

Kyle Stanford, “**The Problem of Unconceived Alternatives**”

(from his 2010 *Exceeding our grasp*)

***Eliminative inference***

A form of inference in which we draw a conclusion from the exclusion of all competing alternatives to that conclusion; it can be either deductive or inductive.

Eliminative inferences pervade science. No account of confirmation can exclude them.

***What is the Problem of Unconceived Alternatives?***

Pierre Duhem’s worry: “Do two hypotheses in physics ever constitute [...] a strict dilemma? Shall we ever dare to assert that no other hypothesis is imaginable?” (quoted in Stanford, 2010, 28).

Stanford’s reliability condition on eliminative inference: we need to have a reasonable degree of certainty that “all of the most likely, plausible, or reasonable alternatives” have been considered in our inference (ibid, 29).

History shows that scientific uses of eliminative inference do not meet this condition. Scientists have consistently failed to entertain all likely alternatives.

Especially our *fundamental* theories are subject to this worry (theories positing structure for the most “remote” domains of nature).

Examples of scientific conclusions prone to the problem of unconceived alternatives:

- nothing can travel faster than the speed of light
- spiders and human beings share a common ancestor
- self-replicating molecules emerged from a chemical soup to begin life on Earth.

### ***What the Problem of Unconceived Alternatives is not***

- *not* a form of global skepticism:

Stanford acknowledges that eliminative inference is trustworthy in many cases; it's just that scientific inquiry is not one among them.

- *not* a challenge for the totality of scientific methods:

Eliminative inference does not exhaust the methodology of contemporary science. It mostly concerns our fundamental theories.

- *not* a problem of observability:

Contrast with the “observable/unobservable” problem for Van Fraassen’s empiricism: “there is nothing especially suspicious about scientific claims regarding observables *per se*” (ibid, 35). There are unobservable entities that are not challenged by the problem.

- *not* just another form of pessimistic induction:

The problem of unconceived alternatives is not a problem about scientific theories — it’s a problem about *method*.

### ***Separating scientific products from scientific practice***

Stanford: Our current theories indeed have features that place them in a better position in comparison to their predecessors. This does not apply to our current theorists’ *practice* of exhausting the space of alternatives.

Nevertheless, some features of contemporary scientific inquiry — relating to the status of scientific knowledge as an essentially *social* form of knowing (Bird, 2010) — have significantly increased reliability:

- fast dissemination of information around the globe
- increased connectivity of the scientific community
- blind peer review
- high specialization.

***“innocent until proven guilty” or “guilty until proven innocent”?***

Asymmetry between thing-language and particle-language: the former has never betrayed us in the past.

Stanford takes eliminative inference in science to have been proven guilty by the historical record. Is this a decisive verdict? Perhaps we should say that eliminative inference has a “criminal record.”

***Where do we set the boundary?***

“most likely,” “plausible,” “most reasonable,” “good reason to doubt”: *vague* notions, they entail borderline cases.

What would it take for an eliminative inference to have exhausted all likely possibilities with *enough* certainty?

My belief that *p* is *safe* just in case I could not have easily had a false belief as to *p* (Williamson, 2000, Ch. 4). Safety is a kind of “local necessity” (Williamson, 2009), inherently vague.

If the problem of unconceived alternatives is to pose a significant challenge to realism, it will have to be explicit about what counts as a possibility that’s *close enough* to threaten the safety of our scientific conclusions.

Gems & Coal:



Vagueness seems too important not to be addressed.



Some irritatingly long sentences.



Careful articulation of the problem & intellectual humility: Stanford is careful *not* to present his claims as grander than they really are.

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## References

Bird, A. (2010b). Social Knowing: The Social Sense of 'Scientific Knowledge'. *Philosophical Perspectives*, 24, 23-56.

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