



Diversity and injustice: The Case of Open Science



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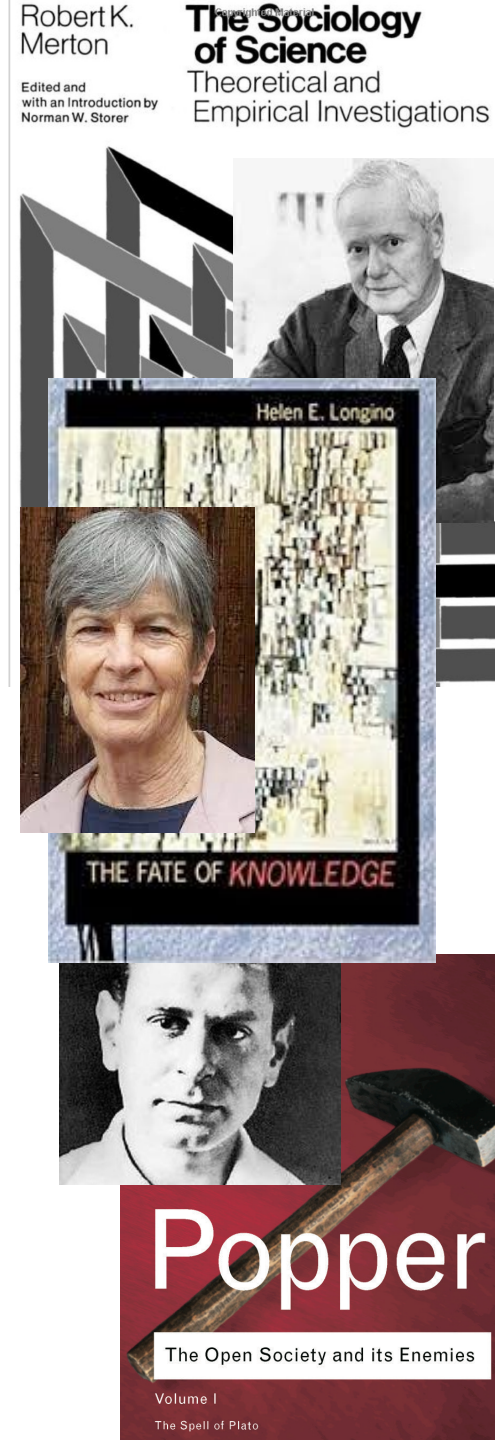
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Openness in science: Historical trajectories

- Openness as the circulation of materials
 - Across borders: collection practices in colonial history
 - Across groups: community ethos in 20th century model organism biology repertoire
- Openness as opportunity for meritocratic scrutiny
 - Institutionalized publication: feedback from *recognized experts* (*Phil Trans* 1665);
 - Mertonian norms (1942): communism, universalism, disinterestedness, organized skepticism;
 - Longino's conditions (2002): venues; uptake; public standards; tempered equality
- Openness as condition for individual freedom
 - Science models society: 1945 Open Society as 'social philosophy for our time'
 - The very possibility of personal choice and responsibility
 - Against historicism and the impulse to predict ('the future is open')
- Openness as a reaction to / endorsement of novel forms of commodification
 - in research: late 70s
 - in software development: early 1980s (Kelty 2007)
 - back to 'Open Science': 1985



End of 20C/Start of 21C: Openness as sharing

- **unlimited access:** making any research element available at any time for everyone
- **digital:** ICTs as novel opportunities to collect and mobilize outputs
- **good:** improves the content of science and researchers' working conditions
- **global:** reaches everybody with an interest in research, no matter where they are based
- **equal:** makes previously inaccessible resources available to those who may use them

“OS as sharing” core values:
the direction of travel for OS Implementation



Re-thinking OS

- Rethinking priorities
 - Identifying key challenges from research practice: epistemic diversity and injustice
 - Shift direction of travel for OS implementation
- Underlying philosophy:
 - "Openness as sharing" presupposes object-oriented view of research
 - Shift towards process-oriented view of research: openness as judicious connection

Re-thinking OS

- **Rethinking priorities**

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The challenge of epistemic diversity

- *the condition or fact of being different or varied in ways that affect the development and/or understanding of knowledge*
- implementing OS: recognizing different alignments of sources of diversity
- tightly interwoven with epistemic injustice

The challenge of epistemic injustice

- Epistemic injustice: “wrong done to someone specifically in their capacity as a knower”
(Fricker 2007)
 - Testimonial: systematic prejudicial credibility deficit
 - E.g. Farmers and breeders as knowers of crops
 - Hermeneutical: having one’s experience obscured from collective understanding owing to hermeneutical marginalization
 - E.g. Qualitative research as rigorous science



Governing diversity and injustice in research

- *Recognizing* epistemic diversity is a key step towards lessening epistemic injustice, and viceversa
 - But acknowledgment does not imply endorsement or inclusion:
 - not all forms of diversity are relevant to given situation of inquiry;
 - not all forms of diversity foster justice and fairness;
 - 'equal participation' is a red herring (contra egalitarianism à la Feyerabend)
- Systems of research practice as systems of demarcation and exclusion
 - Without policing of novelty, impossible to carry out research
 - It is what keeps epistemic activities together as a coherent whole
- OS implementation need to include explicit and regular (re)consideration of existing demarcation strategies

Insights from pluralist philosophy

Systems of practice differ in their

1. specificity to local conditions
2. entrenchment within repertoires
3. permeability to newcomers
4. demarcation strategies

Systems of practice differ in

1. specificity to local conditions

2. entrenchment within repertoires

3. permeability to newcomers

4. demarcation strategies

- Tailoring methods, theories, models to target object(s)
- Depend on availability of materials exemplifying target
- Targets themselves often emerge and change during investigation (Massimi, Feest)

Systems of practice differ in

1. specificity to local conditions
2. entrenchment within repertoires
3. permeability to newcomers
4. demarcation strategies

Widely successful systems of practice
“Blueprints for specific ways of *doing science* that can be quickly and widely adopted and performed” (Ankeny & Leonelli 2016)

Strong incentives to redeploy repertoires
(Wimsatt, Griesemer, Gerson)

Repertoires canalize understanding of
“best practice”
(Barnes, Rouse) e.g. molecular biology

Systems of practice differ in

1. specificity to local conditions
2. entrenchment within repertoires
3. permeability to newcomers
4. demarcation strategies

Management of novelty is crucial: what constitutes relevant expertise? How to disentangle non/epistemic sources of novelty ? (Longino, Douglas, Elliott)

Systems of practice as systems of demarcation and exclusion → can produce **epistemic injustice**

Systems of practice differ in

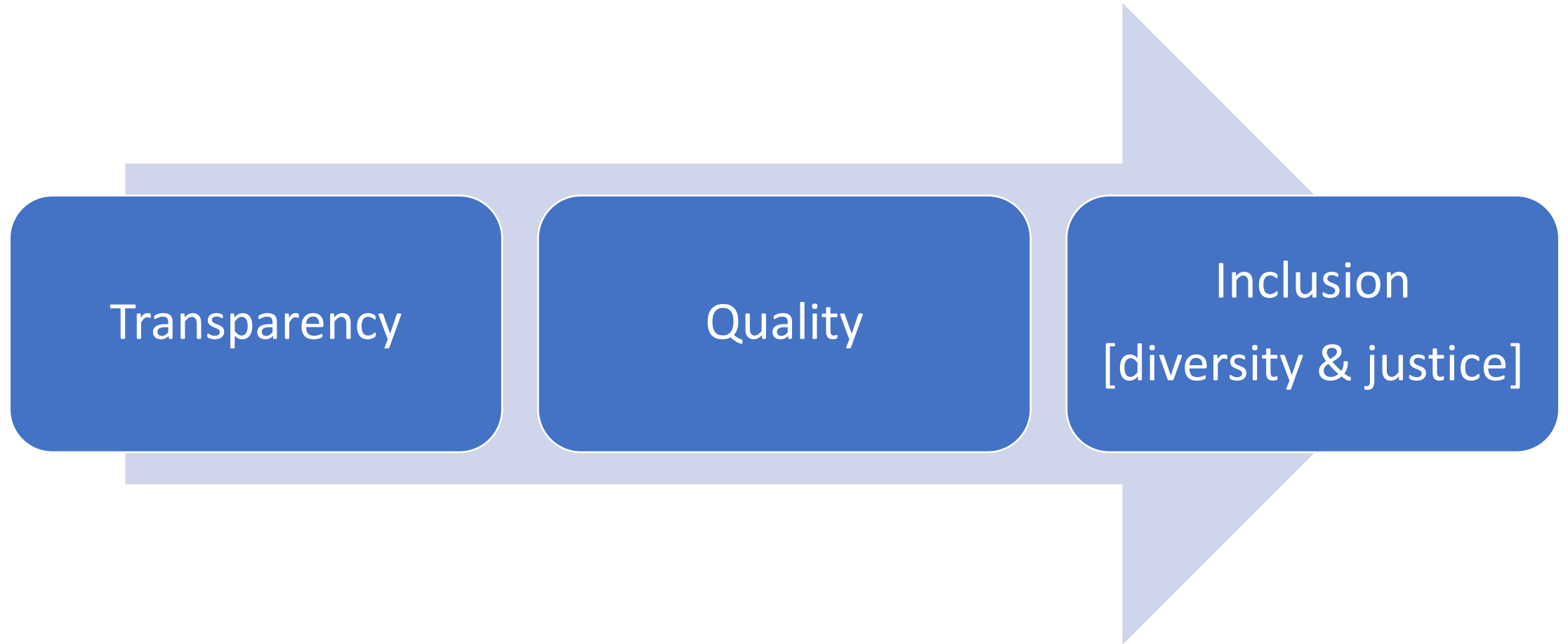
1. specificity to local conditions
2. entrenchment within repertoires
3. permeability to newcomers
4. demarcation strategies

What keeps epistemic activities together
makes systems of practice coherent;
defines stability of repertoires

Key epistemic and social challenge!

**OS implementation need to include
explicit and regular consideration of
existing demarcation strategies**

“OS as sharing” core values:
the direction of travel for OS implementation



Inverting the direction of travel



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Openness as sharing:

An object-oriented philosophy of OS

- Sharing as unlimited access to resources → focus on **appropriation**
 - Research components as bounded objects to be collected and shared
 - Discovery as linear path from accumulation of objects to extraction of insight
 - Grounded on commodification of research components: Central role of intellectual property and debates over ownership and control
- Sharing as unlimited re-use → focus on **disruption** of appropriation
 - Social movement approach: often bypassing IP and refusing to engage with ownership claims
 - YET: model of discovery remains unchallenged: focus on sharing commodified outputs, complicity with epistemology of data accumulation

Openness as judicious connection: A process-oriented philosophy of OS

- Not necessarily about objects, rather about forms of agency: ways of doing and being with others
- Discovery as skilled, distributed interaction with the world
 - Does not always require control/ownership over resources (e.g. data analysis without sharing)
 - Focus on creating new intimacies, potentially (but not necessarily) facilitating trust and collaboration (e.g. 'proper' data reuse)
- Connection needs to be *judicious*:
 - Situated and responsive to context
 - What constitutes relevant context and perspective ('demarcation strategies') is key part of any investigation
 - In other words: inferential practices involve discrimination, which in turn requires value attributions

OS as sharing

- unlimited
- digital
- good
- global
- equal

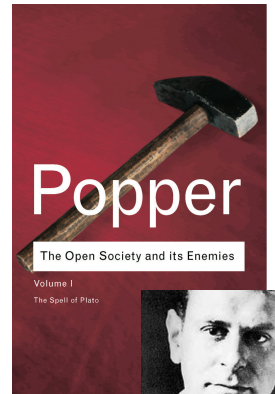
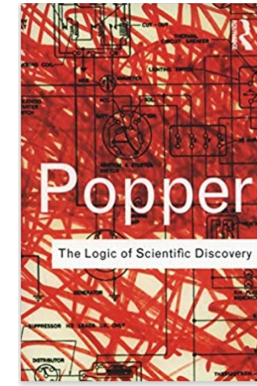
Object-oriented view of science

OS as judicious connection

- relational
- social
- divisive
- situated
- equitable

Process-oriented view of science

What does this mean for OS?



Key question remains: Can there be Open Science without an Open Society?

- ✓ Demarcation as key challenge for science as an institution
 - From authoritarian regimes to fake news: Fear of 'unscientific' (religious, political, financial) elements encroaching on research practice
 - And yet, wish to make science intelligible, participative, non-dogmatic

✗ Search for *universal method*

Rather: situated pursuit of epistemic justice and diversity as crucial conditions for scientific inquiry

[key worry: various degrees of overdetermination by politics and market]

What does this mean for OS?

- Governance to nurture judicious connections
 - overcome temptation to share for the sake of sharing
 - debate what counts as research output, for whom and for which purposes
 - discriminate explicitly and accountably
 - foster responsive institutions (Popper's *piecemeal engineering*)
- The enduring challenge of scale
- The triumph of bureaucracy? The end of creativity and serendipity in research?
 - Rather than controlling research, OS governance could aim to **steer researchers away from misleading/unfair/authoritarian expectations of** (social and epistemic) **control**

Thank you

This material is largely taken from my forthcoming book *The Philosophy of Open Science*, Cambridge University Press, available Open Access from early 2023.



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