Who wants a Transparent Map? Honesty and (mis-) Interpretation in Scientific Communication

Corey Dethier

Leibniz Universität Hannover
Institut für Philosophie
corey.dethier@gmail.com

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What do we want?

What is / should be the goal of a **philosophical** account of science communication?

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Account of what distinguishes good science communication from bad science communication.

Norms of assertion

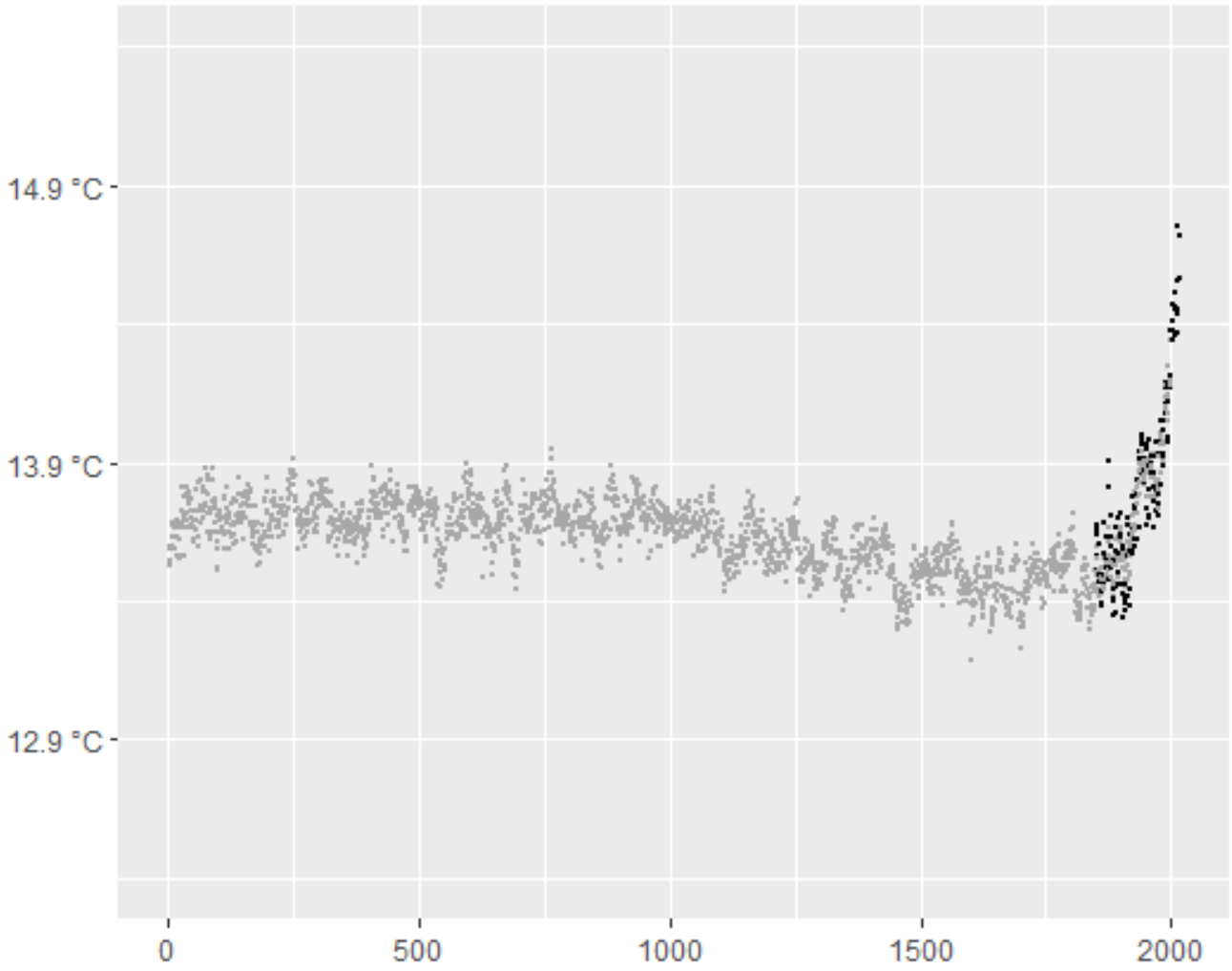
Compare literature on norms of assertion:

> An assertion is good (as an assertion) only if the speaker knows that the content is true. (Williamson 2000)

Williamson provides a criterion or standard by which to judge assertions; ideally, we'd like the same for science communication.

Lots of people treat this problem as a matter of extending accounts of assertion; see Dang and Bright (2021), Dethier (2022), and Gerken (2022).

The Hockey Stick graph



– Generated in R using data from PAGES 2k Consortium (2019)

Simplifications and idealizations

What the science says... Link to this page

Select a level... ● **Basic** ■ Intermediate

Greenhouse gasses, principally CO_2, have controlled most ancient climate changes. This time around humans are the cause, mainly by our CO_2 emissions.

What the science says... Link to this page

Select a level... ● Basic ■ **Intermediate**

Previous climates can be explained by natural causes, while current climate change can only be explained by an excess of CO_2 released by human fossil fuel burning. Records of past climates indicate that change happened on time scales of thousands to millions of years. The global rise in temperature that has occurred over the past 150 years is unprecedented and has our fingerprints all over it.

– SkepticalScience.com

Upshot

What distinguishes good science communication from bad science communication can't be truth, belief, knowledge, etc.

(Or, better: can't be that the *vehicle* of communication is true, etc.)

Goal for the talk:

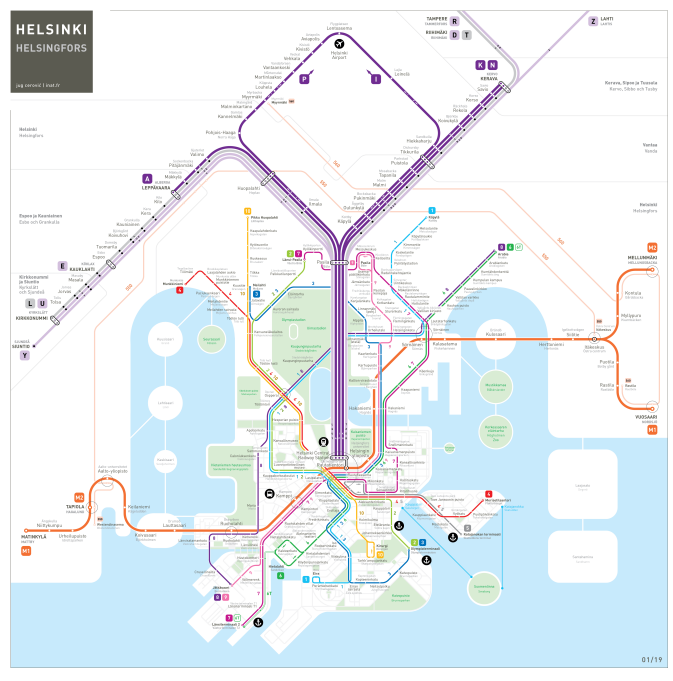
1. Lay out an account of science communication that doesn't turn on truth, belief, or knowledge.
2. Apply the account to cases of misinterpretation.

Positive View of Science Communication

The Problem

What distinguishes good science communication from bad science communication isn't truth, belief, knowledge, etc.

Analogy: maps



What differentiates transportation maps?

Necessary: stations placed in the right *order*.

Necessary: (clear) information about *which* train and stop to use.

Not necessary: accurate placement of any other feature.

Why these conditions?

Necessary for the rider to use the map to understand how to get from point A to point B.

(Importantly: different riders have different starting points and destinations.)

Communication using maps isn't a matter of *telling* information. ("Give a man instructions ...")

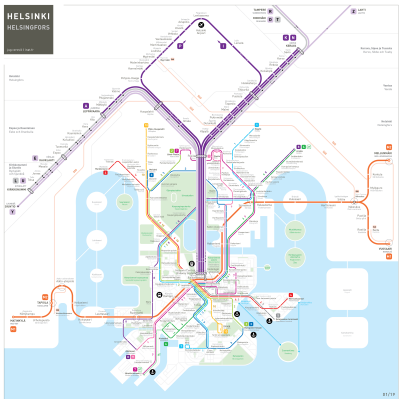
Analogical upshot

Simplifications / graphs as maps of the underlying science / data.

What the science says... Link to this page

Select a level... ● Basic ■ Intermediate

Models successfully reproduce temperatures since 1900 globally, by land, in the air and the ocean.



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What the science says... Link to this page

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While there are uncertainties with climate models, they successfully reproduce the past and have made predictions that have been subsequently confirmed by observations.

Implications

Slogan: (Science) Communication as Cartography.

Good science communication is often distinguished by

1. choosing the right idealizations / simplifications.
2. choices that are strictly-speaking truth-neutral.
3. sensitivity to user purposes.

(Mis)-Interpretation and Science Communication

The many faces of misinterpretation

An incomplete typology of science misinterpretation:

- Unintentional misinterpretation
- Intentional misinterpretation
  - Hype
    - Expert-driven
    - Audience-driven
  - Political misinterpretation
    - Expert-driven
    - Audience-driven

What should scientists do?

Two kinds of answers to this question:

1. Advice. e.g., take these actions in this order...
2. Goals. i.e., results to aim for.

John's goal

John (2018): scientists should tell the audience *whatever* will lead them to the right beliefs.

Where "right" = "most accurate."

Honesty, transparency, etc. are irrelevant and even harmful insofar as they promote misinterpretation.

SOCIAL EPISTEMOLOGY, 2017
https://doi.org/10.1080/02691728.2017.1410864

Routledge
Taylor & Francis Group

Epistemic trust and the ethics of science communication: against transparency, openness, sincerity and honesty

Stephen John

Department of History and Philosophy of Science, University of Cambridge, Cambridge, UK

There is a consensus that scientists should follow norms of transparency, openness, sincerity and honesty when communicating to non-expert audiences. For example, in an influential report, Wilsdon and Willis (2004) propose a 'see-through science'; Kitcher (2011, Chap. 6) suggests that scientists should 'open up' their research to public involvement; Nordmann (2011) argues that sincerity is essential if science is to promote civic well-being (see also Williams 2002); Keohane, Lane and Oppenheimer write that honesty is 'intrinsic to science: the sine qua non for this form of human activity' (2014, 11); and it is a commonplace that scientists should be 'honest' about uncertainty (Betz 2013; Gelfert 2013; Parker 2014). Such claims are sometimes framed as (quasi-)ethical recommendations; scientists simply must be honest. Other times, they are framed as prudential advice; if scientists want non-experts to trust them, they should be open and transparent. Most often, it seems assumed that prudence and ethics coincide; in following these norms, scientists simultaneously gain others' trust and render that trust well placed.

Unfortunately, just as publicising the inner workings of sausage factories does not necessarily promote sausage sales, so, too, transparency about knowledge production does not necessarily promote the flow of true belief throughout the population (and so on for honesty, sincerity and openness). Consider the leak of emails from the Climate Research Unit at the University of East Anglia (McAllister 2012). One way of viewing 'Climategate', which I discuss more below, is as a massive experiment in transparency. Laying open the inner-workings of the climate change community did not, however, increase public trust in climate scientists. Rather, climate sceptics argued that these emails revealed a 'broken' science (Delingpole 2012). Of course, all this shows is that transparency does not necessarily generate epistemic deference. Maybe there are more fundamental ethical reasons for transparency. This paper argues against this possibility. Given an independently plausible account of how non-experts learn from experts, transparency, openness, sincerity and honesty are not basic norms for ethical scientific communication.

My argument has a simple structure. §1 provides a 'unified account' of how non-experts learn from experts. §2 sketches the implications of this theory for claims that scientists should be sincere; §3, its implications for claims that they should be open and transparent; and §4 its implications for claims that they should be honest. In conclusion, I suggest an alternative norm to govern communication: against 'wishful speaking'. My discussion focuses on debates over anthropogenic climate change. This case exemplifies the complexity of contemporary scientific communication, with claims originating from groups, rather than individuals, and passing through multiple intermediaries before reaching citizens and policy-makers. By studying it we avoid misrepresenting scientific communication as if it were an ongoing conversation between two individuals of equal social and intellectual standing (compare Fricker 2002). Furthermore, climate change controversy vividly exemplifies a key issue for the ethics of communication generally: communication in contexts where speakers know that their words may be twisted and manipulated for others' political or economic ends.

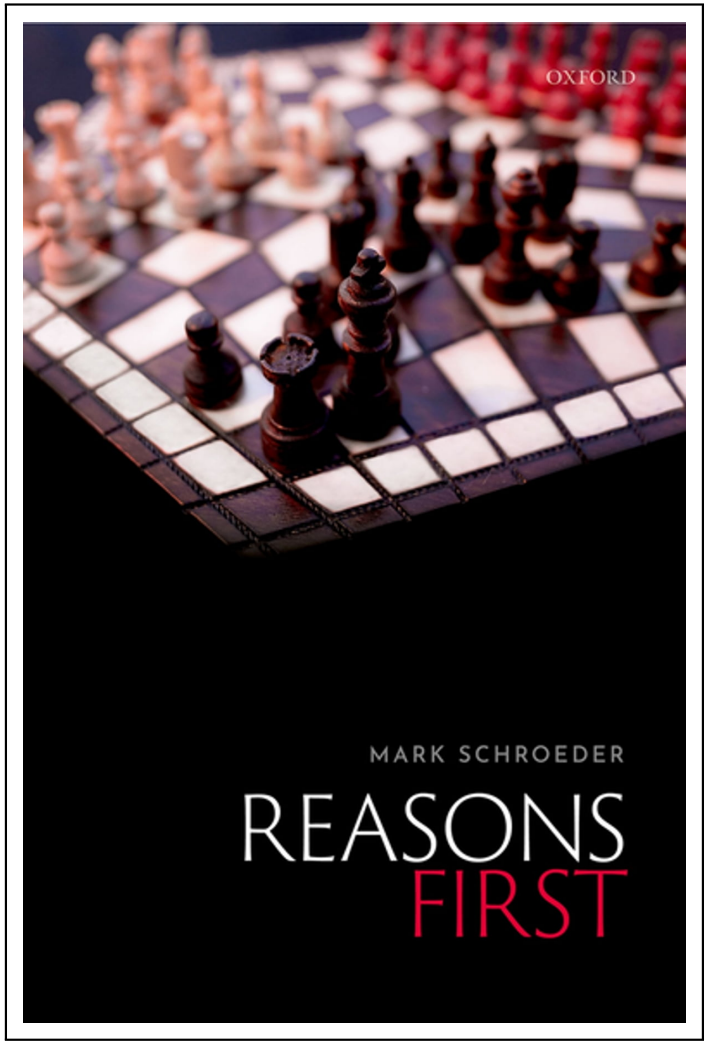
CONTACT Stephen John sdj22@cam.ac.uk

Alternative goal

Honesty etc. are always conditions of good communication.

But there are cases in which bad communication is preferable to good.

(Resulting picture: we have potentially conflicting reasons for different actions, and what we should do is determined by the balance of these reasons; see, e.g., Schroeder (2021).)



Recall

Whether science communication is good depends on how it lines up with the objectives of the audience.

But sometimes audience has objectives that are bad or evil.

Question then is simply: is being a good communicator more important than not supporting or facilitating bad / evil objectives.

In other words

What should scientists do in the face of intentional politically-motivated misinterpretation?

is like

What should scientists do in the face of other ill-intentioned misuses of their research?

Conclusion

Two main results from today's talk:

1. Account of the standards / criteria to use in evaluating science communication.
2. Account of standards / criteria to use in cases where misinterpretation is at issue.

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