

Data Visualization: Visualization with Purpose - Data Visualization as Advocacy

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$ echo "Data Science Institute"
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In this class we will...

- Explore examples and ideas behind data visualization as used for advocacy
- Discuss how, through form, representation, and credit, we can put advocacy into practice with our own data visualizations

Data visualization *for* advocacy

Throughout this course, we have encountered several examples of data visualization used for advocacy

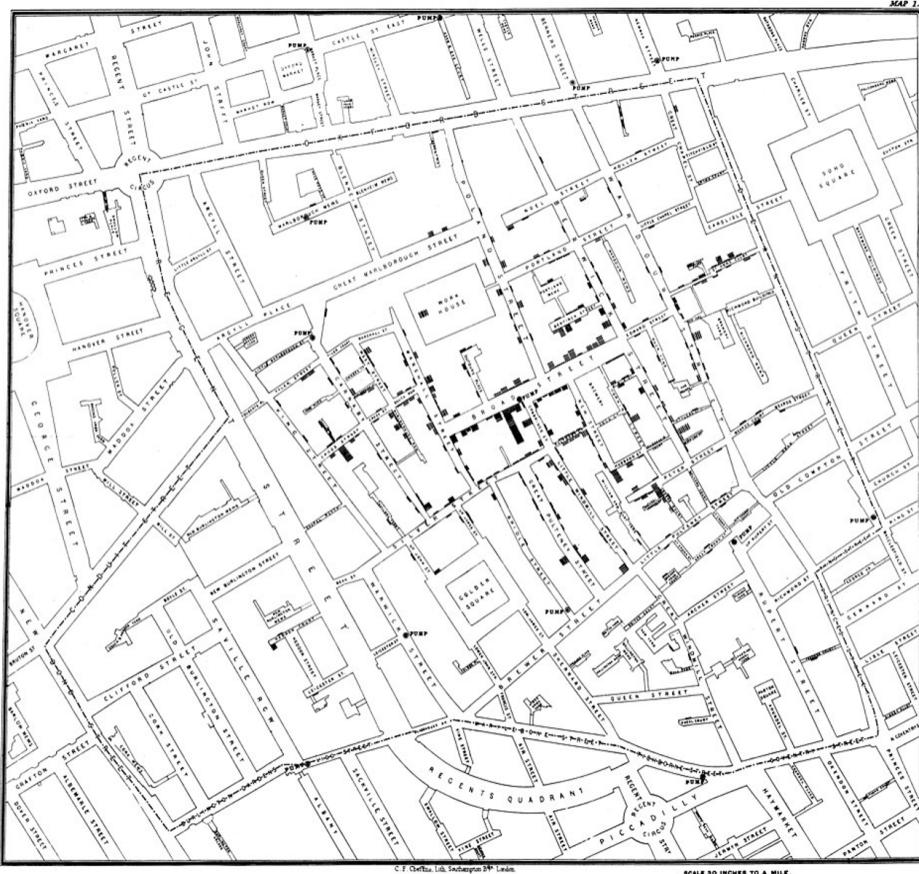
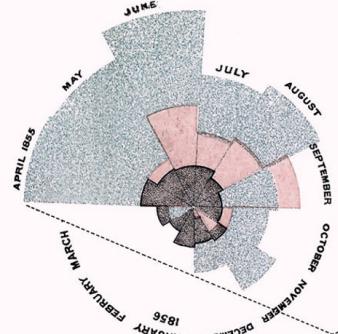
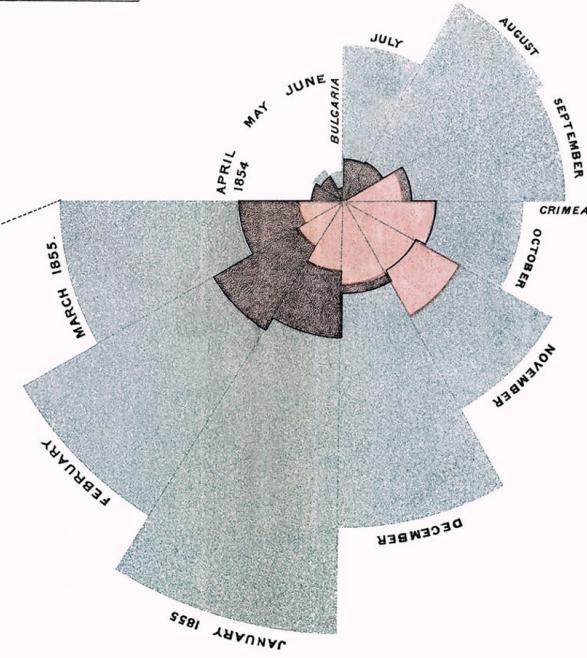


DIAGRAM OF THE CAUSES OF MORTALITY IN THE ARMY IN THE EAST.

2.
APRIL 1855 TO MARCH 1856.



1.
APRIL 1854 TO MARCH 1855.



The Areas of the blue, red, & black wedges are each measured from the centre as the common vertex.

The blue wedges measured from the centre of the circle represent area for area the deaths from Preventible or Mitigable Zymotic diseases, the red wedges measured from the centre the deaths from wounds, & the black wedges measured from the centre the deaths from all other causes. The black line across the red triangle in Nov^r 1854 marks the boundary of the deaths from all other causes during the month.

In October 1854, & April 1855, the black area coincides with the red; in January & February 1856, the blue coincides with the black.

The entire areas may be compared by following the blue, the red & the black lines enclosing them.

 source

Data visualization for advocacy

- Each of these examples is a case of data visualization being used as a tool for **advocacy**, that is, in support of some cause or goal
- Understanding the logic behind data visualization for advocacy is useful whether we want to use data to advocate for a cause, or to critically engage with data visualizations used by advocacy groups

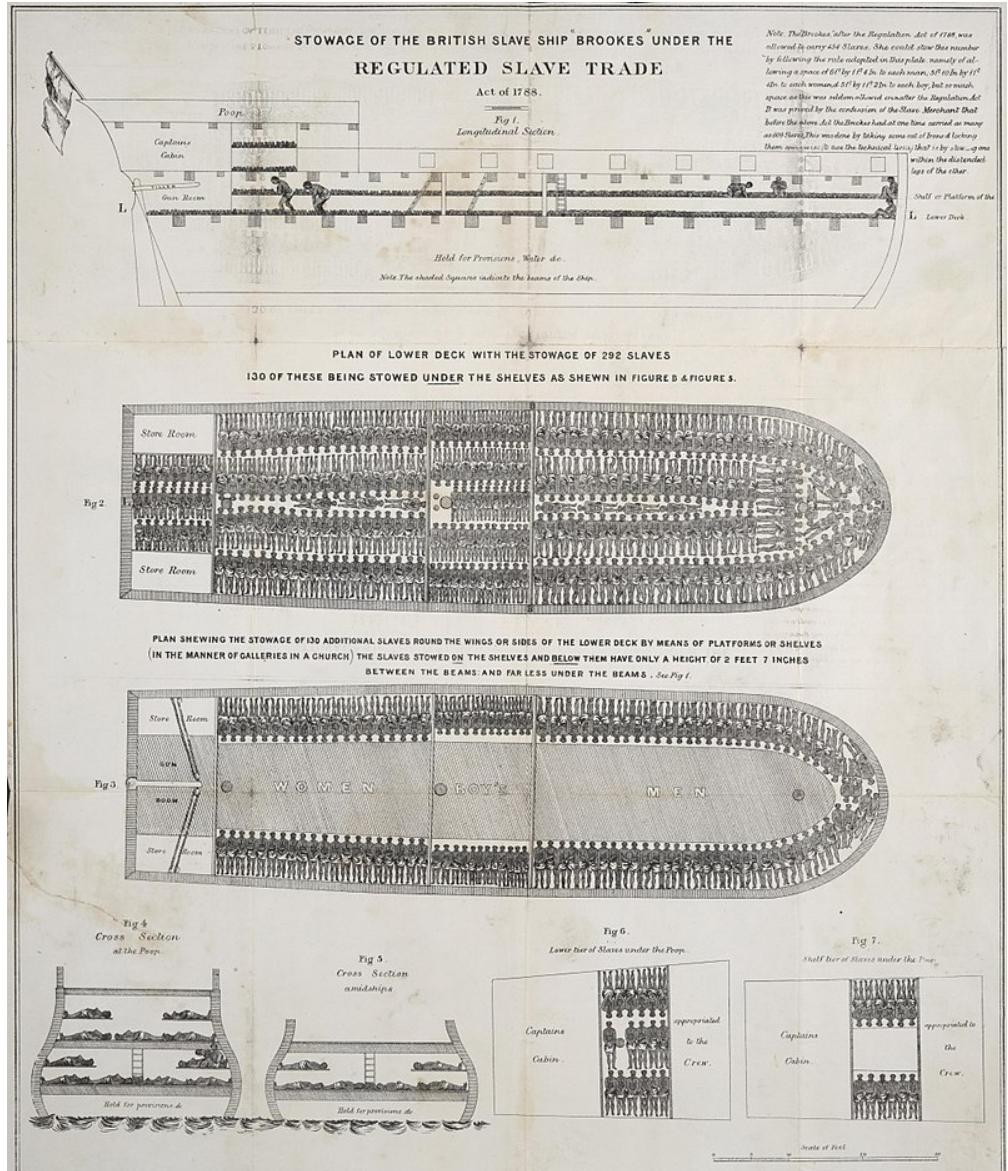
Three elements of persuasion

- The Tactical Technology Collective ([2013](#)) points out that effective data visualizations for advocacy adapt and make use of Aristotle's three modes of persuasion:
 - **Rational appeal** - idea that giving people access to the facts will let them make the 'right' conclusion
 - **Moral appeal** - appealing to the audience's moral values and ethical convictions
 - **Emotional appeal** - producing and exploiting emotional reactions (e.g. empathy, compassion)

Activity: Persuasive visualization

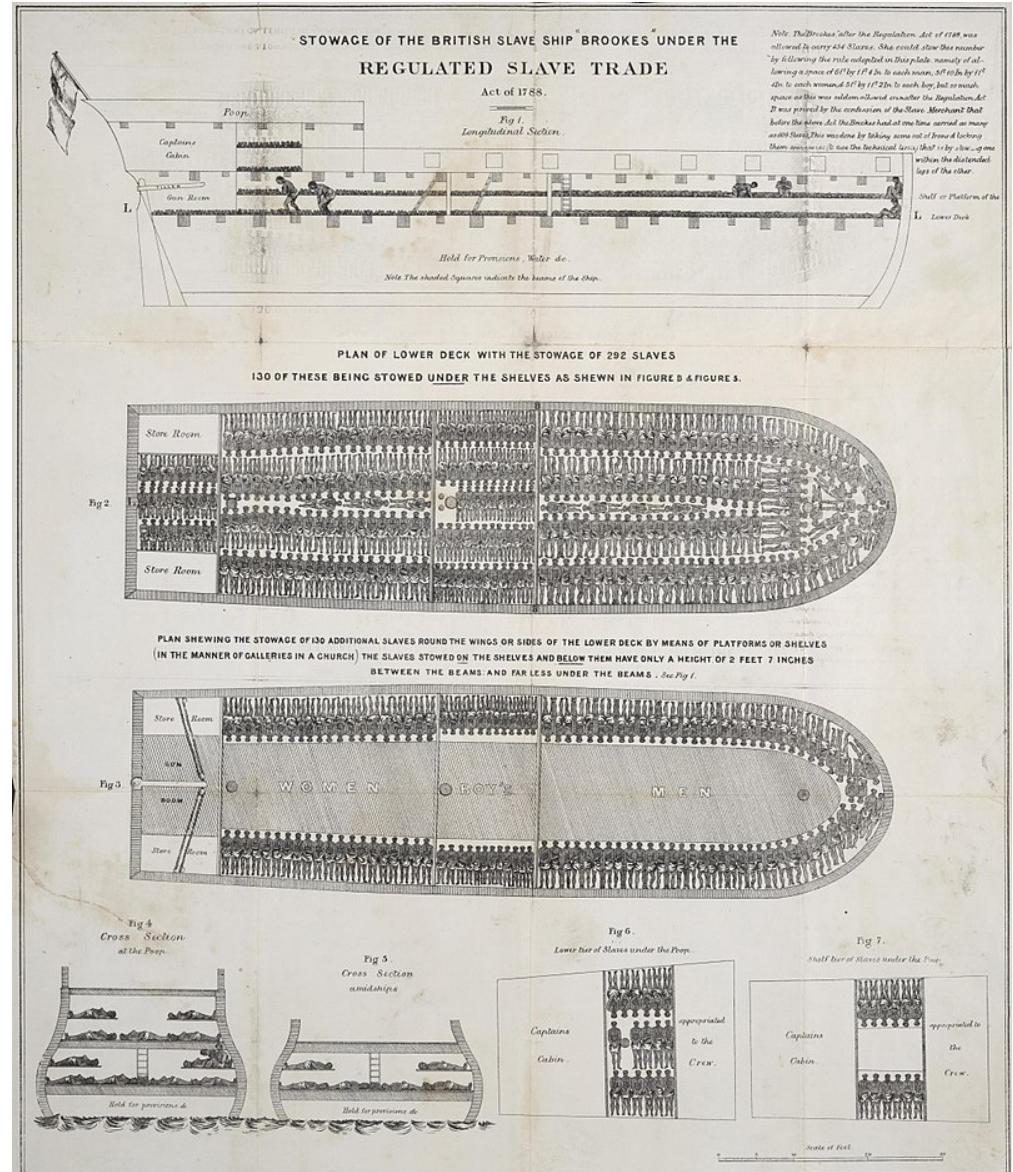
Activity

- This diagram of the ship *Brooks* was presented as testimony in the British Parliament to demonstrate the inhumane conditions aboard ships used by the transatlantic slave trade



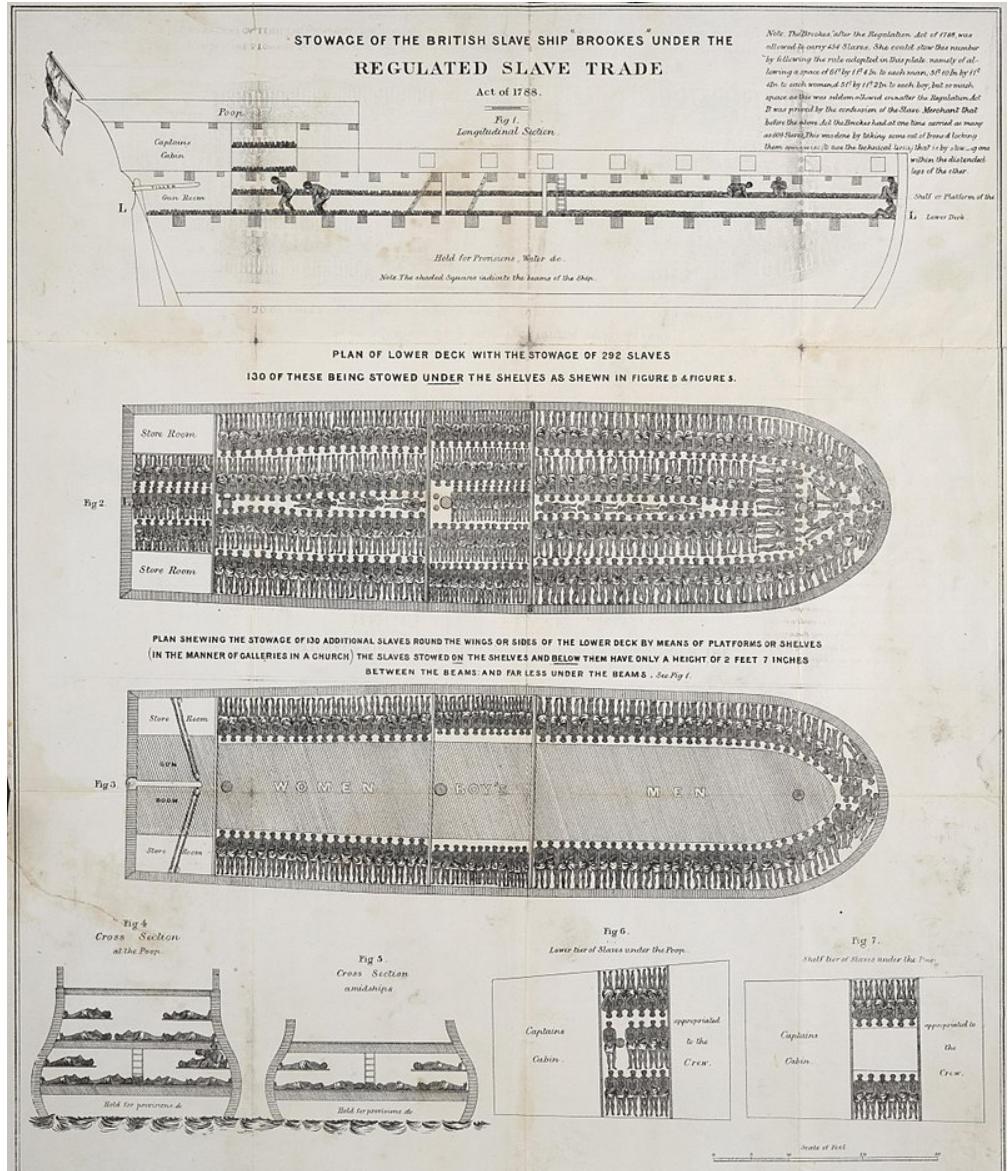
Activity

- The diagram, showing the conditions under which people were kept crowded in cargo holds for months at a time, "seemed to make an instantaneous impression of horror upon all who saw it", supporting demands for abolition



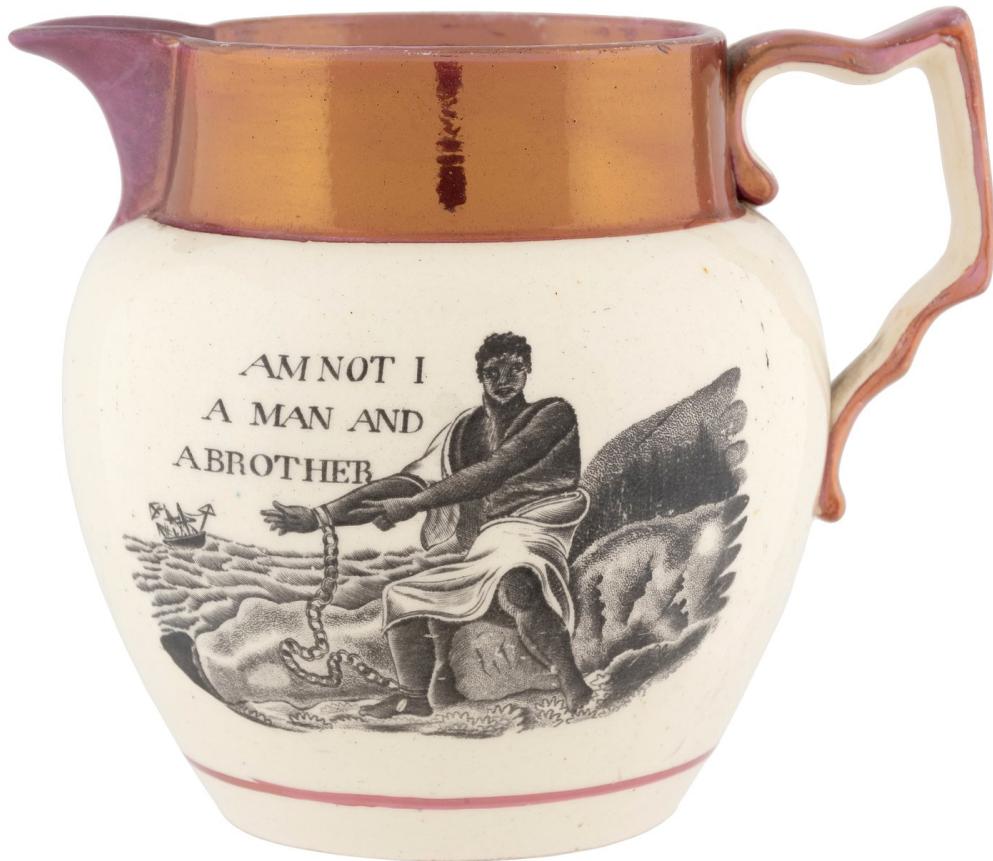
Activity

- How did this diagram of the Brooks use rational, moral, and emotional appeal to make a case to its audiences?
- (Larger image [here](#))



Different visual, same message

- At the same time that the Brooks diagram was being circulated, abolitionists also had slogans and art printed on dishware
- Rather than sharing facts, these objects were intended to provoke outrage and action in solidarity



Two functions of data visualization for advocacy

- These examples, respectively, are examples of two functions of data visualization for advocacy:
 - **Presentation** - describing and depicting the facts
 - **Representation** - subjectively depicting ideas using metaphor, analogy, and allegory
- Most visuals for advocacy use both, but we should understand them as distinct elements so that we can recognize the extent to which a visual uses one or the other

“Having heard all of this you may choose to look the other way, but you can never again say that you did not know.”

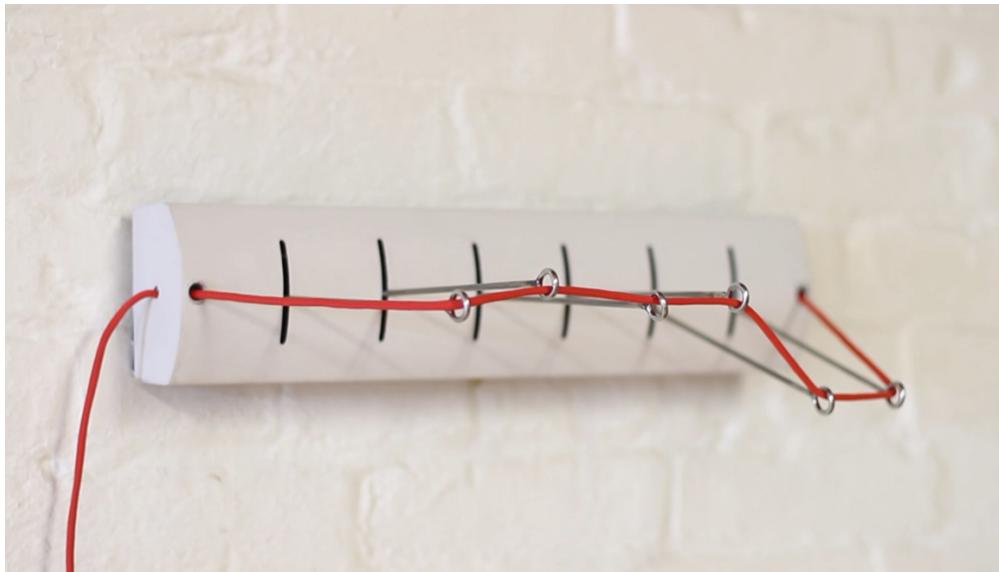
(Tactical Technology Collective, 2013)

Data visualization as advocacy

Form: What can data visualization be?

- So far, the examples of data visualization that we have seen and discussed have been almost exclusively print or digital images
- Data visualization via non-traditional form and medium is a newer area, but one with exciting possibilities for both accessibility and social impact

Pulse (2012) by Jon McTaggert and Christian Ferrera



(🔗 The Video)

Watermarks (2009) by Chris Bodle



 [source](#)

“Untitled” (Ross) (1991) by Felix Gonzalez-Torres



 [source](#)

Representation: What data are we seeing?

Recall: Data visualizations are **rhetorical objects**, because in making them, we make choices about how to select and represent aspects of reality

- A major aspect of this choice is choosing which data to collect and translate into visual form; reproducibility helps us to understand and trace the data we see in graphics
- Just as important, but often overlooked: **which data aren't we seeing?**

Representation: What data are we seeing?

- The ways that we collect data impact and limit the ways that we can later visualize those data
 - A binary 'gender' variable means excluding nonbinary identities from our dataset
 - Maternal mortality data are collected from all over the world, but data on other aspects of women's lives are **overlooked**
- "What gets counted counts"... but what about the things we do not or cannot count?

Representation: What data are we seeing?

- Data, defined broadly, can include “[words or stories, colors or sounds, or any type of information that is systematically collected, organised and analysed](#)”
- While visualizing data, we should question the ways in which our work incorporates or excludes less conventional kinds of data, including stories, artwork, and testimonials of lived experience; and the ways that these exclusions can enforce existing power structures

Credit: Data visualization as the tip of the iceberg

- The Diverse Economies Iceberg ([2017](#); click to view larger image) displays the idea of '**underwater labour**', or the idea of work such as caregiving or domestic labour as essential to wage labour, but often unacknowledged



Credit: Data visualization as the tip of the iceberg

- D'Ignazio and Klein ([2020](#)) relate the idea of underwater labour to data visualization
- How many unseen contributions does it take for a data visualization to exist in its final form? Think of:
 - Community organizers who facilitated data collection
 - Designers creating colour palettes for visualizations
 - Technical writers creating alt-text and image descriptions
 - Student research assistants who recorded the data
 - IT support staff who help host the visualization online
 - Caregivers for children during project work



Credit: Data visualization as the tip of the iceberg

- Data visualization is the product of a particular **data setting** and of the work people do within that setting
- By crediting all contributors, we can make the underwater labour of data visualization visible and valued

Next...

- Building on matplotlib basics to explore other libraries for dataviz in Python
 - Seaborn
 - Interactive viz
 - Maps
 - Wordclouds/diagrams