

Formal Methods in Metaphysics

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Monday 1:30–4:20

Summary

An investigation of selected issues in metaphysics (broadly conceived) that can be usefully approached with formal methods. Possible topics include: the problems of the unity and structure of propositions; Bradley's regress; the nature of asymmetrical relations; metaphysical issues in higher-order logic; determinates and determinables; Putnam's paradox; symmetry as a guide to fundamentality; the question whether there is a privileged language that is uniquely joint-carving or uniquely suitable for describing the fundamental features of reality; theoretical equivalence; quantifier variance; ontological pluralism; metaphysical indeterminacy; arguments against structured facts and propositions; type theory and other hierarchical conceptions of reality; contingentism and modal logic; a liar-like paradox in decision theory.

Guest speakers

09/16: Neil Dewar

09/30: Ted Sider

12/09: Dana Goswick

Readings

... for the course can be found here:

https://drive.google.com/drive/folders/1CjxPFQURzCxbzcNSdBJI7TbbkJRgC8lf?usp=s_haring

Detailed (but incomplete) description of topics

1. Unity and structure

a. The problems of the unity and structure of propositions

The classic problem of the unity of the proposition is discussed by Frege, Russell, and Wittgenstein in the *Tractatus*. Roughly speaking, it's the problem of explaining what distinguishes a sentence or proposition (these are not always clearly distinguished) that says that a has property F from a list mentioning the entities a and F , or a sentence or proposition that says that a stands in relation R to b from a list mentioning a , b , and R . What I call the "problem of the structure of the proposition" centers on the question of what distinguishes a sentence or proposition that says that a stands in relation R to b from

a sentence or proposition that says that b stands in relation R to a . This problem is discussed by Wittgenstein in the *Tractatus*.

b. The problem of the unity and structure of reality

These are analogous to a certain extent to the problem of the unity and structure of the proposition, but they concern worldly facts or states of affairs rather than representations.

The problem of unity goes back at least to Bradley. It concerns the question of what the difference is between a scenario in which a and F exist but a does not have F and a scenario where a and F exist and a has F . It might be tempting to say that in the second scenario a and F are combined in a certain way in which they are not combined in the first scenario. But what account can we give of this mode of combination? Does a have to stand to F in a relation of instantiation, I ? If we say this, we immediately face the question of what distinguishes a scenario in which a , F , and I exist but a is not I -related to F from a scenario in which the three entities exist and a is I -related to F . If we resolve this problem by another appeal to the instantiation relation, we are off to an infinite regress. Is the regress vicious? Is there some way of avoiding it?

The problem of structure concerns the question of what the difference is between a scenario in which Rab and a scenario in which Rba . It might be tempting to say that a , b , and R are connected in different ways in the two scenarios. But how should we understand that idea? Is there a triadic instantiation relation I , such that $IRab$ in the first scenario but $IRba$ in the second scenario? If we say that, we will face the question of what distinguishes the scenario in which $IRab$ from the scenario in which $IRba$. Once again, we face the threat of a regress and the question whether the regress is vicious and whether and how it can be avoided.

c. How much structure does reality have?

(i) *Non-symmetrical relations*. Either (i) the relation of loving is identical with the relation of being-loved-by, or (ii) the two relations are distinct. Both theses have clear drawbacks.

Thesis (i). If (i) is combined with the assumption that polyadic predicates express relations, it seems to follow that the predicate position in a sentence is often “opaque”, in the sense that we cannot always intersubstitute predicates expressing the same relation *salva veritate*. (For example, if A loves B but not vice versa, we cannot substitute “is loved by” for “loves” in “A loves B” without changing the truth-value of the sentence.) Does that mean that it makes no sense to quantify into predicate position? How should we interpret higher-order languages?

Thesis (ii). (ii) raises the question of what the difference between loving and being-loved-by is supposed to consist in. It seems unsatisfying to answer that the lover fills the first argument place of loving but the second argument place of being-loved-by, while the

beloved fills the second argument place of loving and the first argument place of being-loved-by. That answer looks very suspicious: we seem to be reading features of our language into reality.

The issue of non-symmetrical relations is entangled with the problem of the structure of reality described above.

(ii) *Do structured views of reality lead to incoherence?* Arguments by Cian Dorr and Jeremy Goodman appeal to the Russell-Myhill paradox to deny the coherence of the structured view of propositions and facts. Are arguments of this form convincing? If so, what are their implications for the theory of grounding? Readings: Dorr, Goodman, Fritz.

(iii) *Do we need to think of the universe of properties and propositions as consisting of a hierarchy of orders if we want to avoid paradox?* Friends of type theory might think so, but is this conclusion obligatory?

(iv) *Does reality have a unique structure?* If so, is there a privileged, joint-carving language for describing reality? Or do different conceptual schemes yield different permissible ways of describing the structure of reality, with there being nothing to choose between them?

2. Contingentism and modal logic

Contingentism is the thesis that there could have been a contingent existent, necessitism is the negation of that thesis. Williamson argues that contingentist modal logic is weaker and less simple than necessitist modal logic, and that contingentists cannot explain the evident utility of the model theory for modal logic. He concludes that we should be necessitists. What should we think of his arguments?

3. A liar-like paradox in decision theory

A person whom you trust completely puts a check in the amount of 100 utils in front of you. You can take it (C) or not take it (–C). “Before you make your choice, there is one thing you should know,” the person says. “If you make a decision that is rationally impermissible, you will get an extra 1,000,000 utils.”

Puzzle. Assuming that the beliefs of a rational agent are classically consistent, you must assume that one of the following is true.

- (1) Both C and –C are permissible.
- (2) Both C and –C are impermissible. (It’s a good question whether it’s possible for all options to be impermissible, but let’s assume that that’s possible. Ultimately, nothing hangs on it.)
- (3) C is uniquely permissible.
- (4) –C is uniquely permissible.

Here's a quick and dirty argument for the claim that you can't accept any of these possibilities. If you accept (1), you must conclude that what you do makes no difference to whether you will get the million utils. In that case, C seems uniquely rational, which contradicts (1). An analogous problem arises if you accept (2). If you accept (3), you have to conclude that $\neg C$ would be rewarded with a million utils while C would not be. That seems to make $\neg C$ uniquely rational, which contradicts (3). The same problem (with C and $\neg C$ reversed) arises if you accept (4).

The question is which options (if any) you should take to be permissible, and what you should do.