

Knowledge, Truth, and Mathematics

Philosophy 405
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Class 24: Return of the Weasel

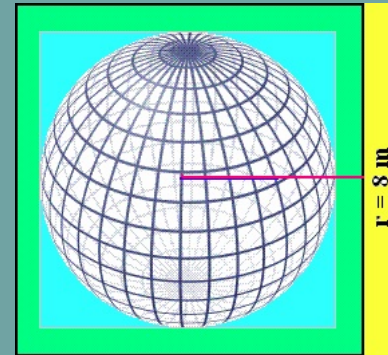
Quine, Field, Melia and Attractiveness

- Quine argues that we find our ontological commitments in the quantifications of our best theories.
 - ▶ Field accepts the method.
 - ▶ Melia doesn't say anything about the method directly.
- There are easy ways (the trivial strategy and related) to eliminate quantification over mathematical objects.
 - ▶ Quine: one must retain first-order logic.
 - ▶ Field: theories with messy logic are unattractive
 - “If no attractiveness requirement is imposed, nominalization is trivial... Obviously, such ways of obtaining nominalistic theories are of no interest” (Field 41).
 - ▶ Melia: unattractiveness \neq indispensability

Setting Up the Weasel

The trivial strategy certainly has all the advantages of theft over honest toil - but that does not necessarily mean that it has any of the disadvantages!...I shall question the validity of rejecting...unattractive theories...but, even if [Field] is right, in a very short time we have come a long way from the view that quantification over abstracta is *indispensable*. Quantification over abstracta can be dispensed with - and easily dispensed with at that - but the theories which do quantify over abstracta are more attractive than the theories which don't. This is a considerably weaker claim and one much more vulnerable to a nominalist assault (Melia 458).

Theft or Honest Toil?



- “We do successfully and unproblematically describe a particular non-Euclidean world by taking back some of the implications of what we earlier said” (Melia 468).
- Angels and stars
- “Sometimes, we just cannot say what we want to say first time round. Sometimes, in order to communicate our picture of the world, we *have* to take back or modify part of what we said before” (Melia 468-9).

Competing Theories, Competing Ontologies

- We are often faced with competing theories.
- Sometimes these theories are empirically equivalent.
 - ▶ No evidence sways us to one over the other.
- If no empirical factors sway us toward one theory over another, we may suppose ourselves to be unable to choose.
 - ▶ Buridan's ass
- The Immanent Virtues: Simplicity (for example)
 - ▶ Some theories are simpler ontologically.
 - ▶ Some theories are simpler in formulation.
 - ▶ These factors of simplicity are inversely proportional.
- Melia: We should prefer ontological simplicity over formulational simplicity.
 - ▶ "I accept that considerations of simplicity play an important role in theory choice. But I prefer the hypothesis that makes *the world* a simpler place. For sure, all else being equal, I prefer the simpler ontology. For sure, all else being equal, I prefer the theory that postulates the least number of fundamental properties and relations. But the simplicity I value attaches to the kind of world postulated by the theory - not to the *formulation* of the theory itself" (Melia 473).

Always Ontological Simplicity?

- Melia compares two theories.
 - T_1 has no numbers but lots of numerical predicates.
 - All distance relations are different properties.
 - T_2 accomplishes the same tasks with few predicates and an arithmetic ontology.
 - The same predicate may be used for any distance.
- Melia: there is no sense in which T_2 is simpler.
 - Really?
- We can reduce ontology at the expense of ideology.
- Thus, one must be very careful to choose a satisfying ideology.
 - Remember GR2: Logical Neutrality
 - “The quest of a simplest, clearest overall pattern of canonical notation is not to be distinguished from a quest of ultimate categories, a limning of the most general traits of reality” (Quine, *Word and Object* 161).
- One could interpret the connection of metaphysics and choice of language as a flaw in Quine’s project, as Melia does.
- Or, one could reconsider Quine’s arguments for holism and first-order logic, and engage them directly, as Melia does not.

Melia's Inference

We use aesthetic and pragmatic considerations in choosing among theories.

Thus, we have a choice whether to believe in the existence of all the objects over which we first-order quantify.

- Valid?

Putnam and the Weasel

- Melia accurately represents Putnam's version of the indispensability argument as lacking an explicit statement of the method one is to use to determine the objects to which a theory commits.
 - ▶ "Our best scientific theories entail the existence of numbers, sets and functions...Since such claims entail the existence of *abstracta*, we cannot consistently assert or believe in our scientific theories whilst denying the existence of *abstracta*"(Melia 455).
- Quine provides an explicit method for determining the ontological commitments of a theory while Putnam leaves that question open.
- Quine's argument is resistant to alternative interpretations of the language of science, and thus resists weaseling.
 - ▶ We can not, for Quine, take back some of what we allege.
- Given Putnam's argument, for which we do not have explicit rules for interpretation of scientific discourse, a weaseling strategy might succeed.
- Melia has to provide an alternative method of determining one's ontological commitments.
 - ▶ Eleatic Principle?