

Experimenter's Regress

What We Learn from Traditional Epistemology

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The Sociological Skeptical Circle

“But we won’t know if we have built a good detector until we have tried it and obtained the correct outcome! But we don’t know what the correct outcome is until ... and so on ad infinitum”
(Collins, 1985)

Originally raised in context of Weber’s experiments regarding gravitational waves. His account of the debate is extensive and relies on interviews with the scientists on both sides.

Overall, the reasons given by scientists for doubting the claims of Weber are shown to be strictly non-epistemic. If not, they also heavily disagreed with the critics and could not establish a standard criteria.

Notice the obvious similarity to the problem of criterion.



Harry Collins

The Madhyamaka Regress



Nāgārjuna

“If you think that epistemic objects of some kind are established through the epistemic instruments, just as a measuring instrument establishes what is to be measured, then where does the establishment of the four epistemic instruments... come from?”

If you thought that the epistemic objects are established by the epistemic instruments, and that the epistemic instruments are established by other epistemic instruments, the absurd consequence of an infinite regress follows.”

(31-32, Vigrahavyāvartanī, Jan Westerhoff trans.)

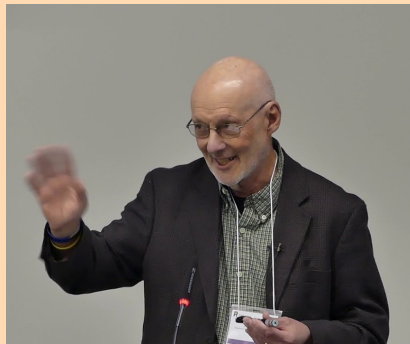
The Calibration Response and the Regress

Collins anticipates the calibration response. He claims that calibration is not ‘a test of a test’. It only controls interpretation of results. Weber used an unusual algorithm for his data.

Franklin disagrees. The surrogate signals don’t guarantee it, but reasonable epistemological criteria have been applied to them and the negative results of critics point to the erroneousness of Weber.

Robustness argument: Weber’s inadequacy of giving clear results for surrogates, clearer production of the same under linear algorithms, the simulation of why non-linear algorithm’s give Weber’s results all point us towards negative results.

“Collins bases his account of the episode almost entirely on interviews with some of the scientists involved. They are not named and are identified only by letter. My own account is based on the published literature.” (Franklin, 1999)



Allan Franklin

Reliabilist Response

A middle-ground approach between theory and experiment.

(1): x is epistemically justified when x is produced by reliable methods and apparatus (like X, statistical methods, theoretical constraints etc.) *in absence of defeaters*

(2): X is a good detector because it produces x when the experiment is performed.

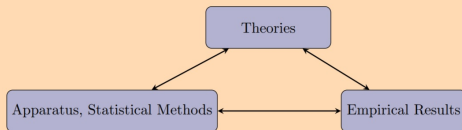
We reject (2). Nora Boyd's picture of experiment relies on a complex view of evidence. Reliability of the process of generation of the empirical result is embedded in metadata about the production of result, statistical analysis, surrogate testing etc.

Commissioning plays a role in establishing that X is reliable **and that possible defeaters are eliminated**. Finding things that go wrong is direct attempt to remove possible defeaters.

This is more of a timid response compared to Zuppone (2017) who rejects (1) and argues that since result production is complex, and theory-infused, x can be justified because it fits the theory. Adding the commissioning process better represents *why* we can believe in an experiment and not just because it relates to our theory in the right way.

Reflective Equilibriums, *narrow* & *broad*

There exists a balance between our experimental methods, apparatus and the specific empirical results. In absence of defeaters, (in case where intervention is possible, activity) we can accept the results. However, if our background theoretical structure (beginning point) and existing HOE give us good reason to doubt X , we may reject x . The equilibrium is adjustable. Theory, evidence, apparatus all mutually justify each other.



Question that is still open: Our equilibrium currently is justified as it is what we believe after considering the alternatives from our previous equilibrium. Is the starting point arbitrary? Pluralism?