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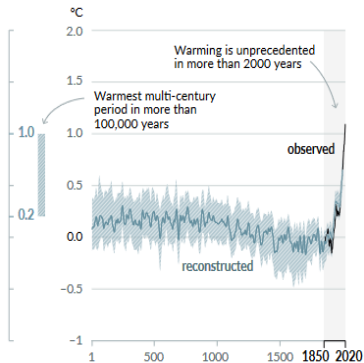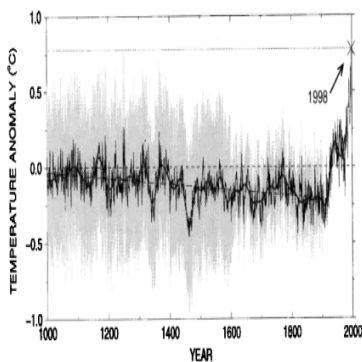
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When is a Graph Honest?
Simplification and Ethics in Science Communication

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Consider the hockey stick

- Deviations from 20th Century Average temperature. From Mann, Bradley, and Hughes (1999) and IPCC (2021).

The view

Question: What are the (epistemic) responsibilities of the "speaker" in depictive testimony?

The view

Question: What are the (epistemic) responsibilities of the "speaker" in depictive testimony?

Answer: Speakers are responsible for two things:

1. The reliability of the perspective.
2. The perspective-relative accuracy of the content.

A perspective is set of "open-ended" dispositions to interpret, encounter, or parse information (see, e.g., Camp 2019).

Outline

Plan for the talk:

1. Reliability: the first element
2. Accuracy: the second element
3. Generalizing the lessons
4. Application: the role of honesty

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Reliability of a perspective

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Epistemic criticism

Scientists often criticize non-contentful elements of depictions such as scales (see Schmidt 2016).

These criticisms are *epistemic*: graphs with bad scales are treated as being deceitful.

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Playing with scales
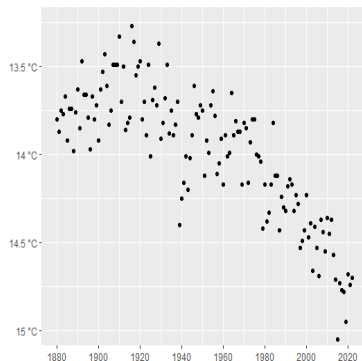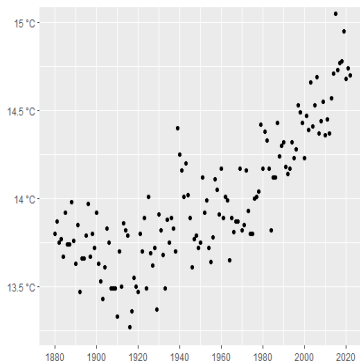
- 20th Century global temperatures. Data from National Centers for Environmental Information (2023).

Perspectives to the rescue

Scales encode particular perspectives: they affect how we "encounter" increasing numbers.

So we can accommodate epistemic criticism of scales by holding that speakers are responsible for the reliability of the encoded perspective.

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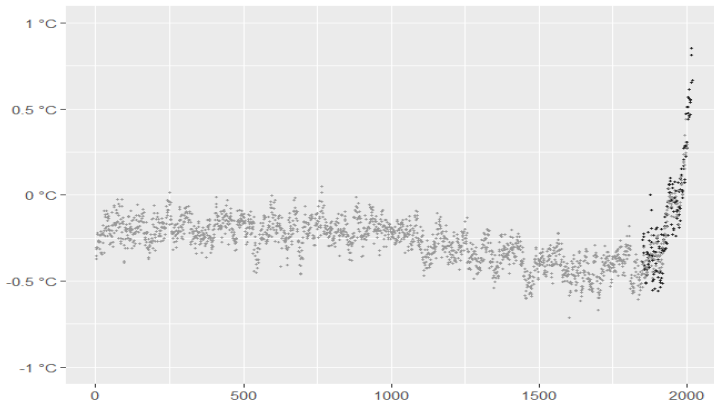
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Perspective-relative accuracy

Distortion

Depictive testimony often involves "distortions" (simplifications, idealizations, abstractions, generalizations, approximations, etc.)

These distortions are *sometimes* treated as normatively unproblematic.

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Hockey sticks, round 2

- Deviations from 20th Century Average temperature. Constructed using data from PAGES 2k Consortium (2019).

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A smoother stick

- Deviations from 20th Century Average temperature. Constructed using data from PAGES 2k Consortium (2019).

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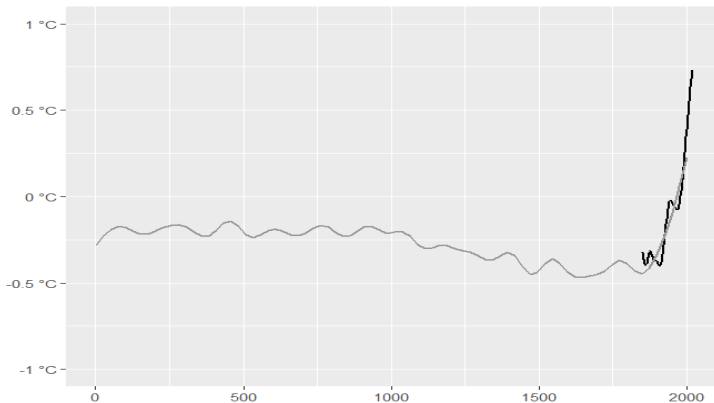
Perspectives to the rescue

Using a line rather than dots encodes a *perspective* on which the trend is important but individual years are not.

We can accommodate distortions by holding that speakers are only responsible for the features that are highlighted in this way.

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The view

Question: What are the (epistemic) responsibilities of the "speaker" in depictive testimony?

Answer: Speakers are responsible for two things:

1. The reliability of the perspective.
2. The perspective-relative accuracy of the content.

Generalizing the lessons

Generalizing

Claim: perspectives often play the same role in expert testimony more broadly that they play in depictive testimony.

(Note: Fraser (2021) argues when presenting a "narrative," speakers are responsible both for perspective and content.)

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Summaries

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.

What the science says...   Link to this page

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

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

- Skeptical Science (2018)

Features of summaries

A good summary *always* involves identifying and highlighting some
information as important and ignoring other information as
irrelevant.

A good summary often involves distortion; good summaries are
often idealized or simplified.

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Summaries and responsibility

Question: What are the (epistemic) responsibilities of the speaker in summarizing?

Answer: Speakers are responsible for two things:

1. The reliability of the perspective.
2. The perspective-relative accuracy of the content.

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The role of values in science communication

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The value of perspectives

At first pass, there's a conflict between distortion and honesty.

Problem: sometimes a simplified or idealized representation is useful. But seemingly dishonest insofar as inaccurate. (See John (2018) and Parker (2014).)

Claim: this conflict is illusory. What do exist are value conflicts.

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Case 1

COOPERATION:

Policy-maker Doug wants the information that will lead to the best possible policies.

Climate scientist Marie knows that simplification will lead to better policies.

Marie presents the simplification.

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Case 2

CONFLICT:

Policy-maker Linda wants information that will lead to increased revenues for her oil-baron donors.

Climate scientist Amir knows this and knows that the more accurate information will lead to increased revenues for her oil-baron donors.

Amir presents the simplification.

Upshot

It's possible to simplify "honestly" so long as the simplification captures what the audience values.

Or: so long as there's alignment between the perspective encoded in the testimony and the audience's values.

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Conclusion

What are the (epistemic) responsibilities of the expert witness?

Answer: Speakers are responsible for two things:

1. The reliability of the perspective.
2. The perspective-relative accuracy of the content.

Simplification and other distortions are honest so long as the speaker has aligned their perspective with that of the audience.

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