

# Data Visualization: Visualization with Purpose - Data Visualization as Advocacy

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$ echo "Data Science Institute"
```

# Agenda for today

- Go through slide deck #8: Data viz as advocacy
- Go through slide deck #9: Beyond matplotlib

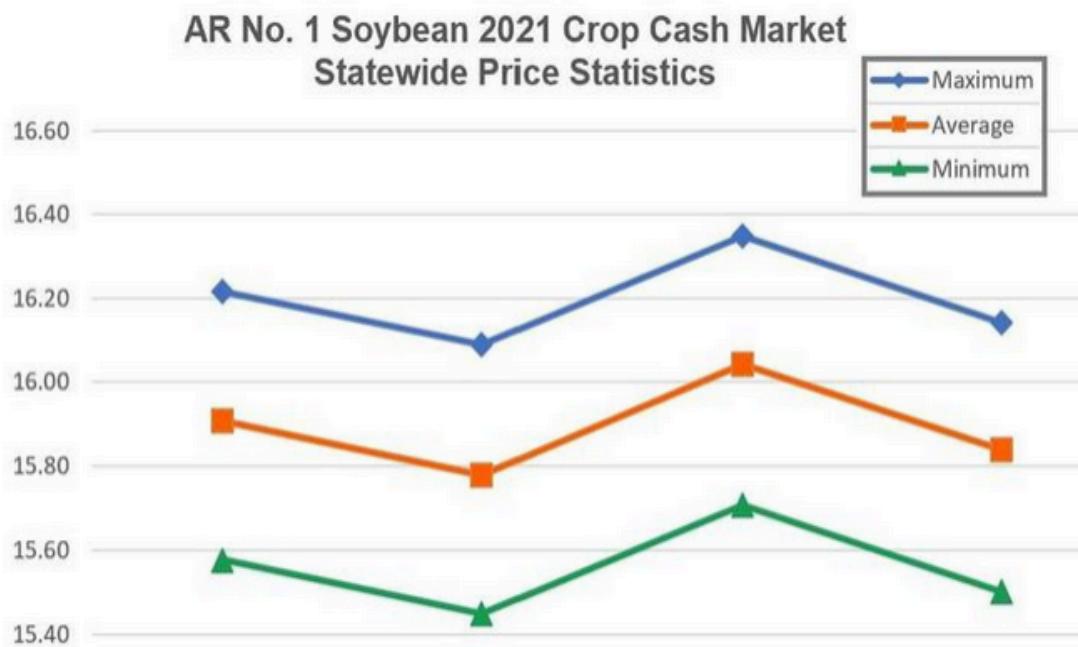
# Review feedback from last time

# Feedback: Examples of accessible viz

- Conveying mean with shape differences:

## Example 1 - Shape Differences

The colored lines also have shape differences (diamond, square, triangle) to identify them.

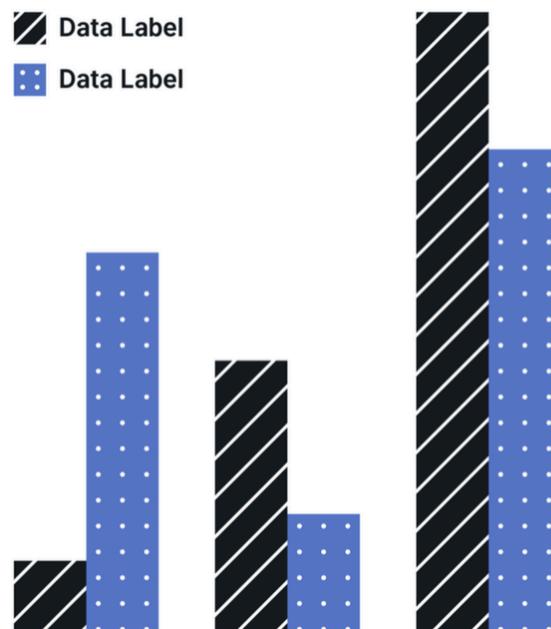


# Feedback: Examples of accessible viz

- Convey meaning with patterns:

## Example 2 - Pattern Differences

The columns have different patterns to help distinguish beyond just color.



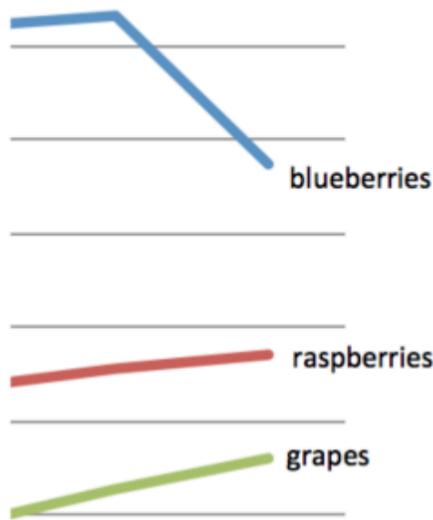
Credit: [Zach Grosser - Accessible Colors for Data Visualization](#)

# Feedback: Examples of accessible viz

- Convey meaning with direct labelling

## Example 3 - Direct Labeling

If possible, use "direct labeling" - position the label directly beside or adjacent to the data point.



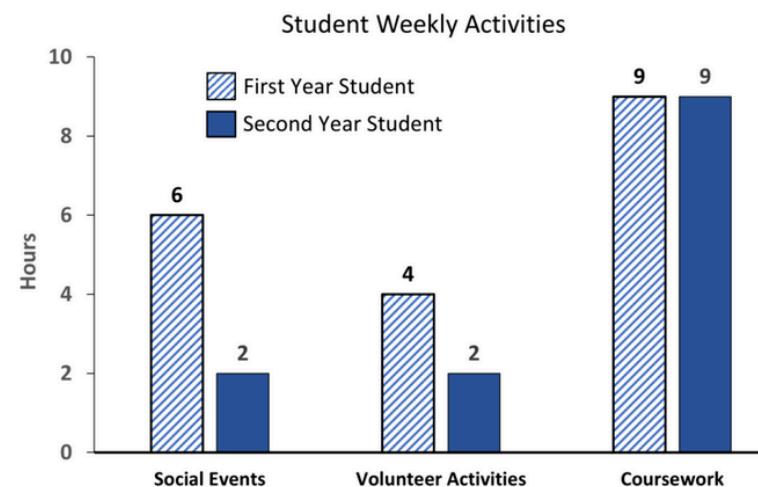
Credit: [storytelling with data](#).

# Feedback: Examples of accessible viz

- Example of vis with chart descriptions

## Example 6 - Chart Description

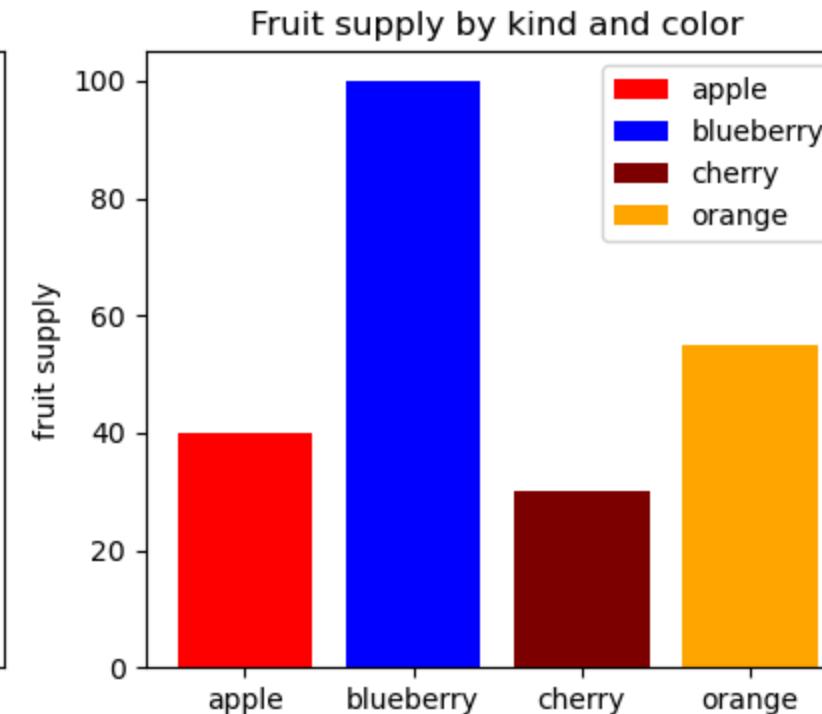
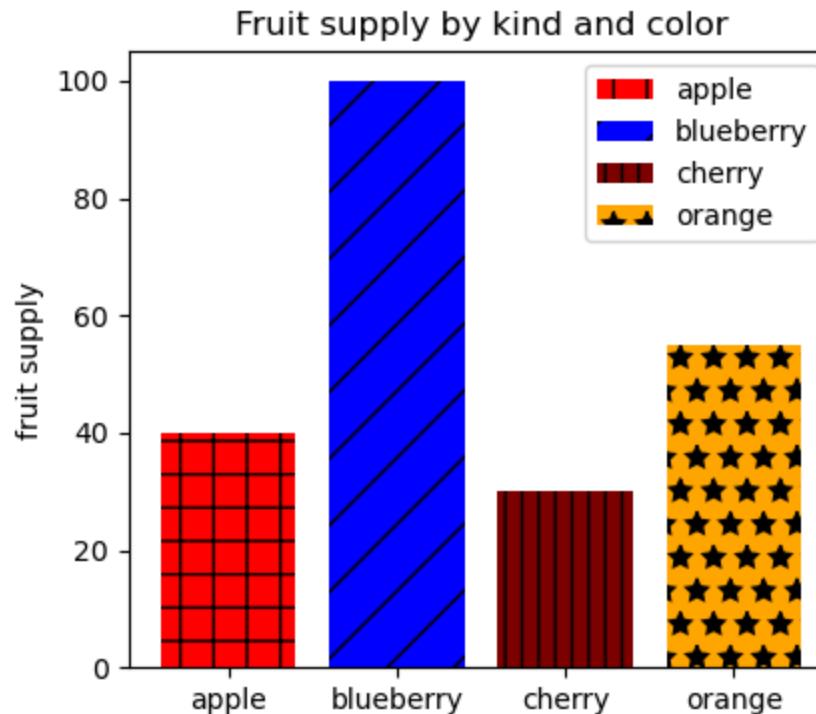
Consider providing a link to a longer description or include it adjacent to the chart in a collapsible section.



- Weekly Activities for 1st and 2nd Year Students measured in hours.
  - Social Events - First Year 6 hours, Second Year 2 hours.
  - Volunteer Activities - First Year 4 hours, Second Year 2 hours.
  - Coursework - First Year 9 hours, Second Year 9 hours.

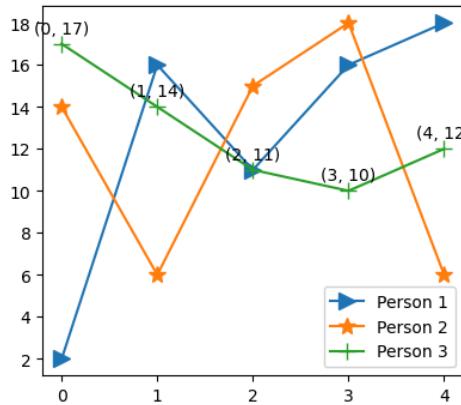
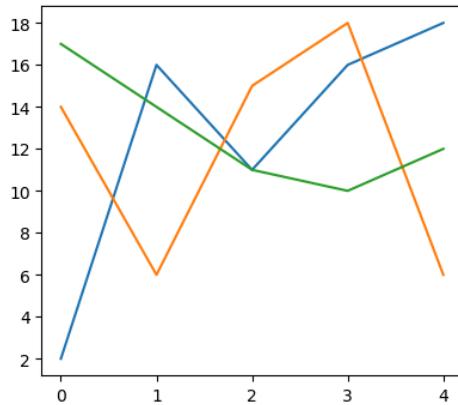
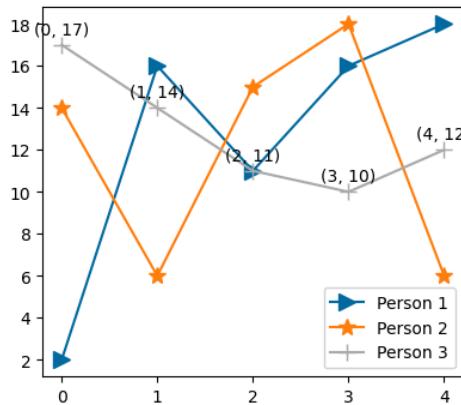
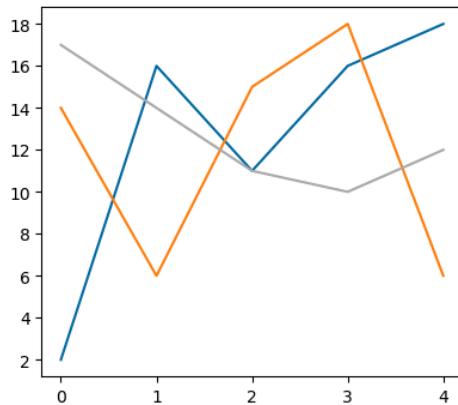
# Feedback: Demo of making accessible viz

- Adding patterns with matplotlib (see code pushed for this under: 04\_cohort\_dc\live\_code on github)



# Feedback: Demo of making accessible viz

- Setting styles and markers (see code pushed for this under: 04\_cohort\_dc\live\_code on github)

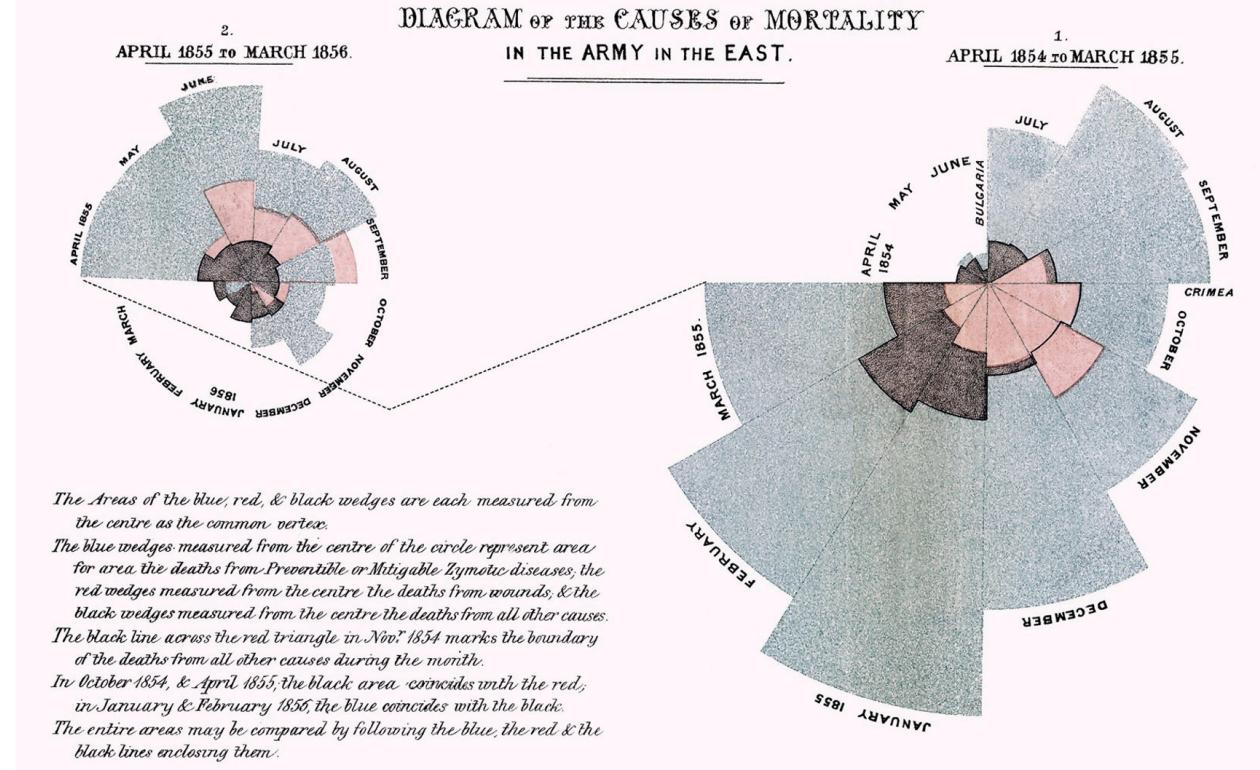
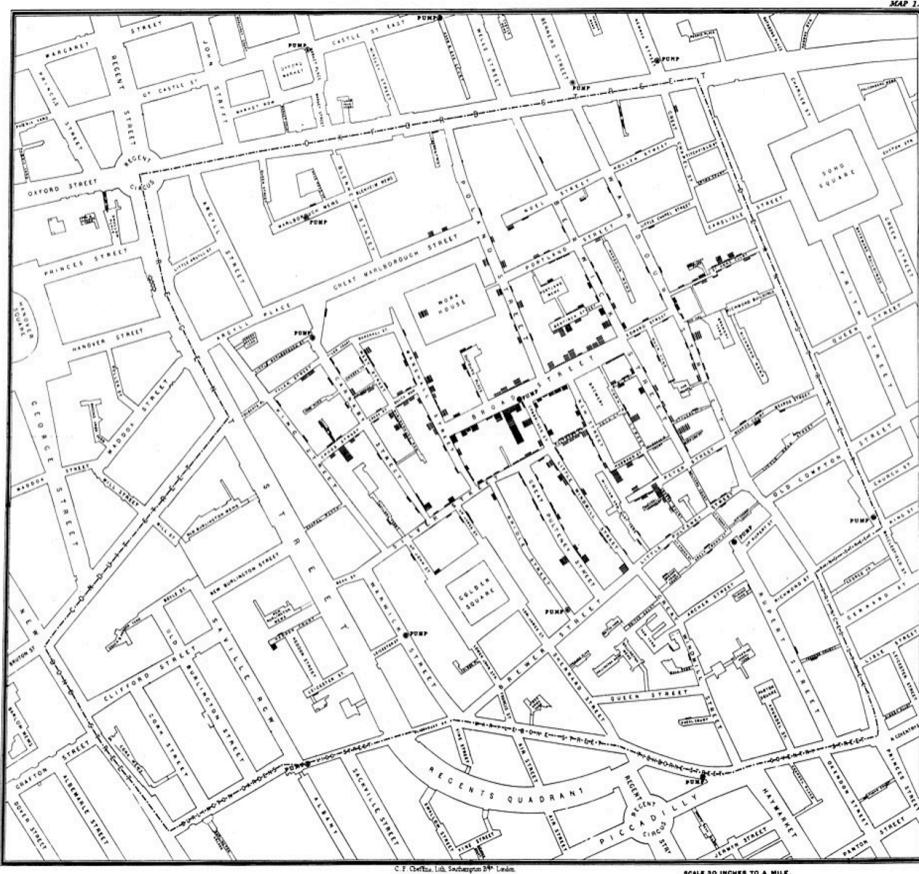


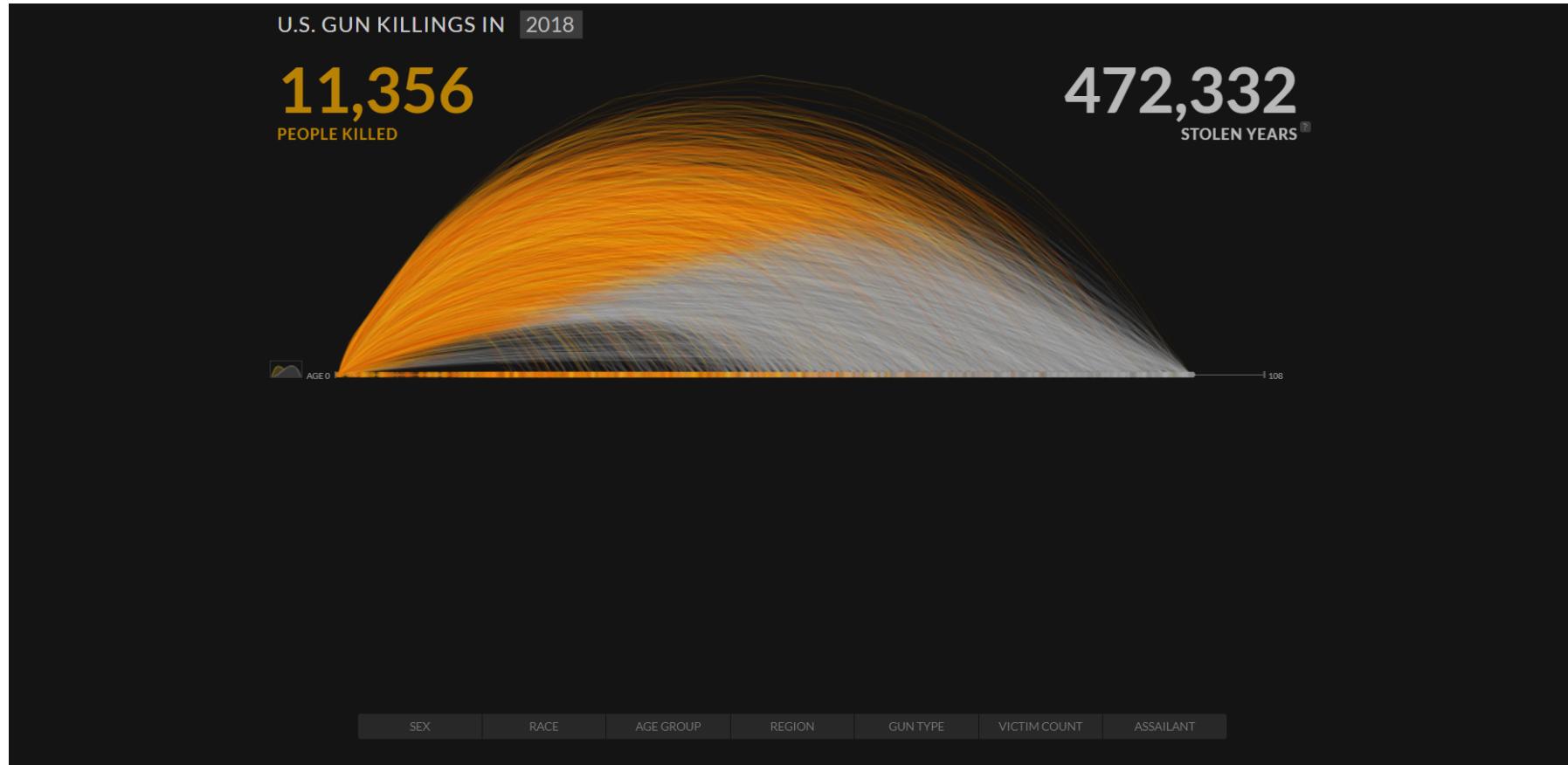
# Overview of this slide deck, we will...

- 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





[!\[\]\(98b0d0ccc757b6bc0d84eb54a134e84b\_img.jpg\) 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

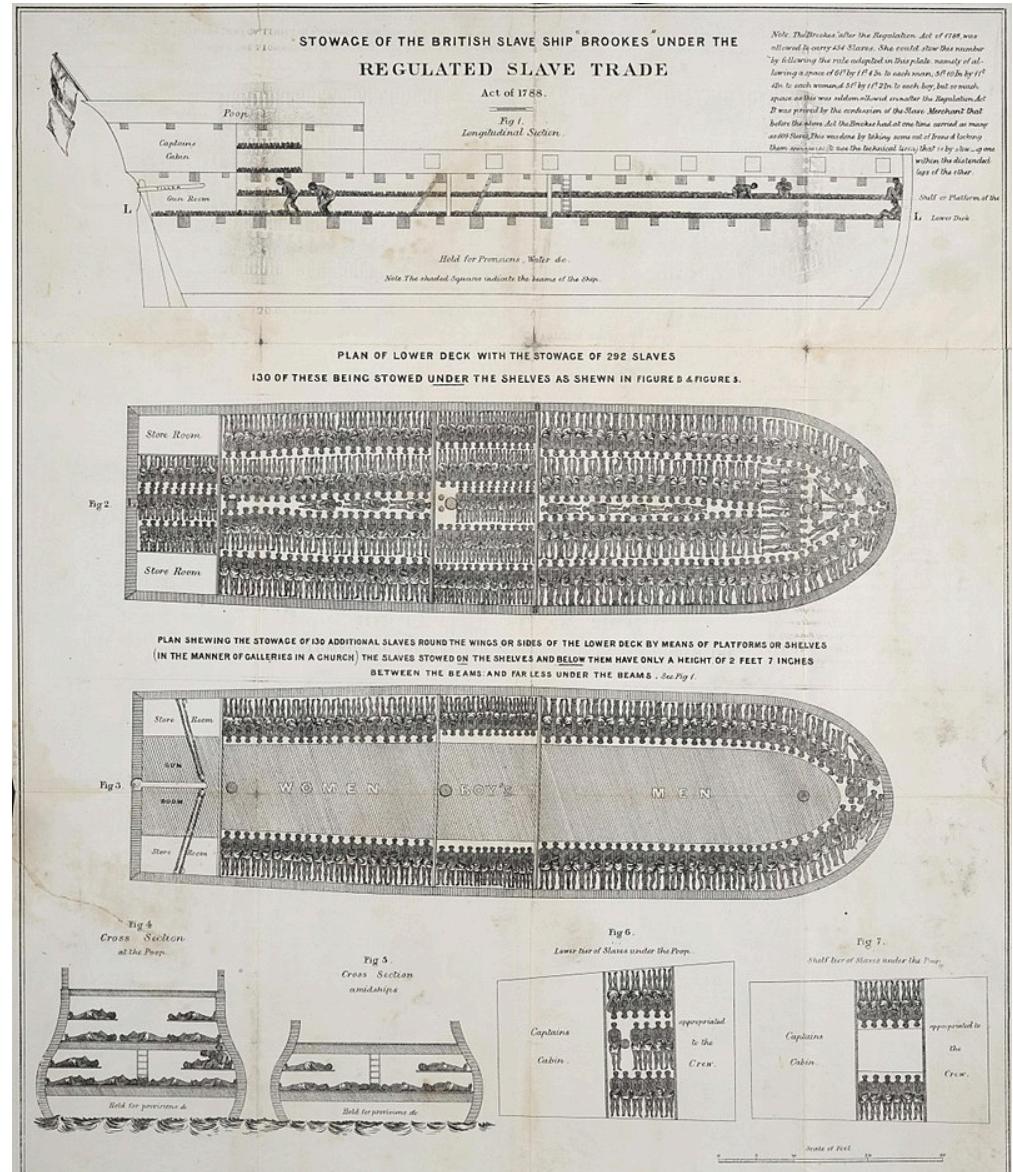
# Three elements of persuasion

- 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**

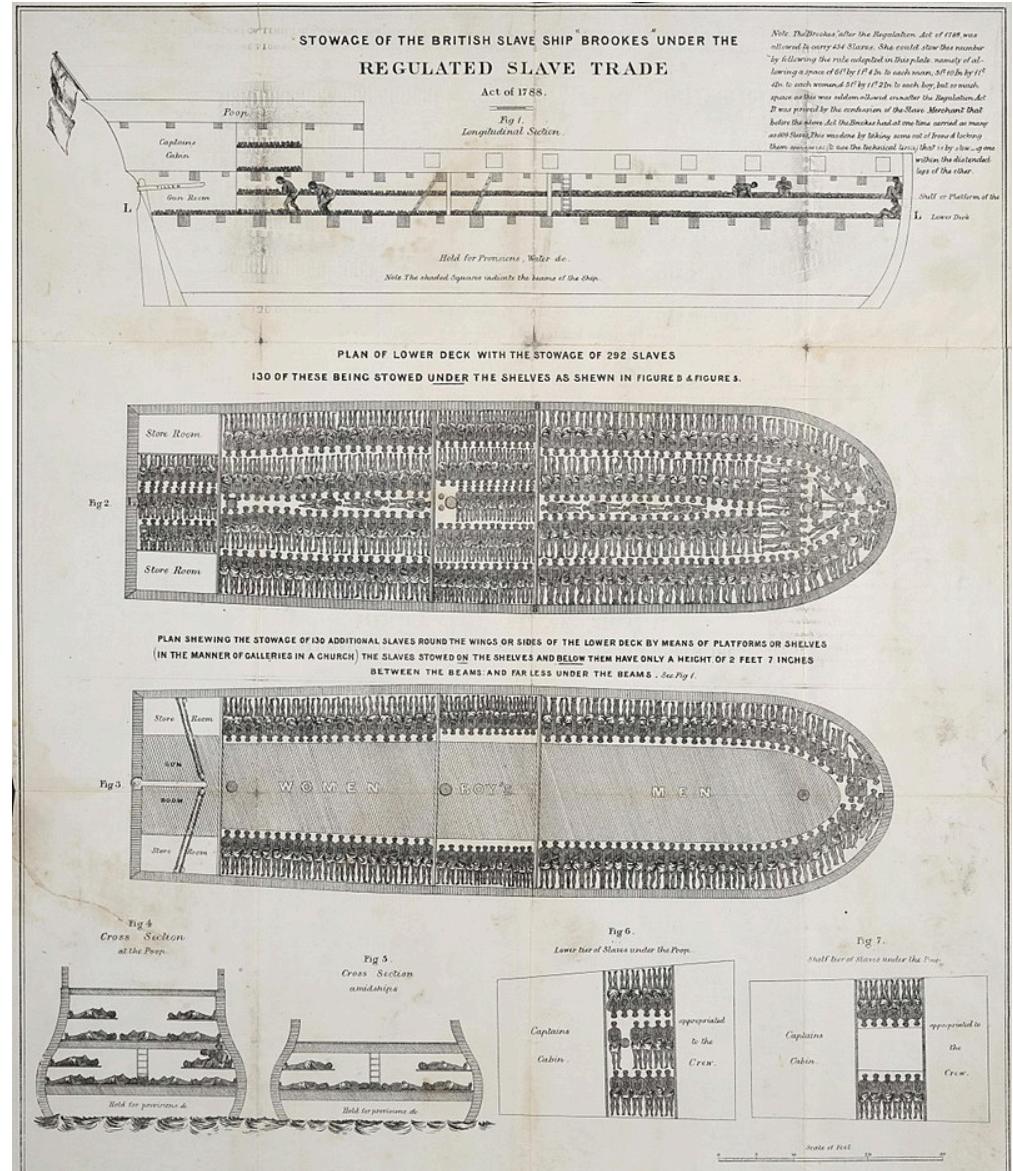
# Activity

- 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



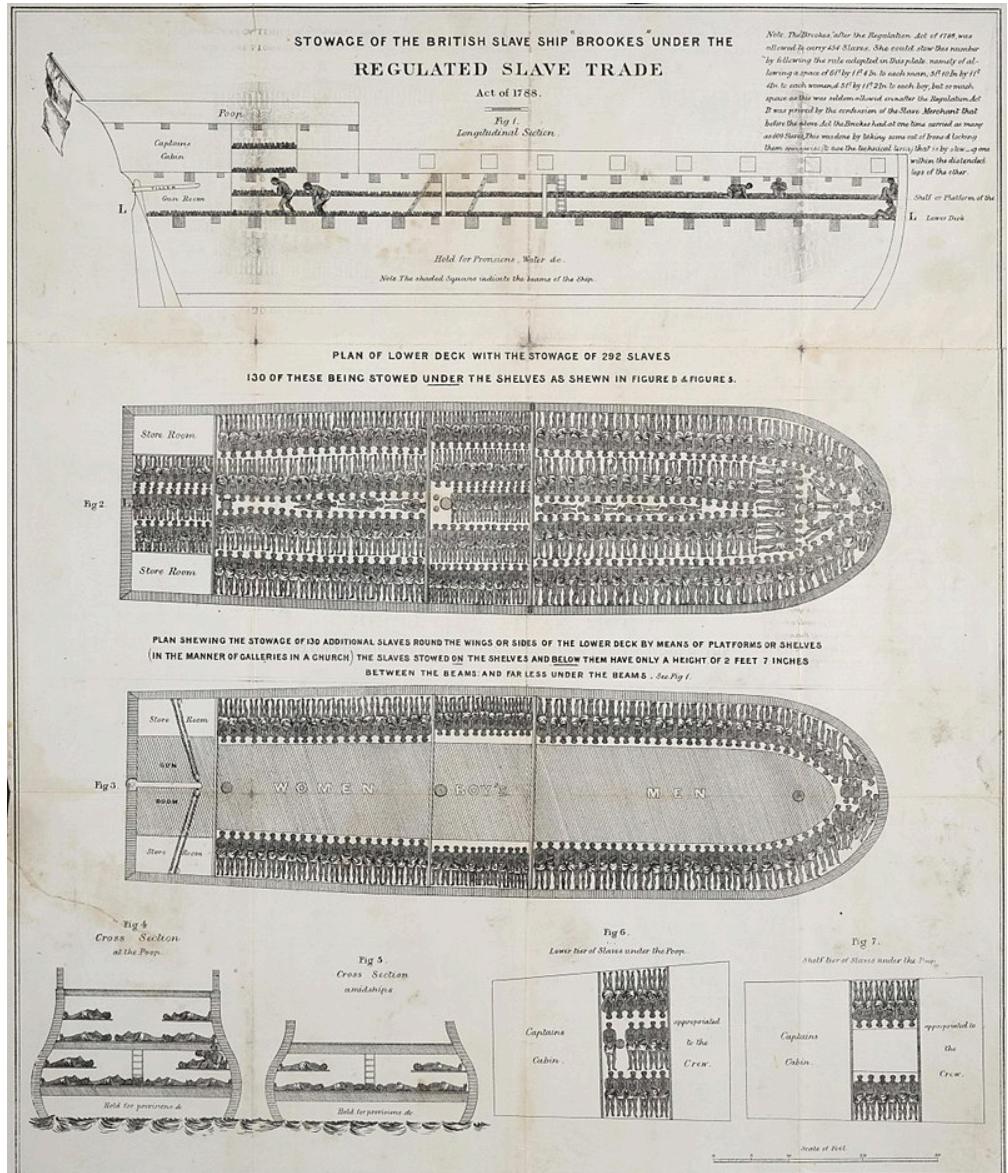
# Activity

- 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.”**

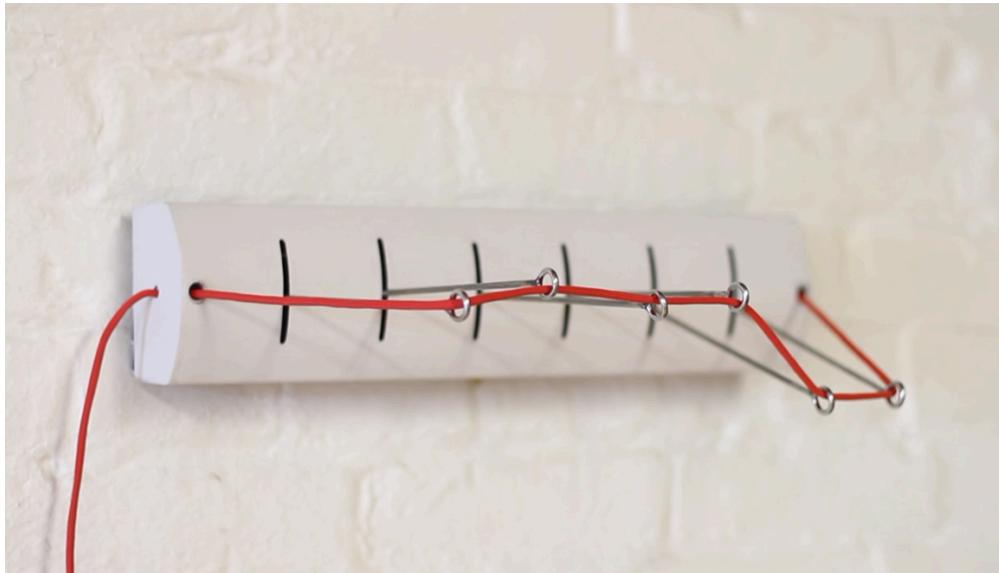
(Tactical Technology Collective, 2013)

# 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*



[!\[\]\(9ec46ccf39110b98e9de4be0362c59b6\_img.jpg\) 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, organized and analyzed](#)”
- 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