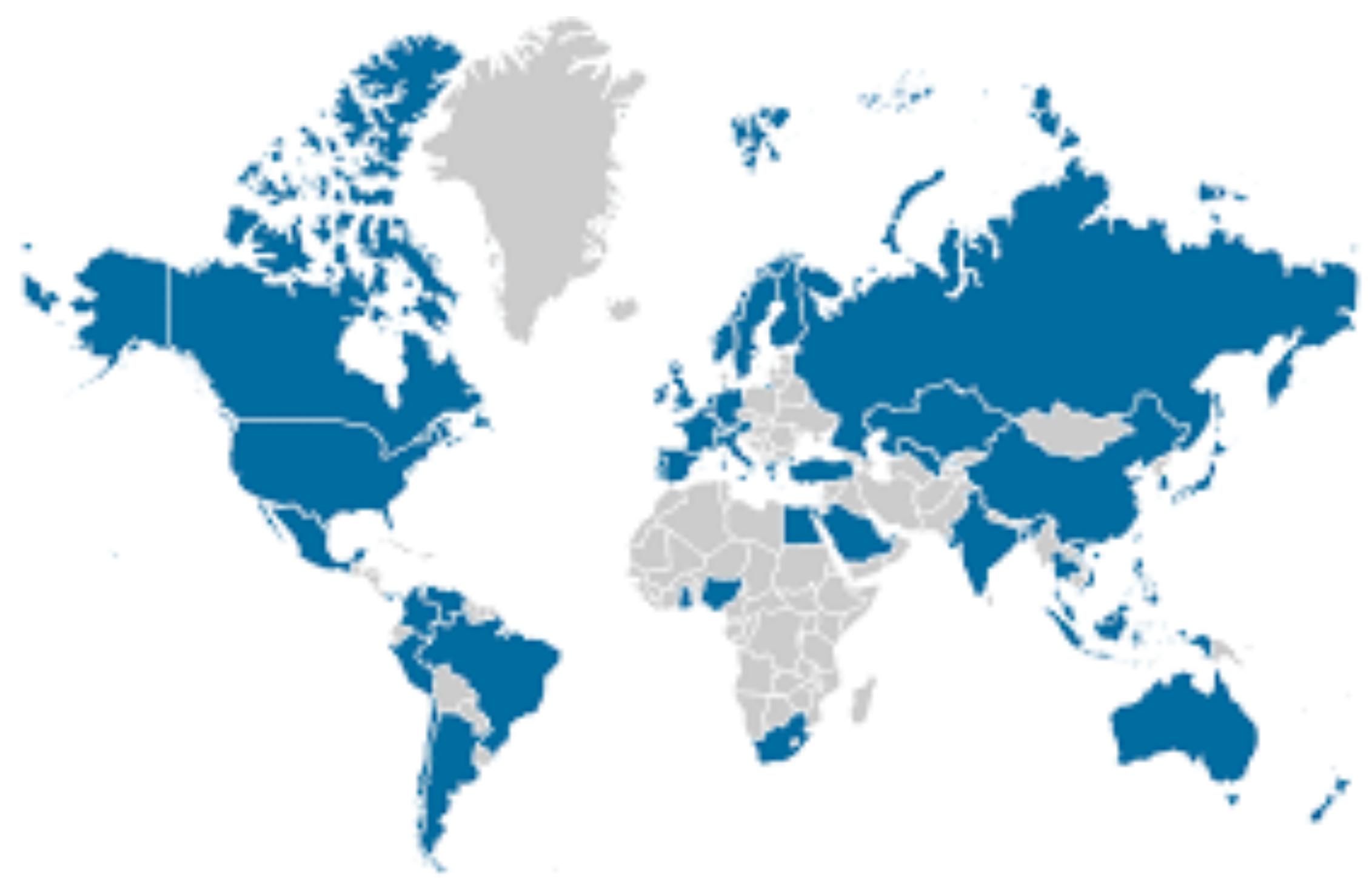


Data Visualization & Design

Week 5

Notes on **Assignment #1**



REQUIRES A DATASET TO RENDER



This week in **visualization** . . .

NASA's Opportunity Rover Dies on Mars

By JONATHAN CORUM FEB. 13, 2019

Opportunity bounced to a stop on the Martian surface in 2004 and roamed from crater to crater for 14 years.



A huge dust storm that wrapped around the planet last June covered the rover's solar panels and left engineers struggling for months to regain contact.

[Source](#)

1. **Ethics** of Data, Data Visualization, & Digital Storytelling
2. **Studio** (Exploring, Filtering, and Joining Data in Tableau)

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Example—

“U.S. Gun Deaths” by Periscopic

U.S. GUN DEATHS IN

2013 2010

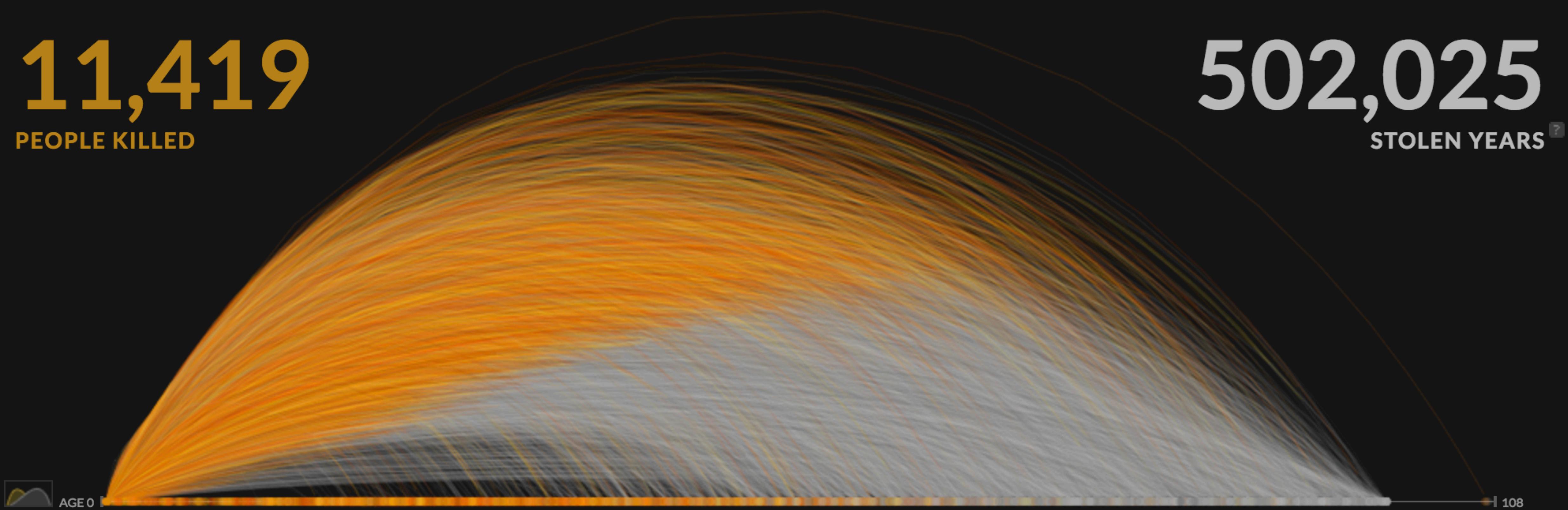
DECEMBER

11,419

PEOPLE KILLED

502,025

STOLEN YEARS 



AGE 0



Dataset **Construction** & Data **Analysis**

Before data becomes a visualization, it exists as a series of values that **purports to represent the world** in a formularized way.

One can collect (or construct) data about **anything**.

Data frequently takes the form of information about humans, on topics both seemingly **harmless** and potentially **harmful**.

Movie genre preferences in Europe and Asia

vs.

Immigration status of U.S. residents in a given neighborhood

Data Humanism

- We have a responsibility toward representing the information we have as accurately and transparently as we can.
- When it comes to analyzing or visualizing information that represents different aspects of the lives of individual people, this responsibility becomes even more pressing.
- Errors or carelessness in representation can give rise to more serious consequences.



ABOUT

RESOURCES

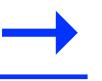
GET INVOLVED



RD 101: Responsible Data Principles



GUIDES / JANUARY 24, 2018



1. Power Dynamics

- "The least powerful actors in any situation are often the first to see unintended consequences of data collected about them."
- Always keep in mind that **a dataset represents the priorities of the party that had the means to collect that data**, and that just because it exists does not mean that the subjects represented willingly agreed to be represented.
- In a humanitarian crisis, for example, those collecting data about people experiencing the crisis have far more power than the people about whom the data is being collected. How might this affect the way the information is portrayed?

2. Diversity and Bias

- Data has blind spots.
- Consciously striving for diversity in methods, perspectives, and approaches sets the groundwork for thorough and resilient research efforts.
- Recognizing that a dataset is *not* objective (despite how formulaic it seems) is the first step to opening up a space for different voices and sources of information.
- **Do not take data at face value;** question where it comes from and why, and what it might be missing (or excluding).

3. Unknown Unknowns

- We can't *predict* the effect a project will have on its subject matter or its intended audience.
- Anticipating its potential consequences and thinking through ways of mitigating the negative ones are good places to start.

4. Precautionary Principle

- **Just because we can** use data in a certain way, doesn't necessarily mean we *should*.
- Consider what effect our representation of the world can have on the subjects we're representing (ex. Movie genres; race and income).
- Rather than point to a prescriptive way of handling data-driven research, this principle encourages us to question the implications of the decisions we make at every step.

5. Thoughtful Innovation

- The impulse to come up with a data-driven solution to an existing problem is enticing: when data is comprised of *actual numbers*, it seems to imply a similarly computable 'solution'.
- When creating something new, thoughtfulness and consideration are just as important as speed and sound equations.
- **Questions to ask:**
 - Is the solution you propose the only way to solve the problem you want to tackle?
 - Is the data you are working with reliable and representative enough to serve as material?

Data Representation

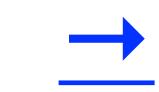
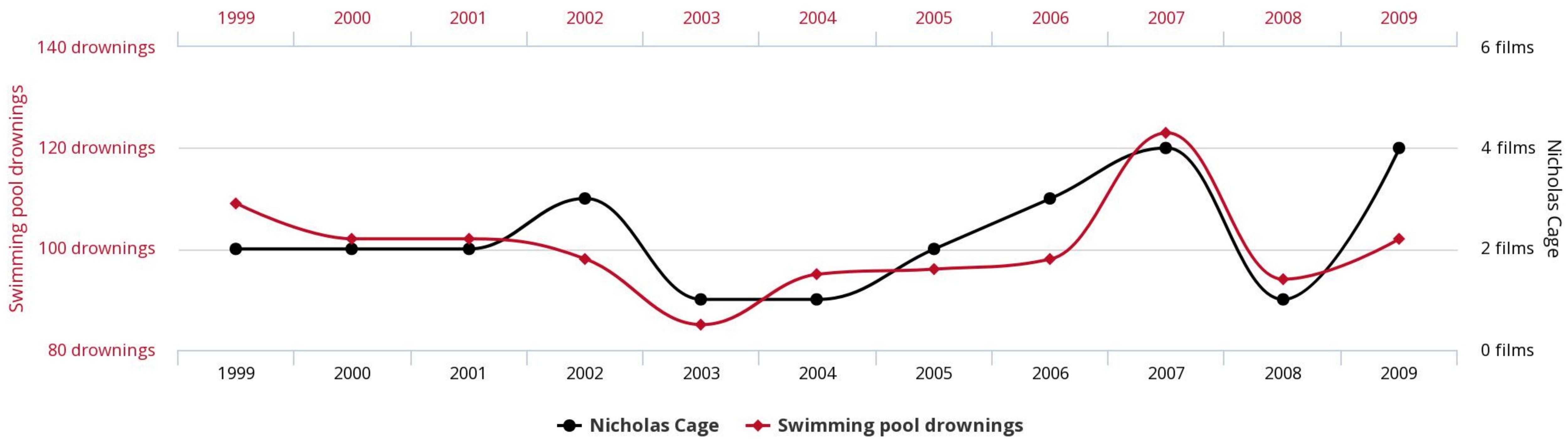
Much of twentieth century thinking about statistical graphics has been preoccupied with the question of how some amateurish chart might fool a naive viewer.

– Edward Tufte

Number of people who drowned by falling into a pool

correlates with

Films Nicolas Cage appeared in



This makes sense!

- Well-constructed visualizations make complex information seem simple.
- Clean charts, beautiful maps, and detailed infographics combine what looks like rigorous, objective research with polished design.
- Data graphics evoke a sense of **implicit authority**, in part due to the regimented format associated with data as a medium.
- Tufte is right—**charts can spread *misinformation*** just as easily as they can spread information.

However, there is **something else** at work when we consider the data graphic as an artifact.

While charts and graphs are well-positioned to distort information for a viewer, **why do we expect more fidelity from a data graphic** than we might from, for example, a political cartoon?

*Vision in this technological feast becomes unregulated gluttony; all perspective gives way to infinitely mobile vision, which no longer seems just mythically about the god-trick of **seeing everything from nowhere**, but to have put the myth into **ordinary practice**.*

– Donna Haraway

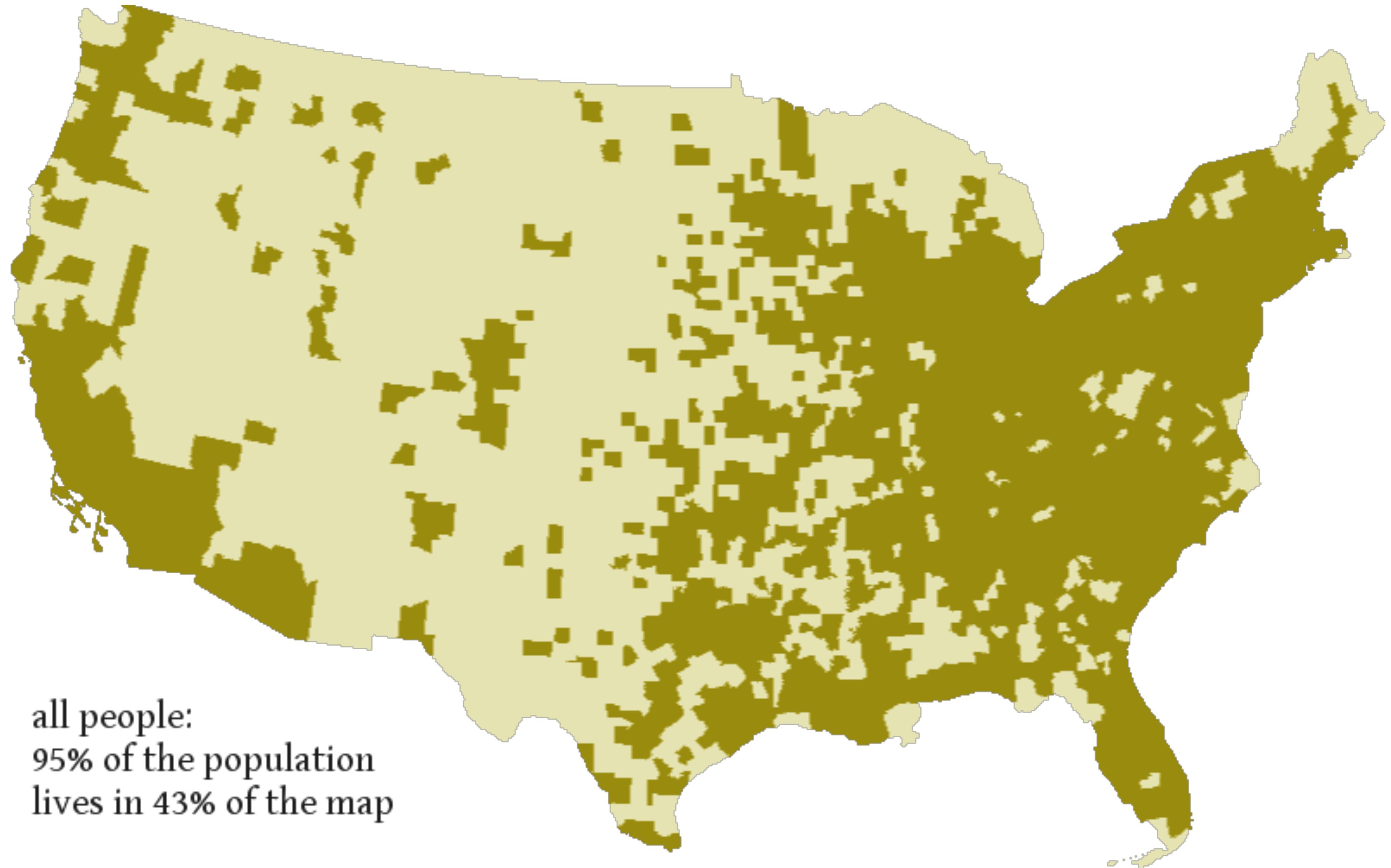


- To Haraway, the "god-trick" is at work in visualizations that grant the viewer an **impossible, disembodied perspective of the world**.
- This kind of perspective makes its subject matter seem like it **simply came into being**, as an effect of the data behind it—the same data that was structured and collected by an individual or an organization, and rendered by a designer in an evocative portrayal.
- Seeming authority that arises from designer's transition from creator to 'translator.'

Authorship displaced by **apparent
automatism.**

Joshua Tauberer—

“How that map you saw on FiveThirtyEight silences minorities, and other reasons to consider a cartogram”



all people:
95% of the population
lives in 43% of the map

“...for every pixel that represents a white person,
only 0.53 pixels represent a racial minority.”

Small & Impactful Considerations

- Always include a *legend* that describes your visualization method and the **units you are using**
- Always list your *data source(s)*
- Always *credit* any externally-sourced graphics or images
- Always list *yourself* as the author

Thesis

|

Supporting arguments

|

Conclusion

1. **Ethics** of Data, Data Visualization, & Digital Storytelling
2. **Studio** (Exploring, Filtering, and Joining Data in Tableau)

[https://github.com/emilyfuhrman/
datavis_design](https://github.com/emilyfuhrman/datavis_design)

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