Data Visualization

POLS 7012: Introduction to Political Methodology

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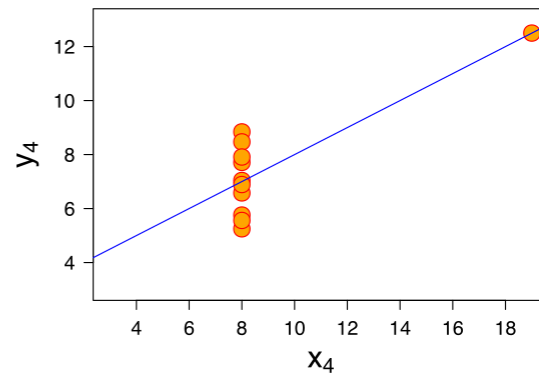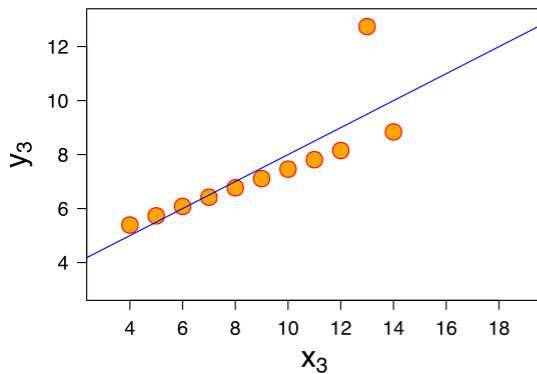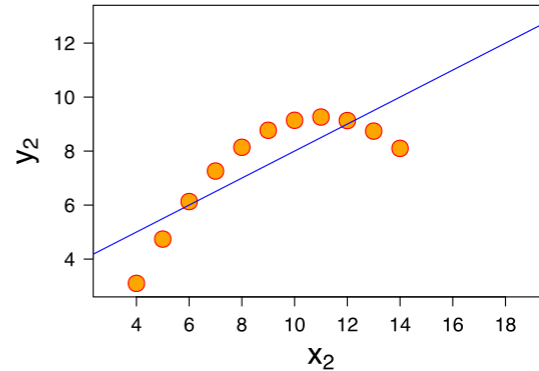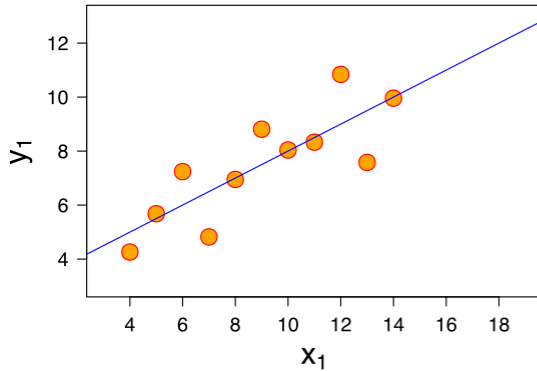
September 2, 2020

Today's Objectives

By the end of this week, you will be able to...

1. Explain what makes an effective data visualization

2. Build basic plots (scatter, bar, histogram, jitter, boxplots, violin) with the `ggplot2` package

3. Clean and filter datasets with the `tidyverse` package
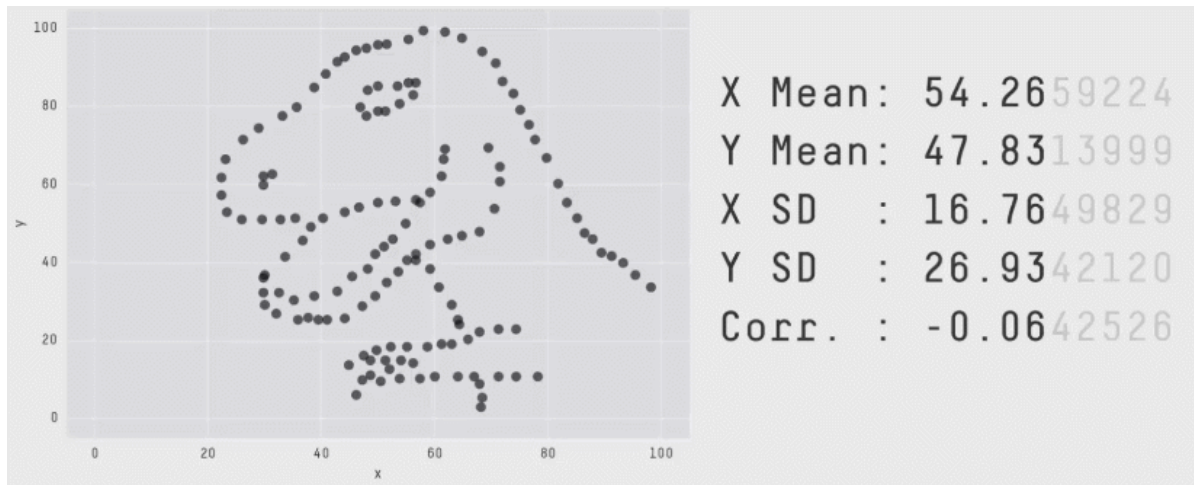
Look At Your Data

Why Look At Your Data?

1. To Understand It Yourself!

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Why Look At Your Data?

2. To Communicate Your Findings

Constraining Governments: New Indices of Vertical, Horizontal, and Diagonal Accountability

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*A*ccountability—constraints on a government's use of political power—is one of the cornerstones of good governance. However, conceptual stretching and a lack of reliable measures have limited cross-national research on this concept. To address this research gap, we use V-Dem data and innovative Bayesian methods to develop new indices of accountability and its subtypes: the extent to which governments are accountable to citizens (vertical accountability), other state institutions (horizontal accountability), and the media and civil society (diagonal accountability). In this article, we describe the conceptual and empirical framework underlying these indices and demonstrate their content, convergent, and construct validity. The resulting indices have unprecedented coverage (1900–present) and offer researchers and policymakers new opportunities to investigate the causes and consequences of accountability and its disaggregated subtypes. Furthermore, the methodology provides a framework for theoretically driven index construction to scholars working with cross-national panel data.

Why Look At Your Data?

2. To Communicate Your Findings

What Makes An Effective Data Visualization?

Effective Data Visualization

1. Be Kind To The Reader

- Easy to interpret at a glance

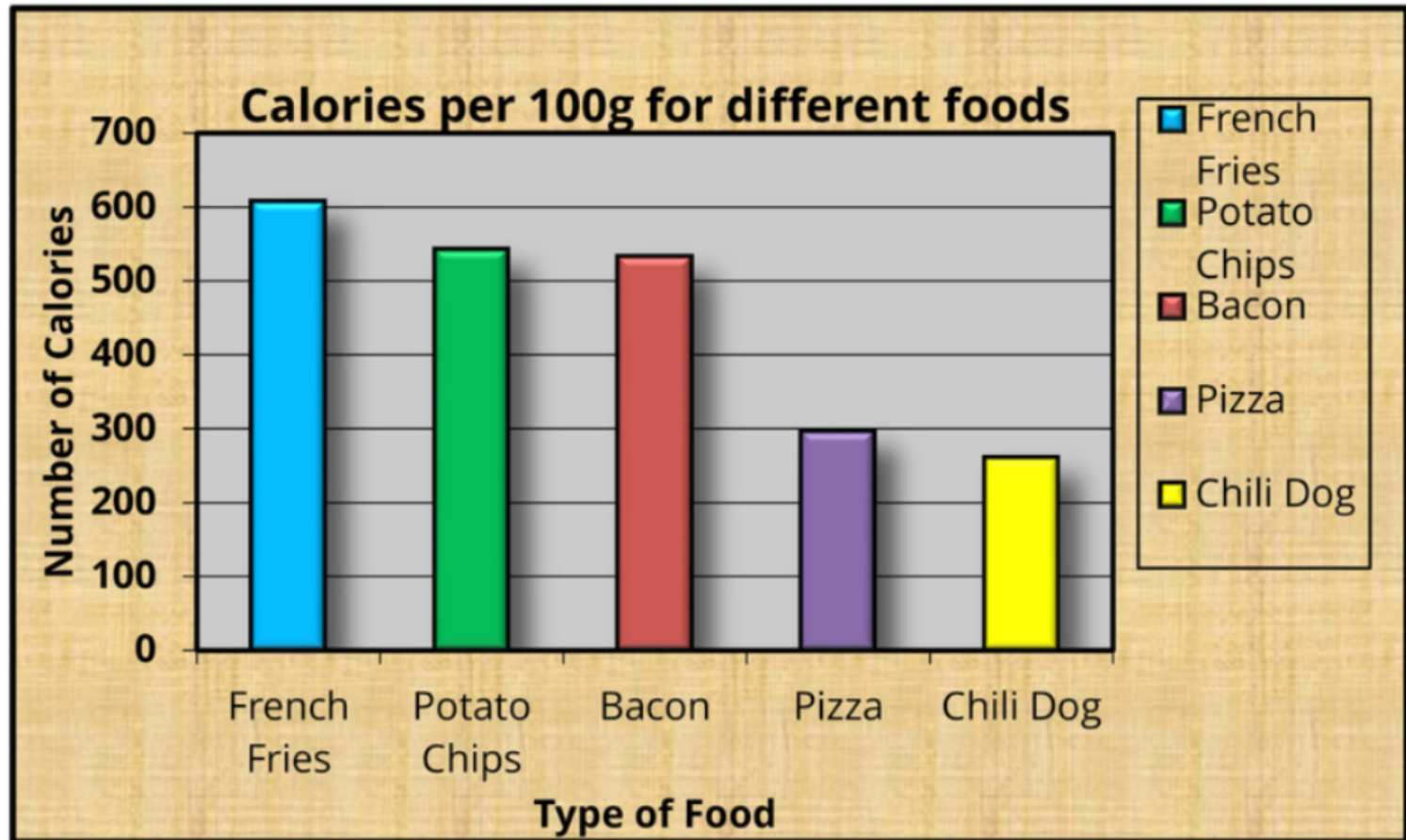- Self-explanatory, without having to read a big caption

2. Convey Information Efficiently

- Use multiple channels (e.g. color, position, shape, transparency)

- Avoid "chartjunk" and maximize your "data-to-ink" ratio (Tufte, 1983)

The Gallery Of Bad Charts
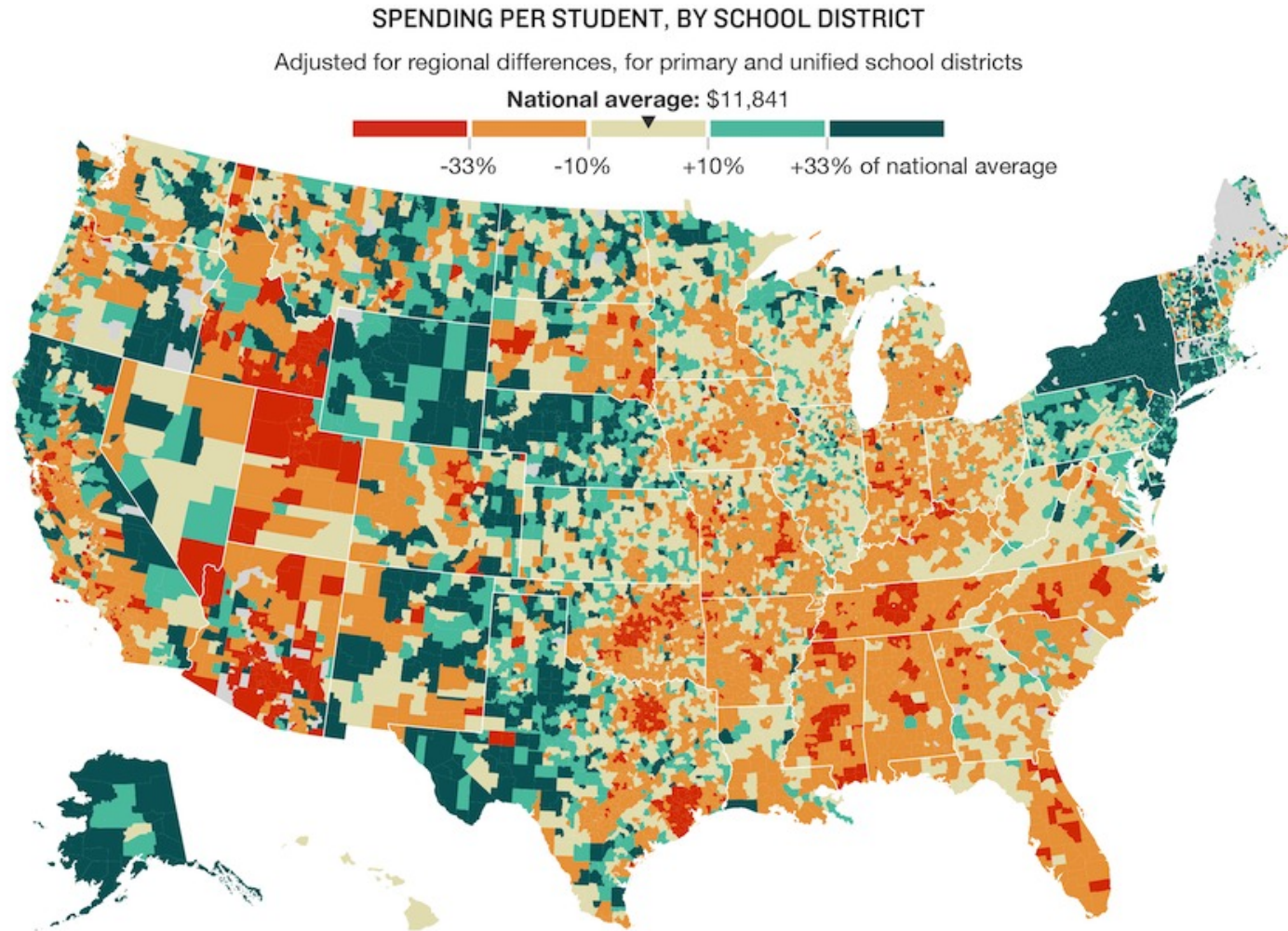
Too Much Information (Also It's A Pie Chart)

Low Data-to-Ink Ratio

Low Data-to-Ink Ratio

Not Colorblind-Friendly

SPENDING PER STUDENT, BY SCHOOL DISTRICT

Adjusted for regional differences, for primary and unified school districts

National average: $11,841

-33%   -10%   +10%   +33% of national average
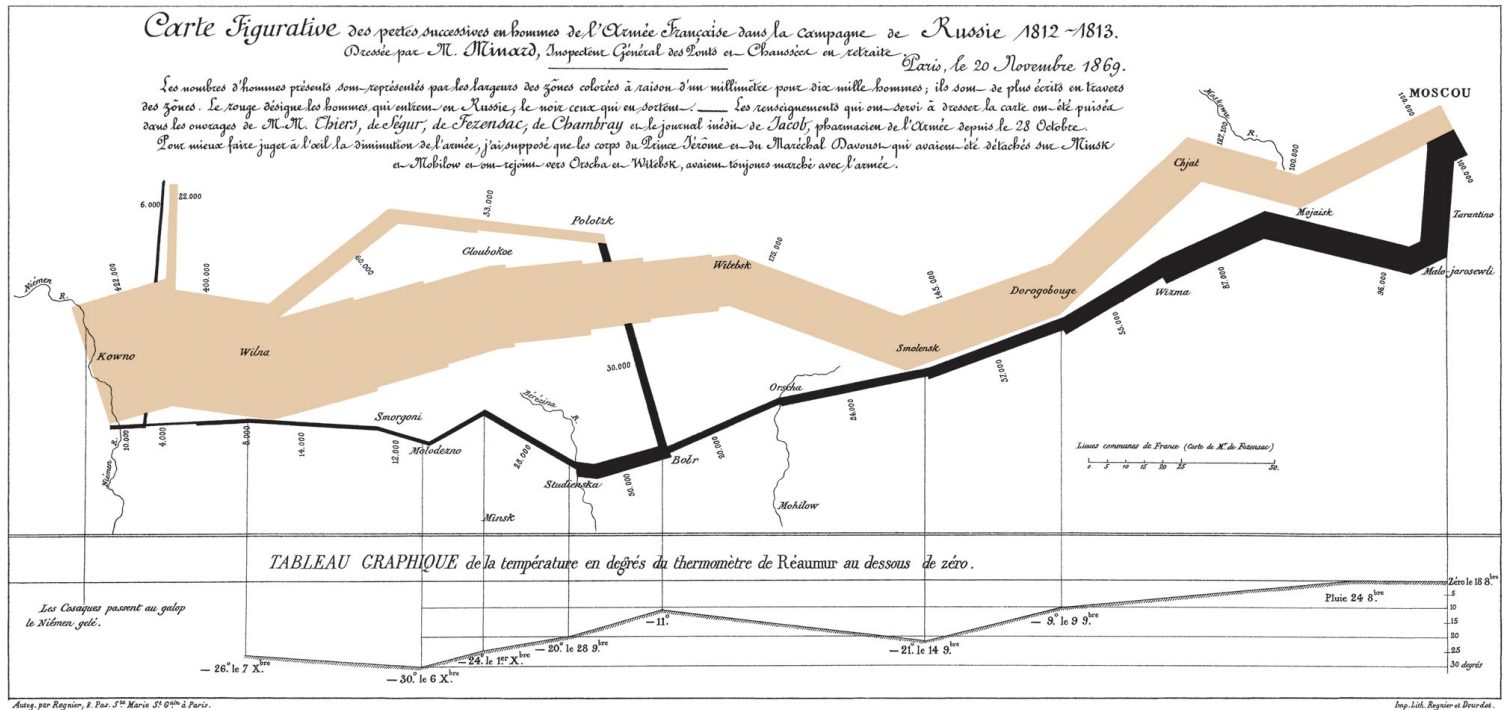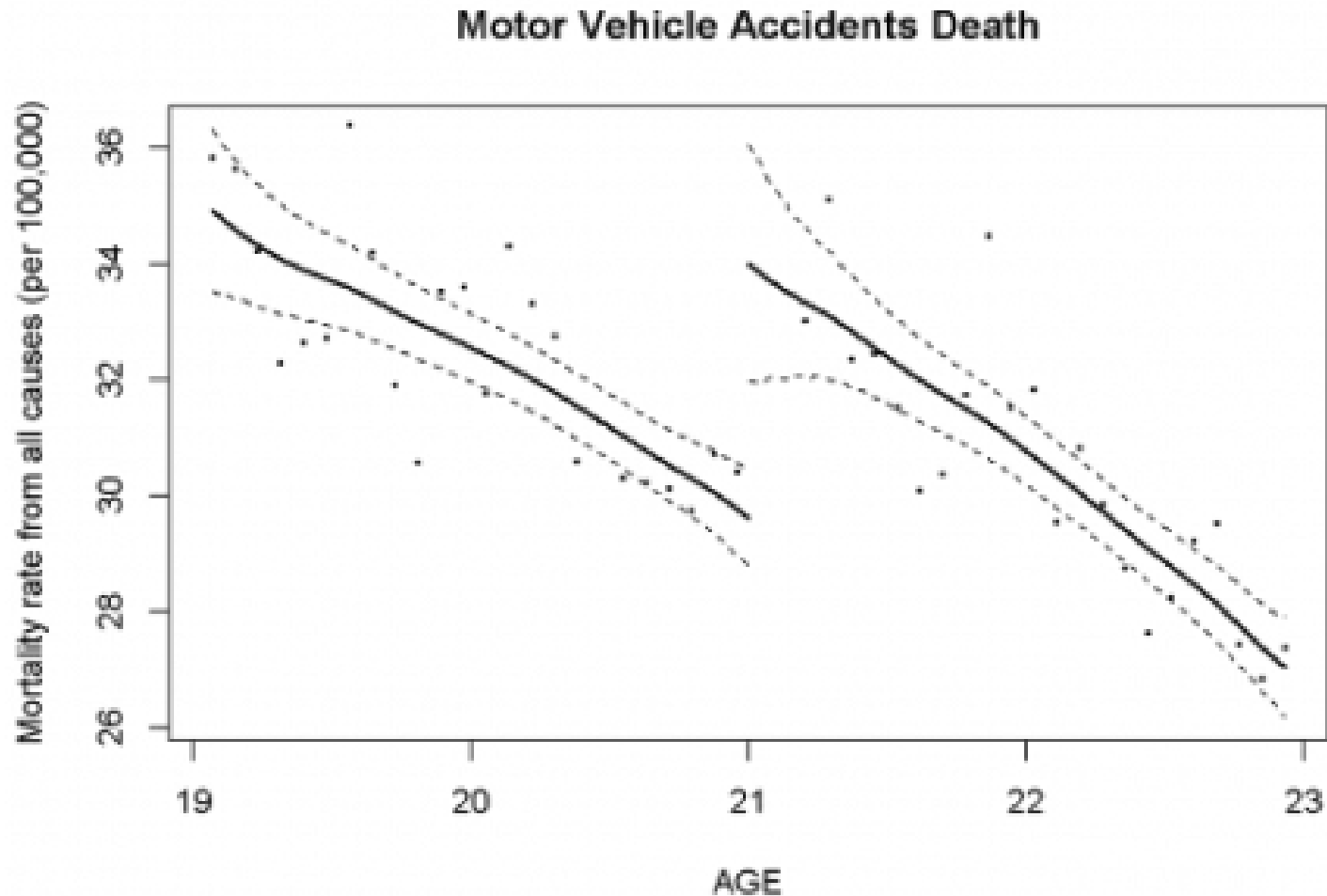
The Gallery of Good Charts

Tufte's Favorite Chart

Charles Minard's Map of Napoleon's Russia Campaign

Uncluttered, Clearly Integrates Data and Analysis

Motor Vehicle Accidents Death

Nice Use of Small Multiples (Facets)

2000: State-level support (orange) or opposition (green) on school vouchers, relative to the national average of 45% support

Orange and green colors correspond to states where support for vouchers was greater or less than the national average.
The seven ethnicreligious categories are mutually exclusive. "Evangelicals" includes Mormons as well as born-again Protestants.
Where a category represents less than 1% of the voters of a state, the state is left blank.

tidyverse+ggplot2