

The Devil is in the (Historical) Details: Continental Drift as a Case of Normatively Appropriate Consensus?

Naomi Oreskes (2008) | presented by Sloane Wesloh

Overview: 3 difficulties for Solomon's Social Empiricism

1. Novelty Exaggeration
2. An Impossible Standard
3. One-sided Dissent

Novelty Exaggeration

Middle Ground Accounts of Scientific Consensus

Kuhn *The Structure of Scientific Revolutions*

Latour *Laboratory Life*

Middle Ground Accounts of Scientific Consensus

Also focused on social role in producing scientific knowledge – why did Solomon ignore?

Rudwick *The Great Devonian Controversy, Bursting the Limits of Time*

Galison *Image and Logic*

Warwick *Masters of Theory*

Tarrall *The Man Who Flattened the Earth*

... but did Solomon *really* ignore the history?

Solomon's account is a **normative** proposal of scientific rationality

When historians and sociologists write about how the “rational” is socially constituted, they are working at a descriptive level, at most describing how a particular social group demarcates the “rational” from the “irrational”. I wanted to say something normative enough about scientific rationality that I would be willing to go out on a limb and comment *usefully* on current scientific controversies, with the ultimate goal of fostering scientific success. I couldn't have written *Social Empiricism* without building on the creative social epistemologies of non-philosophers such as Peter Galison, Donna Haraway, Bruno Latour, Andy Pickering and Steven Shapin. But they do not propose a normative perspective—indeed, some of them are opposed, for various theoretical reasons, to the idea of producing one—and so I tried to create one.

Solomon, Miriam. "Responses to Critics." *Perspectives on Science* 16, no. 3 (2008): 280-284

An Impossible Standard

Solomon's Normatively Appropriate Consensus

Consensus is normatively appropriate if and only if one theory has all the available empirical successes (Oreskes 255)

Issues with Solomon's Continental drift history

Solomon's conclusion: plate tectonics is a normatively appropriate consensus because “plate tectonics had all the empirical successes” (Oreskes 257).

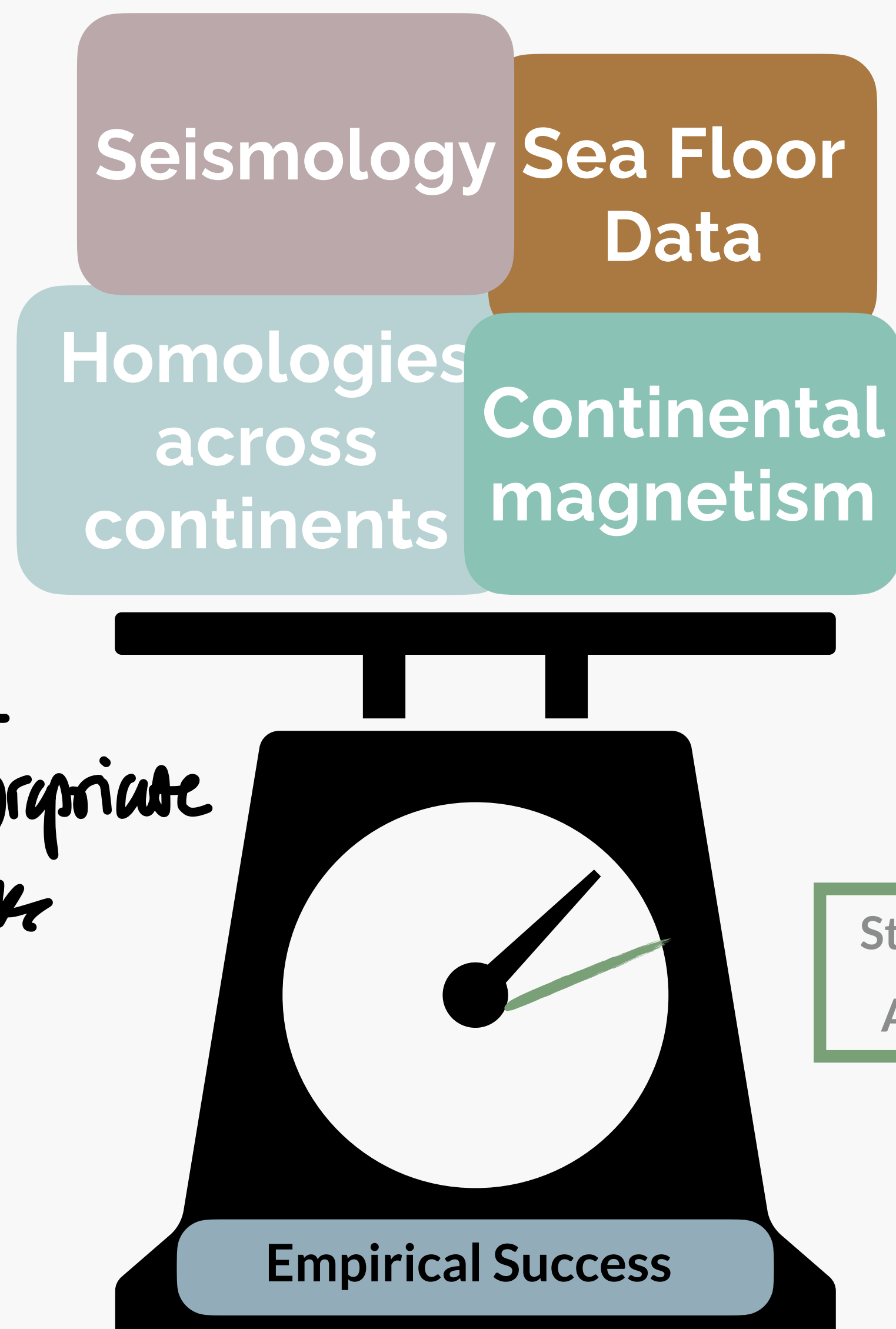
Issues with Solomon's Continental drift history

Oreskes' rebuttal: plate tectonics had many empirical successes in the 1960s, but it did *not* have all of the empirical successes.

Oreskes frames this like a scale of empirical success →

there are a lot of things explained by plate tectonics!

But Solomon is arguing for a standard for normatively appropriate consensus and Oreskes thinks these successes don't meet that standard.



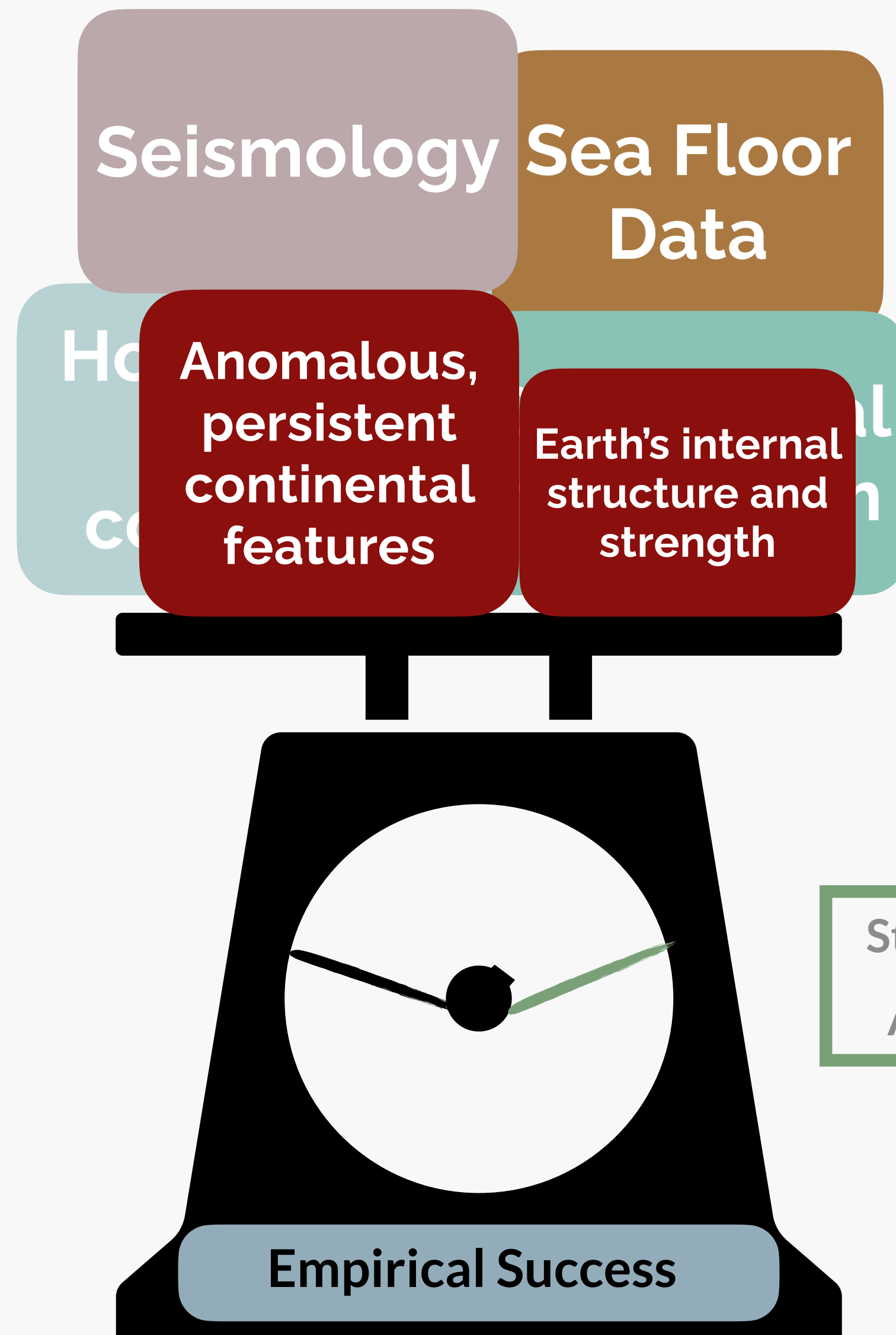
Anomalies

Earth's internal
structure and
strength

↓
Too rigid for
continental drift!
- MacDonald, Munk

Anomalous,
persistent
continental
features

↓
Mid-continental rift



Standard for Normatively Appropriate Consensus

What's the upshot of Solomon's standard?

What is the purpose of defining a standard for normatively appropriate consensus if no theory in the history of science could ever meet it?

Impossible standard v. misreading of Solomon

Does Solomon actually present her normatively appropriate consensus in such a restricted manner?

Impossible standard v. misreading of Solomon

“... for a consensus to be normatively appropriate, empirical success must be the *selecting factor* responsible for coalescence on one theory rather than another” (Solomon 1994, 336)

Impossible standard v. misreading of Solomon

“According to social empiricism, a consensus is normatively appropriate if the theory selected has greater empirical success...”

(Solomon 1994, 337)

Impossible standard v. misreading of Solomon

“... it is appropriate to form consensus only in the extreme case that one theory has *all* the empirical successes” (Solomon 2001, 119)

What's the normative goal?

It's not consensus!

It's scientific success.

What's the normative goal?

It's not consensus!

It's scientific success.

It's fine with me if the normative conditions for consensus are an "impossible standard." Fine because, according to *Social Empiricism*, consensus is not a normative goal.

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One-sided Dissent

Solomon on dissent

Funding agencies should support dissenting voices, which are marginalized and under-privileged. Science would benefit from the knowledge which can only be gained from the standpoint of minority voices.

Oreskes' rebuttal

Dissenting voices in science aren't underprivileged!

Dissent doesn't always aim for democracy!

Scientifically Productive Dissent

When dissent is scientifically productive, it develops empirical successes which aren't available in other theories.

Dissent in science doesn't always aim for democracy; we don't need to be in favor of dissent across the board.

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Historical scholarship



Priority on the role of history



Misrepresentation of Solomon's views

Integrated HPS

History of middle-ground
accounts of sociology/
rationality of scientific
knowledge

?Social
Empiricism

History of the anomalies
unexplained by plate
tectonics

Discussion

- How well does Oreskes represent Solomon's views?
- Is Solomon's standard for consensus useful if it is impossible?
- Solomon is right that we shouldn't be favorable of dissent that isn't scientifically productive. But Oreskes is concerned about funding scientific pursuits *because* of their status as dissenting voices. How can we discern productive dissent except in hindsight?