

Contingent versus Constitutive Views of the Sociality of Scientific Inquiry

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Recent developments promoting a turn to socialized accounts of science

- Feminism
- Critical science movements
- Social cultural studies of science
- Naturalism in philosophy

Conditions 1

- Rhetorical: philosophy of science in the US today is still emerging from a stripped down logical positivism, as contrasted with the metaphysical and normative inclinations of pre-1920s philosophy

Conditions 2

- **Material:** the sciences have developed in status and achievement only dreamed of in the early decades of the century. The industrialized societies have created and inhabit a science and science-based technology saturated world.

- Many philosophers seeking to understand relation between culture and society on the one hand and knowledge and inquiry on the other.
- Two principal approaches:
 - Contingent
 - Constitutive

- Philip Kitcher:
Science, Truth, and Democracy
(Oxford UP 2001)
“well-ordered science”
- Helen Longino:
The Fate of Knowledge
(Princeton UP 2002)
“critical contextual empiricism”

- contrast the philosophical fundamentals of these two responses
- indicate the different directions each offers for articulating relations between the sciences and their sustaining societies.

Kitcher's “well-ordered science”

- *via media* between constructivist debunkers of science on the one hand and the uncritical scientific faithful on the other
- First sustains claims for scientific realism and objectivity of inquiry, but

- no privileged system of natural kinds.
- multiple correct ways of representing reality.
- multiple languages and classificatory schemes
- each correct relative to some set of interests,
- must be all consistent with each other

How social? contingently social:

- Scientific inquiry now happens to be pursued by communities of inquirers working competitively and cooperatively.
- These competitive and cooperative relations can be harnessed by reward structures to maximize scientific productivity.

- Sociality can speed or hinder knowledge production, but knowledge itself can be understood in conventional individualist terms.
- Question: can “collective research be organized in a way to promote our collective values in the most encompassing sense?”
- Answer: “well-ordered science”

- enlightened democratic decision-making. would ideally determine choice of research projects to be pursued in a society
- the research agenda, not the research process, is subject to democratic oversight

- Limits justified?
- Objectivity vs. underdetermination (UD)
 - Empirical equivalence as global UD
 - Global UD no threat to objectivity

Mixed situations: Local UD

Lavoisier versus Priestley

- community eventually accepts the theory with greatest empirical support
- this case shows objectivity is a meaningful ideal

Kitcher's argument

- ignores metaphysical differences that shape the perception of the empirical world
- assumes that underdetermination leaves science at mercy of politics

- Advocates of contingent socialization fear that endorsing constitutive sociality leaves scientific inquiry
 - Ungrounded and arbitrary
 - Viciously subject to political interference

Critical Contextual Empiricism

- underdetermination
 - not empirically undecidable conflicts between two or more theories, but
 - a matter of relations between theories and the evidence available for them:
 - gap between our data and the theories, models, and hypotheses developed to explain the data

- claims about collisions and disintegrations of elementary particles based on phenomena that can be observed:
 - tracks in compressed gas,
 - the sequence of ciphers on data tapes

- Physiological processes
- Causal claims vs. correlations

Data require supplementation
in order to be made evidentially
relevant.

- background assumptions
 - form the framework within which inquiry is pursued
 - structure the domain about which inquiry is pursued

Underdetermination and
observation of scientific
practice by sociologists and
historians of science change
the ground on which
philosophical concerns
operate

- 1) treat agents/subjects of knowledge as located in particular and complex interrelationships in multiple and partially intersecting networks
- 2) acknowledge that purely logical constraints cannot compel them to accept a particular theory.

- Reconfigure justification:
 - not just a matter of relations between sentences, statements, or the beliefs and perceptions of an individual,
 - but a matter of relations within and among communities of inquirers

- Justification:
 - not just the testing of hypotheses against data,
 - but also the subjection of hypotheses, data, reasoning, and background assumptions to criticism from a variety of perspectives.

cognitive and epistemic
practices have social
dimensions

1. normative rules or conditions for scientific inquiry must include conditions applying to social interactions

- venues
- uptake of criticism
- public standards
- tempered equality of intellectual authority

2. assumptions that are shared by all members of a community will be shielded from criticism, and because they persist in the face of effective structures, may even be reinforced.

- Diversity
- Interaction

Back to Objectivity

- not a matter of settling on the theory that eventually comes to have greater evidential support, but

- critical scrutiny of data, reasoning, and assumptions,
- by a scientific community
 - multiple perspectives
 - satisfies the norms of critical contextual empiricism.

Two more contrasts

Definitions:

- Monism: a single true and comprehensive account of phenomena is both possible and desirable
- Pluralism: multiple non-congruent accounts of a given set of phenomena may be necessary for a comprehensive understanding of those phenomena

1. CCE: pluralism is a permanent possibility
 - a theory of knowledge should not presume either pluralism or monism
 - Kitcher imposes an external constraint of consistency that scientific theorizing may not be able to meet.
 - HL: case by case

2. Two views of the sociality of science

- Contingent sociality: as a matter of fact scientists are located in communities and accept content as a result of their interactions with each other
- Constitutive sociality: a normative social element is part of the meaning of “knowledge”

Do these differences matter?

- Risk research
- Privatization of knowledge
- How understand feminist interventions

Feminist interventions 1

Content:

- physical anthropology
- neuroendocrinology
- cell biology

What counts as evidence?

- Not the case that there is always a feminist perspective that should be adopted by the entire scientific community
 - There may be multiple feminist perspectives.
 - There may be gender neutral or gender egalitarian perspectives.

Feminist interventions 2

Method:

–Objectivity

- Not a masculine prerogative
- Methodological rather than substantive

–cognitive values

- Orthodox versus critical/feminist.

Recognizing the constitutive sociality of science permits us to see how feminist critical engagement with the sciences is part of the way scientific inquiry, at its best, works.

Health risk research

- Heather Douglas: dioxin
 - Technical decisions internal to the research have social consequences
- How can opposing sides trust results of research?

Culture and science as resource:

How do specific cultural configurations shape scientific ideas and practices?

How do scientific ideas and practices shape cultural configurations?

If the research process is black-boxed, treated as insulated from its social and cultural context,

philosophy of science becomes powerless to fully explore these and other questions about the reliability and trustworthiness of scientific knowledge in different institutional forms.

A philosophy of science that is
genuinely social

must be accountable not just to the scientific
practitioner but to the recipient of knowledge
and bearer of knowledge's benefits and
burdens.

Philosophy of science should

Open up the black box of
research rather than

insulate it from social and
cultural examination.