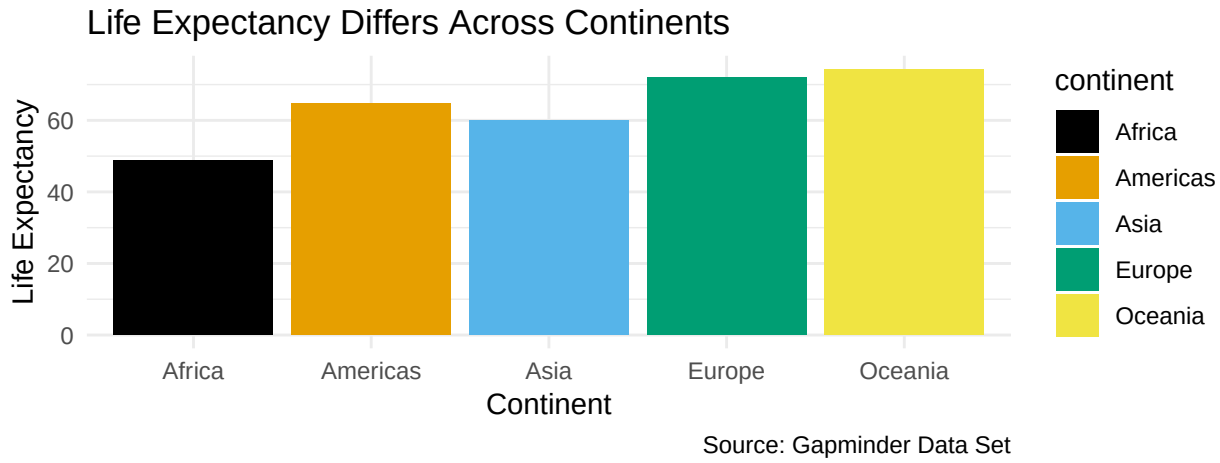


Source: Gapminder Data Set

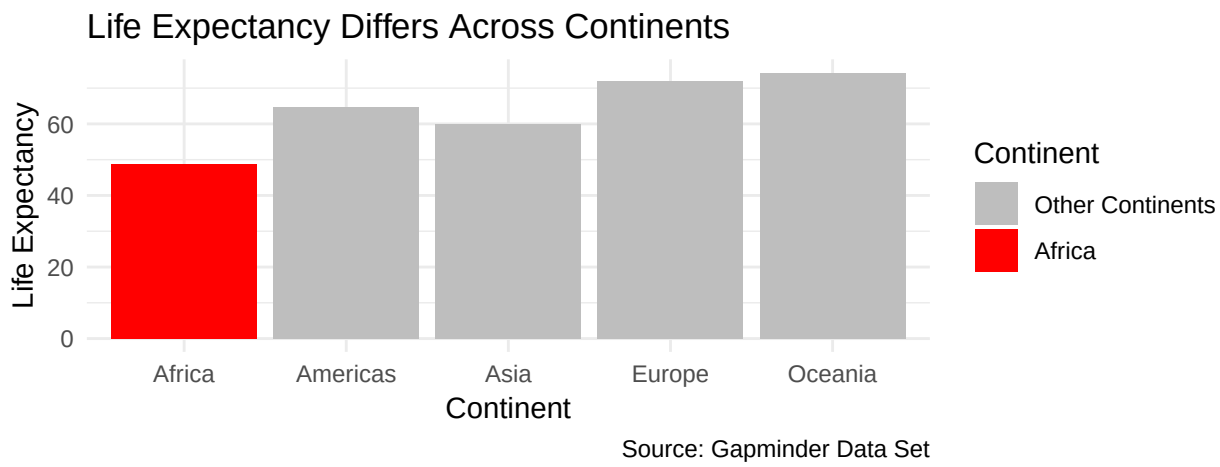
5.3 Color Is Information



5.4 Color Is Accessibility



5.5 Color Is Emphasis



Source: Gapminder Data Set

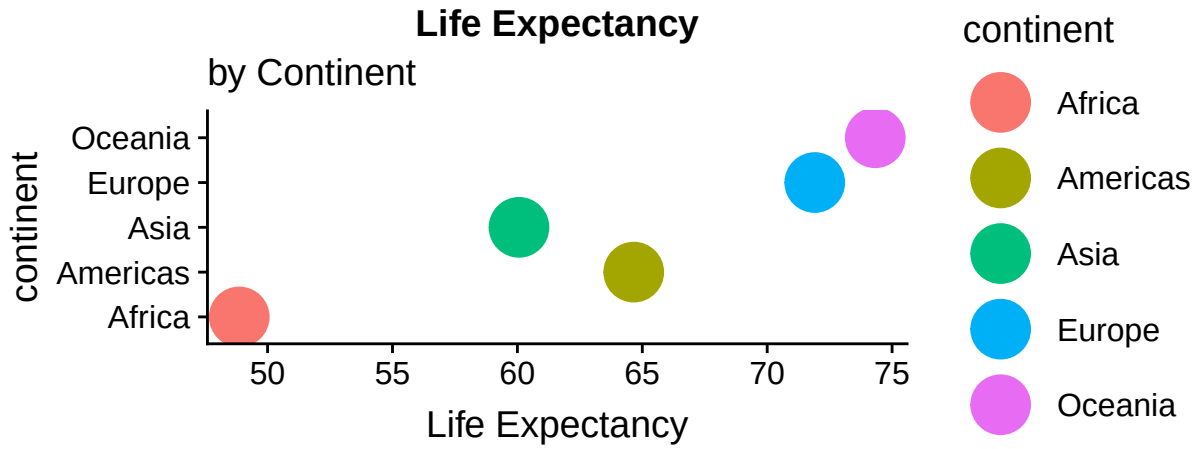
6 Cognition (scroll down □)

6.1 "Graphical Perception"

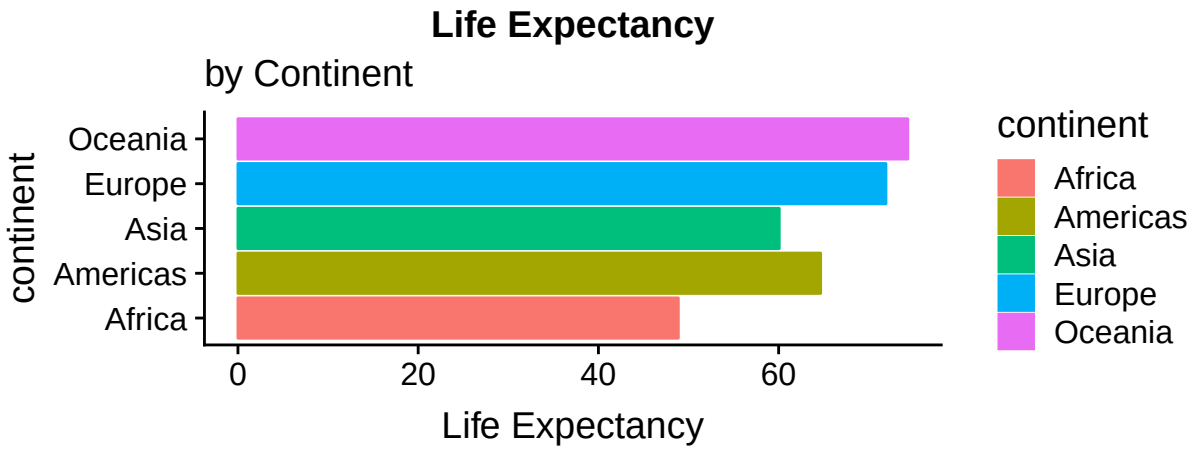
"Ordering elementary tasks by accuracy (Cleveland and McGill 1985):"

1. Position along a common scale
2. Position on identical but nonaligned scales
3. Length
4. Angle & Slope
5. Area
6. Volume, Density, Color Saturation
7. Color Hue

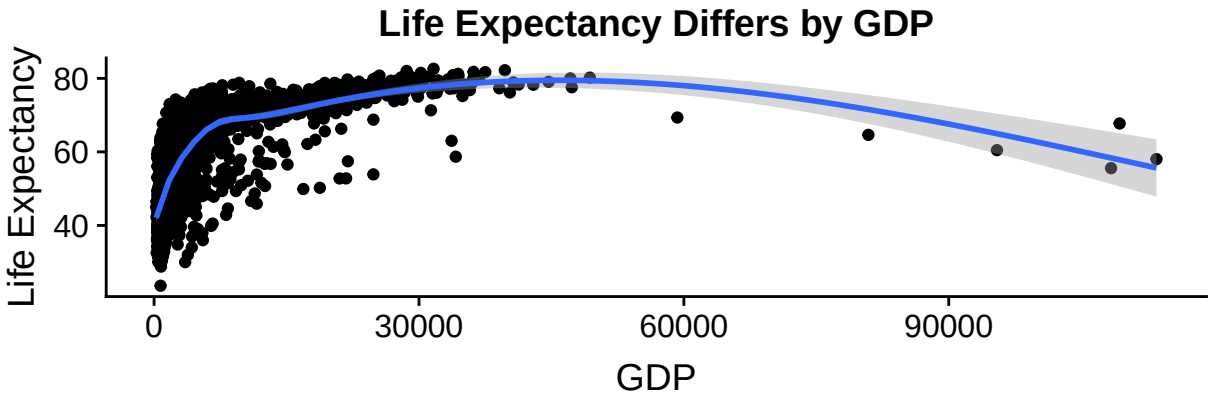
6.2 Example (Position Along A Common Scale)



6.3 Example (Length)



6.4 Example (Angle)



Source: Gapminder

7 Resources for Further Learning

7.1 Resources

- How to Choose a Chart: A Visual Guide. [Extended Version]
- *Introduction to R*:
  - HTML Web Book
- *Introduction to ggplot2*:
  - HTML Web Book
- *Two Page R*:
  - PDF
- *Two Page ggplot2*:
  - PDF

8 Questions? (scroll down □)

8.1 Please Contact

agrogan@umich.edu

www.umich.edu/~agrogan

agrogan1.github.io

References

Cleveland, William S, and Robert McGill. 1985. “Graphical Perception and Graphical Methods for Analyzing Scientific Data.” *Science* 229 (4716): 828–33. http://www.jstor.org/stable/1695272.