

Data Visualization

Visualization with Purpose: Data Visualization as Advocacy

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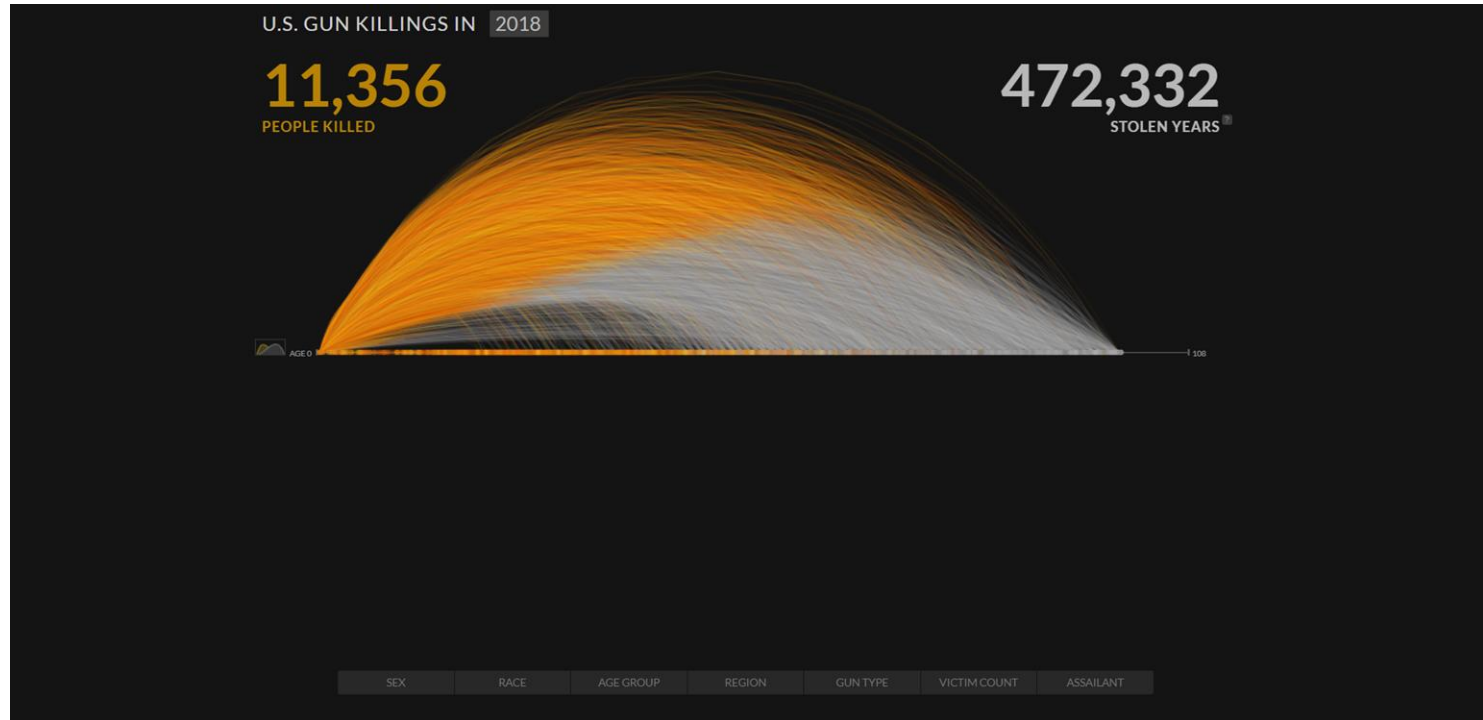
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In this class we will...

- 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 module, we have encountered several examples of data visualization used for advocacy



(Click image to visit interactive webpage)

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

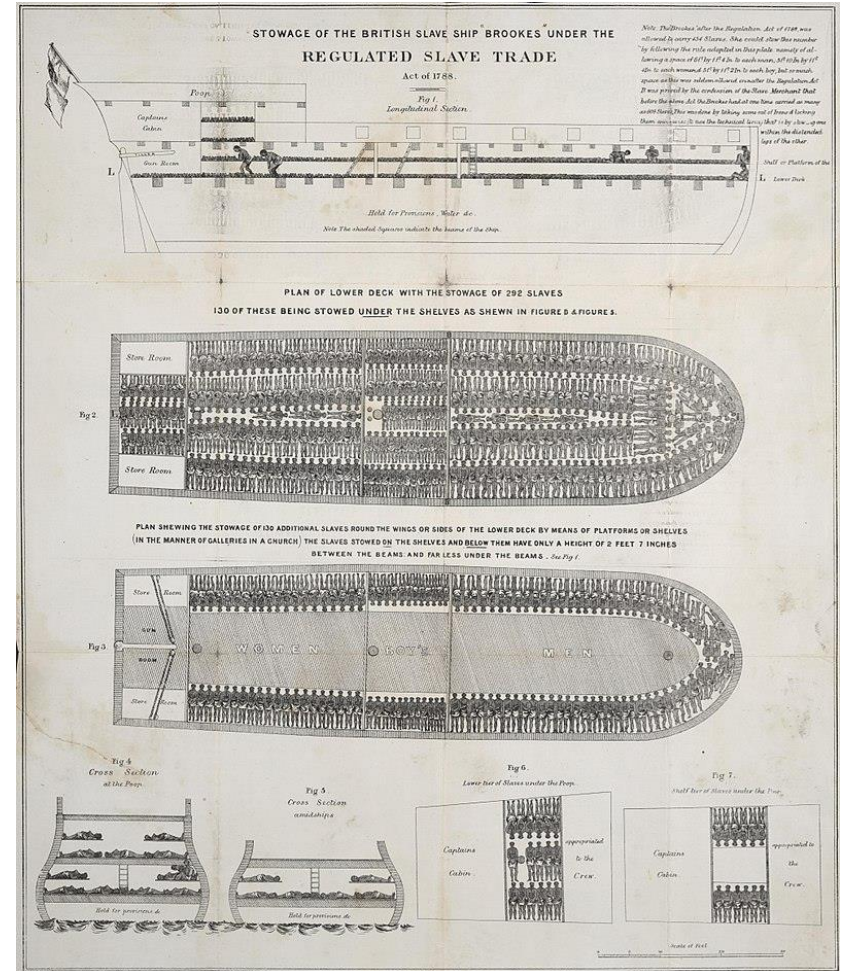
Three elements of persuasion

- 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

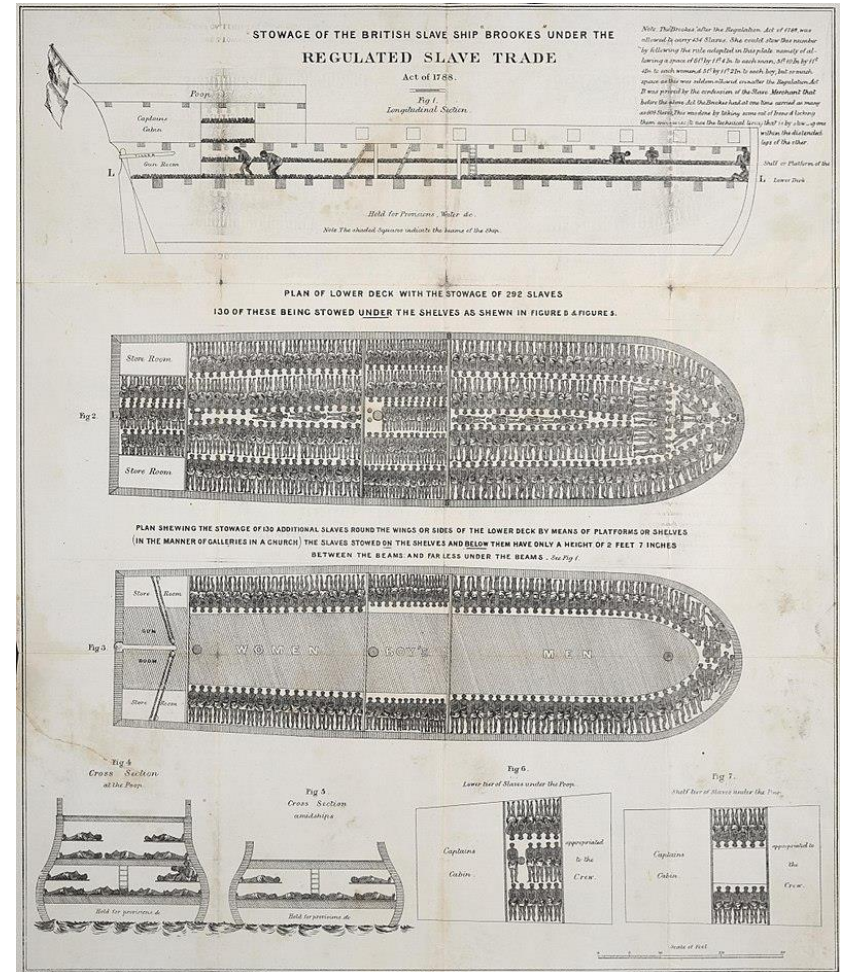
Activity

- 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



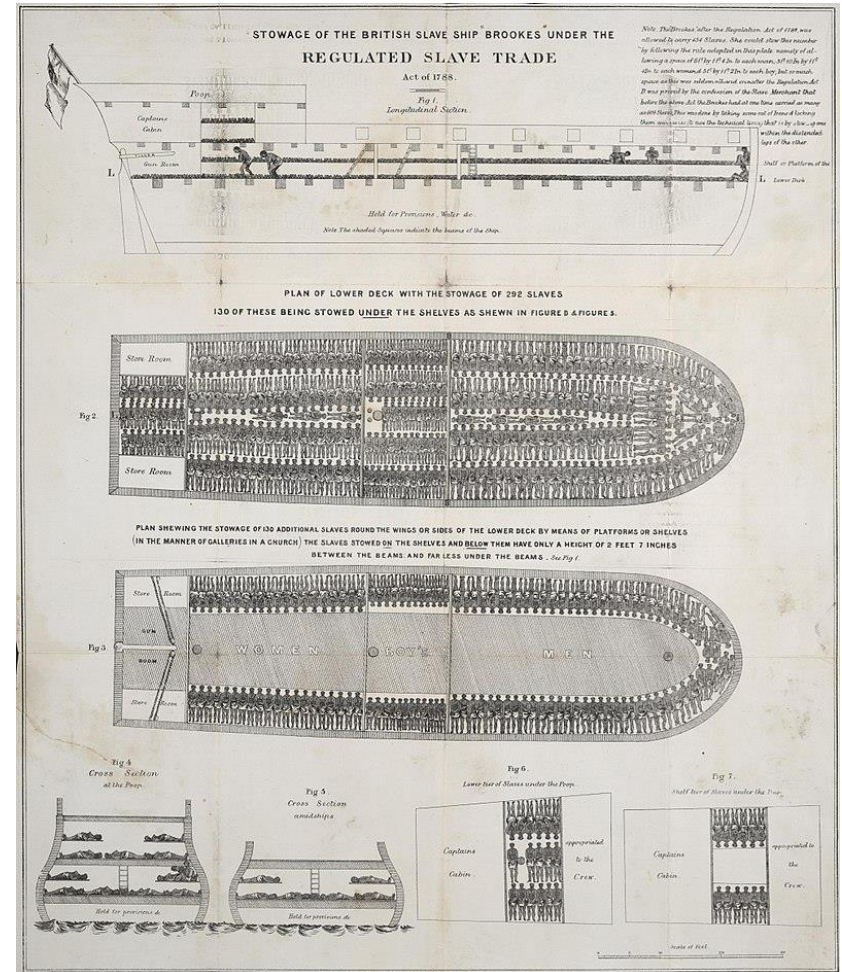
Activity

- 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



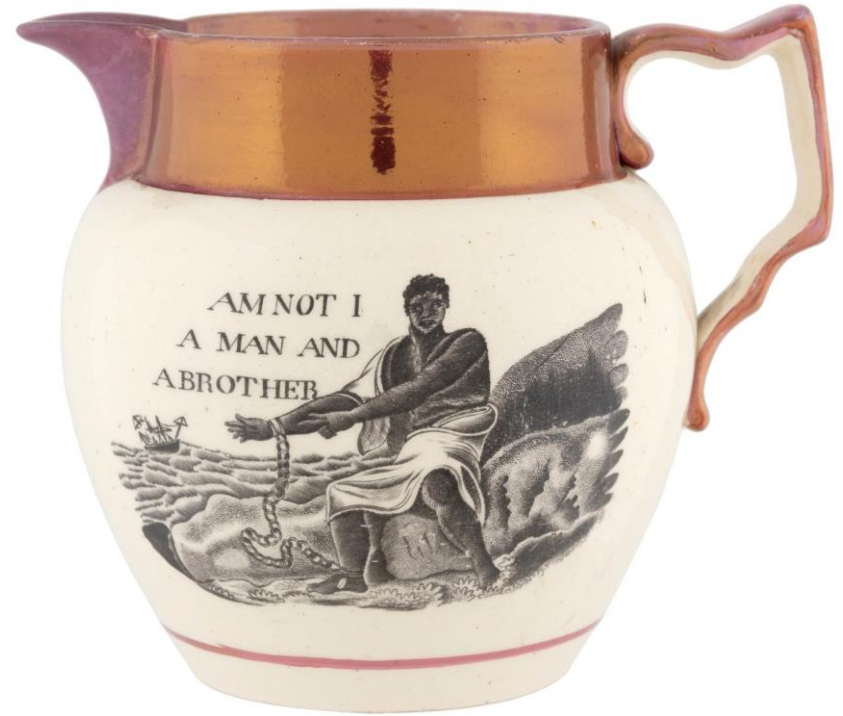
Activity

- 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.”

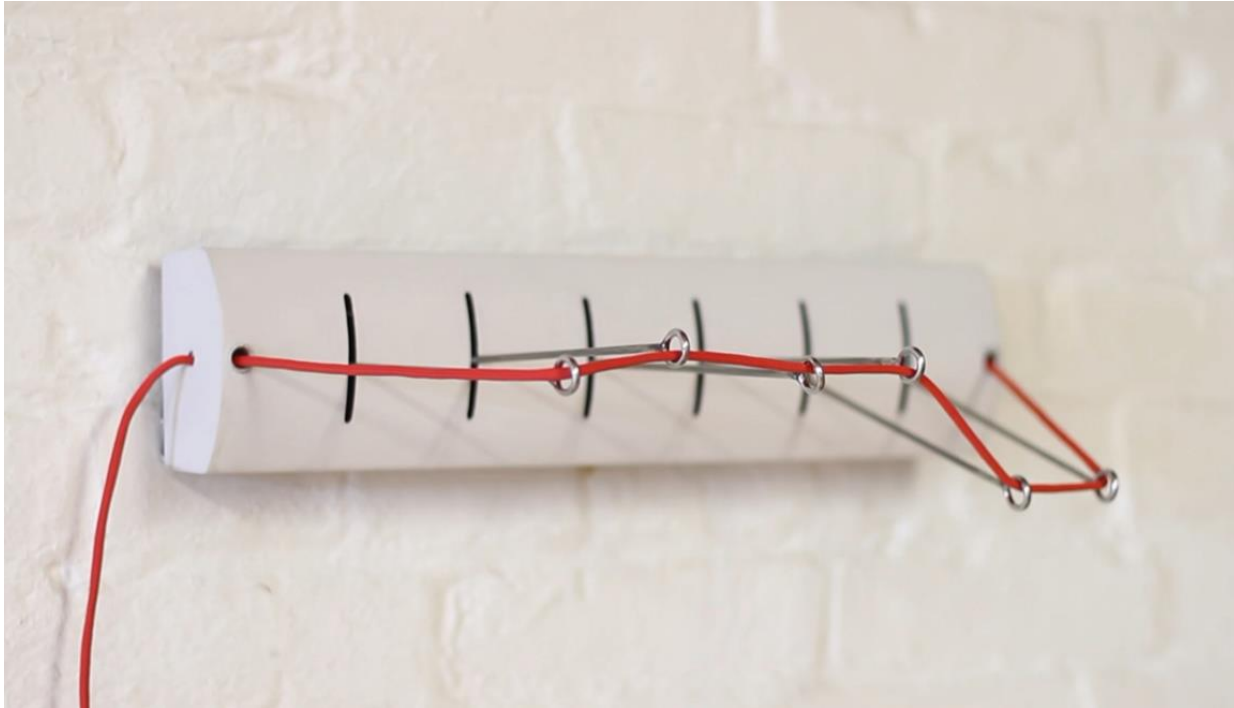
(Tactical Technology Collective, 2013)

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 McTaggart and Christian Ferrera**



(Click to view video)

Watermarks (2009) by Chris Bodle



(Emerson et al., 2018)

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



(Emerson et al., 2018)

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...

- Creating map visualizations (and when *not* to create map visualizations)
- Exploring tools and best practices for dynamic data visualizations
- But first...



Case Study Speaker

Richard Wintle, PhD
Assistant Director, The Centre for Applied Genomics, SickKids Hospital

Dr. Richard Wintle is the Assistant Director of The Centre for Applied Genomics at The Hospital for Sick Children, the Toronto node of CGEn, Canada's national genome sequencing and analysis network. TCAG's main area of research focuses on the whole-genome analysis of both healthy populations, and individuals with neurodevelopmental disorders. More specifically, Dr. Wintle's research aims to elucidate the genomic contribution to the neuromotor condition, Cerebral Palsy. He is the Associate Scientific Director of the Ontario-based "CP-NET" integrated discovery program, serving as lead of its genomics program, and is a founding member of the Governance Council of the International Cerebral Palsy Genomics Consortium. He co-Chairs the ClinGen CP Gene Curation Expert Panel (GCEP). Most recently, he has taken on the role of Executive Director of HPC4Health, a private cloud-based, high-performance computing and storage consortium designed to handle personal health information (PHI) containing data.

Prior to re-joining SickKids in 2006, Dr. Wintle spent six years in genomics and drug discovery startup companies, following postdoctoral training in molecular neurobiology at The Centre for Addiction and Mental Health in Toronto. He completed his PhD at SickKids as a student in the Department of Molecular and Medical Genetics at the University of Toronto.