Agenda

Public trust, participation, & implicit values

1. Technological determinism vs. anti-essentialism
2. Public consumption of science

Technological determinism

vs.

anti-essentialism

Interpretive flexibility

- A major theme from Herzig's article on the use of X-rays for hair removal was interpretive flexibility
- In this view, technologies do not have any essential features
- The meaning of a technology is determined by its use in society

"No technology – and in fact no object – has only one potential use. Even something as apparently purposeful as a watch can be simultaneously constructed to tell time, to be attractive, to make profits, to refer to a well- known style of clock, to make a statement about its wearer, etc. Even the apparently simple goal of telling time might be seen a multitude of different goals: within a day one might use a watch to keep on schedule, to find out how long a bicycle ride took, to regulate the cooking of a pastry, to notice when the sun set, and so on. Given this diversity, there is no essence to a watch. And if the watch has no essence, then we can say that it has systematic effects only within a specific human environment."

Sismondo (2009, p. 98)

Technological determinism

- In "Do artifacts have politics?" (1980), Langdon winner makes the case that technologies have specific and inherent influences on systems of power

Weak version:

- Technologies are employed by humans and institutions to resolve socio-political disputes

Strong version:

- Technologies embody socio-political arrangements as essential features

THE CASE FOR DETERMINISM

Technical arrangements as forms of order

- The "weak" form of technological determinism in Winner (1980)
- Use of technology in a deliberate way to intervene in a social or political system
- E.g. Long Island overpasses
- Clear examples, but not a direct argument for essentialism

Inherently political technologies

"Strongly compatible"

- Certain technologies are "strongly compatible" with particular sociopolitical arrangements.
- E.g. solar and wind power are inherently decentralizing, and therefore more ***conducive to*** democratic or consensus control

Inherently political

- Other technologies are fully deterministic in their political implications
- E.g. The inherent dangers and long-term effects of nuclear power ***necessitate*** centralized regulation and enforcement

EXAMPLE: DO LLMS HAVE POLITICS?

Large language models' role in sociopolitical crises:

- Political misinformation
- Environment and climate change
- Effects on artists and writers
- Deepfakes and non-concentual images
- Worker exploitation,
- Dangerous health advice

Are LLMs:

- **A. *Neutral technology*,**
  not conducive to any particular sociopolitical arrangements
- **B. *Strongly compatible***
  with certain sociopolitical arrangemets
- **C. *Inherently political*,**
  necessitating specific sociopolitical arrangements

1. Consider

- Different *forms* of LLMs
  E.g. **chatbots** (ChatGPT, Grok); **assistants** (Apple Intelligence); **image generators** (Midjourney)' **automatic summaries** (Google, Amazon); **state–actor tools** (military, disinformation); **automatic news articles and web pages**
- Aspects of LLMs
  Development
  Production and training
  Access and deployment
  Consumption and meaning

2. Make a claim

- *Write down* which of the three options (A, B, or C) you think best describes LLMs

Most STS Scholars:

TECHNOLOGICAL FRAMES

- Technological artifacts exist in a web of social, cultural, and material conditions
- Technologies may have inherent properties that facilitate certain uses and meanings, but interpretive flexibility can alter that usage in virtually every case
- The political and social ramifications of technology are constrained by its essential features and by its established uses and meaning
- Sociotechnical ensembles (Wiebe E. Bijker)

Public consumption of science

Non-scientists and technoscience

- Public ("lay people") do not just naively use technoscientific output, but have their own understanding of it
- E.g. diet and nutrition, algorithmic interactions, public health
- What is the relationship between ***professional scientists'*** and ***non-scientists'*** understanding of scientific knowledge?
- Two common "models" aim to explain asymmetries:
  (*both critiqued* in STS and in class readings)
  - ***Dominant model***
  - ***Deficit model***

Overview of the '*dominant model*'

- Science produces reliable, true knowledge when scientists communicate with one another
- Science *communicators* (e.g. journalists) work to translate this knowledge to make it understandable by non-scientists in the public
- This translation is viewed as having a necessarily *distorting* effect on findings
- Implicit in the dominant model is a assumption that scientists do not consume popular accounts of scientific output.
- **The dominant model is argued to be widely believed among professional scientists**

Some critiques of the dominant model

Scientist are *consumers* of popular accounts

- Scientists directly read popular discussions of research (e.g. COVID, tech news, politics)
- Scientific research is guided by the questions that people care about (e.g. through funding)

The New York Times

TECH FIX

Security Cameras Make Us Feel Safe, but Are They Worth the Invasion?

Internet cameras like Amazon's Ring come at a high cost to our privacy.

Journal of Experimental Criminology (2022) 18:129–147
https://doi.org/10.1007/s11292-020-09437-8

What do security cameras provide for society? The influence of cameras in public spaces in Japan on perceived neighborhood cohesion and trust

Daisuke Takagi[1] · Mamoru Amemiya[2] · Takahito Shimada[3]

Published online: 18 June 2020

All scientific communication is translation

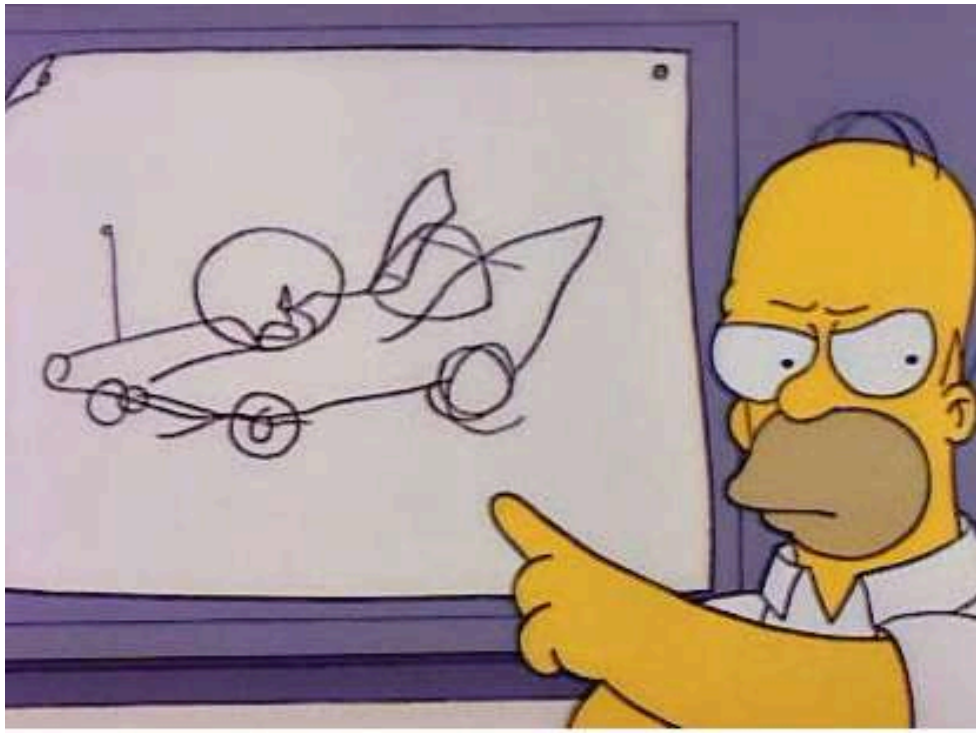
- Clean disconnect between 'translated' and 'untranslated' knowledge is not realistic
- E.g. fixation of evidence, actor–network theory

Overview of the '*deficit model*'

- Focus on the degree to which actors have the technical skill/training to *understand* scientific knowledge
- Under this model, widespread misunderstandings (e.g. "vaccines cause autism") are explained by a lack of scientific literacy
- Therefore, important individual and political decision are made with a lack of understanding (e.g. political discussions of reproductive health)
- The solution to misunderstandings is better education, better communication
- **The deficit model is not contradictory to dominant model, but has a different focus**

Some critiques of the deficit model

- Empirical studies often find that publics have important knowledge that scientists do not
- Much scientific knowledge has built-in assumptions about the way the social world works, and public can have good grounds for disagreeing with scientists on that
front
- Assumption that scientific knowledge does not depend on historical, social, or political context



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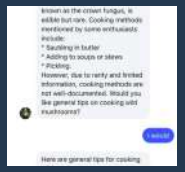

Screenshot via 404 Media

Video still via News 5 Cleveland

Stills from The Simpsons