A Logical Approach to Metametaphysics

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3º Filomena - 2017

What we take as true commits us. Quine took advantage of this fact to introduce the notion of the ontological commitments of a theory. In accepting a theory, we commit ourselves to the existence of certain entities: the ontological commitments of the theory.

Quine has formulated a precise criterion to identify what are the ontological commitments of any theory **T**, that is, the entities with which we commit ourselves to its existence when we assume a theory **T**.

> *we are convicted of a particular ontological presupposition if, and only if, the alleged presupposition has to be reckoned among the entities over which our variables range in order to render one of our affirmations true. (Quine 1963b, p. 13)*

These entities are revealed in the existential affirmations of the theory:

T is ontologically committed with entities of type **P** if and only if:

$$\mathbf{T} \models \exists x\, \mathrm{P}(x)$$

What I say, what I contend, when treated as a theory, that is, when bound to all its logical consequences, commits me to the entities referred by the existential affirmations of this theory.

Existential quantifiers and variables, however, are not adequately identified in natural language. Before finding the ontological commitments of a theory T, one must regiment it into a formal canonical notation.

For Quine, the method for doing ontology would then have three stages:

1) Paraphrase (regiment) your best scientific theories in a canonical notation.

2) List the ontological commitments of these regimented theories.

3) Include in your ontology only the entities corresponding to these ontological commitments and nothing else.

According to Quinean naturalism, philosophy would work along with science. Ontology would, indeed, come after science. First, give me our best scientific theories. Then I shall give you my ontology.

The space for philosophical debate about ontology in the Quinean meta-ontological proposal would occur exclusively in step 1 of its strategy. The step of regimentation through paraphrases in canonical notation.

Distinct paraphrases can lead to different ontological commitments. Since we must always respect Ocham's razor, then our ontology should always be the one that commits itself to fewer entities. We will include in our ontology only those entities that are INDISPENSABLE.

An ontological debate about whether a specific type of entity **P** exists would always be a debate about its indispensability. If all the regimented versions of the theory **T** that deals with **P** have among their logical consequences $\exists x \mathrm{P}(x)$, then **P** is indispensable and must be in our ontology. If there is some regimentation of **T** for which $\exists x \mathrm{P}(x)$ is not a logical consequence, then **P**-kind entities are not indispensable and should not enter into our ontology.

For example, if every scientific discourse on biological species can be made without species occupying the place of individuals, that is, without biological species being values of variables existentially quantified in sentences of the theory, then biology does not commit itself to species, and they should not be part of our ontology. They are not indispensable, do not exist.

Numbers, by contrast, are indispensable as values of variables quantified existentially in many of our best scientific theories. So they should be part of our ontology. They are among all things. They exist.

Nevertheless, for an ontological debate of this kind to be rationally conducted, its participants must first agree on some fundamental issues:

1) They have to agree on which are our best scientific theories that deserve to win a ticket to our ontology room.

2) They also have to agree on what is the formal language of canonical notation. What are the formal resources that can be used in our regimented paraphrases?

3) Also, they have to agree on what logic governs all theories. After all, different logics may diverge on which existential statements are consequences of the theories, and therefore, different logics may lead to different ontological commitments.

For Quine, regimentation must be done in its canonical notation, which is the 1st order language, without individual constants, where names are treated as Russell's definite descriptions. Besides, logic is, for Quine, the 1st order classical logic that can be complemented by his first order set theory NF.

Disagreements about (1) are scientific discordances. They are the responsibility of scientists and do not compromise the philosophical part of the ontology task.

Disagreements about (2) and (3) are directly related and although they are logical disaccords we can already foresee that they will have consequences for ontology and metaphysics. We shall be back to them soon.

If on the one hand this proposal for ontology proves promising for the solution of some critical ontological debates, such as the existence of numbers, on the other hand it is insufficient in many other cases.

The difference in the conception of numbers between a constructivist mathematician and a classical one, for example, is not whether numbers exist or not, but it is about the nature of the existence of numbers. How do the numbers exist? Classics and constructivists disagree on the role of the mind in the constitution of mathematical reality.

Likewise, the difference between a realist about the physical world and a phenomenalist is not whether the physical world exists or not, but it is about the nature (mode) of physical world's existence. They differ on the role of our sensory experiences in the constitution of the physical world. (Dummett 1991)

Surprisingly, the general question of universals is also not solved in the Quinean ontological environment. Why? Because a universal is not the extension of a property or relation, but its concept, its intension. So you need second-order logic or some other resource to deal with them, which does not fit the constraints of Quinean canonical notation.

So, in the Quinean framework, the universals are forbidden to ANY ontology. What is the metaphysical interpretation of this fact? We can say that the Quinean doctrine of being (its conception of existence) is incompatible with universals.

What, then, is Quine's doctrine of being? What is his concept of existence? Where lays the metaphysical part of his account? He is often accused (Azzouni 1998) of having presented anything but a cold formalistic criterion of ontological commitment.

I propose that the constraints expressed in (2) and (3) above that force regimentation into canonical notation and limit the arguments to first-order classical logic correspond to a precise description of Quine's concept of existence. Its formal look should not hide its metaphysical content.

Thus I can say that being, for Quine, is being a classical particular and nothing more. Moreover, the best description of what is a classical particular is given by the quantificational theorems of first-order classical logic.

In Quine's framework, the most general characterisation of being is offered by the various quantificational theorems of first-order classical logic.

Every theorem of the form $\neg\exists x\, \alpha(x)$ form characterises a metaphysical prohibition. For example:

$$\neg\exists x\, (P(x) \wedge \neg P(x))$$

Every theorem of the form $\forall x\, \alpha(x))$ characterises a metaphysical obligation. For example:

$$\forall x\, (P(x) \vee \neg P(x))$$

There are less obvious obligations and prohibitions:

$$\neg\exists x \forall y \, (\text{Shaves}(x,y) \leftrightarrow \neg\text{Shaves}(y,y))$$

When we link existence to quantification, quantificational theorems immediately become metaphysical principles. They do not separate beings. They are true of all of them. They describe the most general characteristics of all beings.

Differently, even a universal statement of the form $\forall x \, \alpha(x)$, if it is not a theorem, but only contingently true, it will not be a metaphysical principle. Just because it is not true of everything that can be an individual. It is true only of individuals that satisfy the constraints imposed by $\forall x \, \alpha(x)$ models, that is, by the interpretations in which it is true.

So any other conception of being different from that of Quine, who conceives it not as a mere (classical) particular, will require, in addition to another doctrine of being, ANOTHER LOGIC.

Let's look at an example.

How to understand the metaphysical difference between the reality of mathematical entities according to a constructivist approach and according to the classical approach?

Roughly, in a constructivist approach a number is a mental entity, that is, our thinking is constitutive of the reality of numbers. We build them mentally. In a classical approach, numbers exist independently of us and our thinking.

According to the characterisation of Michael Dummett (1963), we can understand this divergence in the conception of truth that these characterisations require:

For realists (Platonists) in general, there is an outer mathematical reality, independent of us, deciding whether or not a mathematical statement is true, and for the anti-realists, there is not. The mathematical reality is not as independent as realists suppose.

Then, for realists, a mathematical statement is to be true or false regardless of whether we will ever have any evidence for or against it.

Truth is transcendent on verifiability.

Moreover, for anti-realists (constructivists), a mathematical statement can only be true if there is evidence in favour of it and can only be false if there is evidence contrary to it.

Truth depends on verifiability.

If for a realist, truth has no epistemological constraint, then every proposition **p** is always true or false. So, realists endorse the principle of bivalence. But if all **p** are always true or false, then (p v ¬p) is true for all propositions **p**. Then realists also endorse the principle of excluded middle.

On the other hand, If, for an anti-realist, truth depends on verifiability, then it might be a proposition **q** to which there is no evidence either in favour or against it. Then, under an anti-realistic notion of truth, q is neither true nor false and therefore (**q** v ¬**q**) is not true. So, according to the anti-realistic view, *the excluded middle is not a logical truth*.

Here a metaphysical divergence is calling for logical divergence. Constructivist mathematicians had to create a deviant logic, the intuitionist logic, in order to reason well.

According to my proposal, we must approach the quantificational theorems of intuitionist logic as providing an accurate characterisation of what being is in an anti-realistic/constructivist/idealistic perspective. This perspective characterises the more general aspects of all beings understood as entities that exist, but whose existence depends on our thought for its constitution.

This is the metaphysical meaning of intuitionism.

Quine himself was aware of this fact, as these passages denote:

The intuitionist has a different doctrine of being from mine, as he has a different quantification theory; and that I am simply at odds with the intuitionist on the one as on the other. (Quine, 1969a, 108)

Classical quantification theory enjoys an extraordinary combination of depth and simplicity, beauty and utility. [...] Deviations from it are likely, in contrast, to look rather arbitrary. But insofar as they exist it seems clearest and simplest to say that deviant concepts of existence exist along with them. (Quine, 1969a, 112–113)

I owe you many more explanations to make this clear. But I stop here with the belief that at least the general ideas of what I propose are intelligible.

1. An ontological debate may even be solved in the Quinean way, but the most exciting debates are not ontological, they are metaphysical.

2. To every metaphysical proposal is bound a quantificational logic that provides the more general characterisation of beings according to this approach.

3. Genuinely different metaphysical positions must be logically incompatible. Any two metaphysical proposals that are not logically incompatible, also will not be genuinely different, because they give rise to characterisations of being translatable in each other. They are just different images of the same characterisation.

4. Logic would then give us a criterion to answer one of the fundamental questions of metametaphysics, namely: when a metaphysical debate is, in fact, substantive and when it is merely verbal.

5. The criterion would be logical incompatibility:

Without logical divergence,
there is no metaphysical divergence

OBRIGADO!