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SYMBOLISM AND LOGICAL FORM: RESPONSE TO JAVIER LEGRIS

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Abstract: Javier Legris examines my views on symbolism and logical form in relation to two important distinctions emphasized by Jean van Heijenoort—the distinction between logic as calculus and logic as universal language, and the distinction between absolutism and relativism in logic. I generally agree with his considerations and focus my response on some relevant aspects of classical logic.

Keywords: Symbolism. Logical form. Logical calculus. Language.

SIMBOLISMO E FORMA LÓGICA: RÉPLICA À JAVIER LEGRIS

Resumo: Javier Legris examina minhas considerações sobre simbolismo e forma lógica em relação à duas distinções enfatizadas por Jean van Heijenoort: a distinção entre lógica como cálculo e lógica como linguagem universal, e a distinção entre absolutismo e relativismo na lógica. Estou basicamente de acordo com suas observações e em minha réplica enfoco alguns aspectos relevantes da lógica clássica.

Palavras chave: Simbolismo. Forma lógica. Calculo lógico. Linguagem.

Javier recalls two important distinctions emphasized by Jean van Heijenoort—the distinction between *logic as calculus* and *logic as universal language*, and the distinction between *absolutism* and *relativism* in logic—and discusses them in relation to my work. I start with some considerations about classical logic.

1. CLASSICAL LOGIC

As van Heijenoort formulates it “absolutism ... is the doctrine that there is one logic, that this logic is what has become known as classical logic, and, moreover, that such a logic is all-embracing and universal.” This captures important aspects of the view I defend in my book, but there are some qualifications.

I see classical logic as characterized by an objective conception of truth that goes together with a realistic metaphysical view. Truth is objective in that it derives from the nature of reality, and is not dependent on beliefs, theories, practices, etc. Of course, this still leaves a fair amount of room for spelling out both the characteristics of classical logic and the characteristics of the metaphysical view.

In my book I defend a strong ontological position that includes abstract properties and states of affairs, as well as particulars of various different kinds (material entities, mental entities, events, etc.). Since the purpose of the book was to set the stage for more extended discussions, I did not explore all the aspects of the ontology in detail, and concentrated my efforts primarily on the states of affairs and the abstract properties, especially the logical properties. Similarly, when discussing classical logic I did not elaborate a precise view of what constitutes classical logic. I did emphasize that I do not subscribe to certain usual assumptions—as, for example, the principle of bi-valence—and defended throughout the book that the existence of truth-valueless propositions (statements, sentences) is perfectly compatible with classical logic. I

also hold that the existence of properties that are not everywhere defined is compatible with classical logic. It is clear, in fact, that many of our ordinary predicates do not have precise conditions of applicability, and if there are properties corresponding to them, these properties are not everywhere defined.

As I argue at the end of Chapter 24, to abandon classical logic is to abandon the classical realistic conception of truth in favor of alternative conceptions of truth. This is what happens in an idealistic metaphysics such as defended by Brouwer. It follows that many so-called alternative logics are not really alternatives to classical logic, but aspects of it dealing with certain features of reality. Even a logical treatment of mental constructions is not necessarily an alternative to classical logic, as long as these constructions are taken to be part of objective reality in the traditional realistic sense. Let me expand a bit on this point as an illustration.

Heyting often claimed that Brouwer discovered some entities—mental mathematical constructions—to which classical logic does not apply.¹ I think this is a very misleading claim. Most people agree that whereas our mental experiences are individually subjective, they are part of objective reality. Thus, if someone seriously expresses the view that Buenos Aires is the capital of Brazil, as happens from time to time, I can certainly assert that he or she believes that Buenos Aires is the capital of Brazil, and my assertion is true because this belief (a specific mental entity) is part of objective reality. Similarly, when we do perform various kinds of mental mathematical constructions, they are equally part of objective reality, and we can apply classical logic to them. A proving by an individual mathematician is at least partly a mental construction, although it is likely to involve non-mental features as

¹ Thus, Heyting (1956, p. 1): "... it was Brouwer who first discovered an object which actually requires a different form of logic, namely the mental mathematical construction".

well. That does not mean, however, that mathematical truth is defined in terms of such provings, which will only follow by embracing an idealistic view of mathematical truth.

It is incorrect, therefore, to claim that Brouwer *discovered* something to which classical logic does not apply, although it is correct to say that he embraced a metaphysical view according to which not only mathematics but *all* aspects of reality are derived from consciousness.

2. LOGIC AS CALCULUS VS LOGIC AS UNIVERSAL LANGUAGE

It follows from my view that classical logic cannot be identified with a specific linguistic formulation of its fundamental notions and principles. Nevertheless, I am certainly on the side of Frege's universalistic position, although I would formulate it in terms of a universal *science* rather than a universal *language*. In fact, Frege himself argued that he considered his *Begriffsschrift* to be only a partial realization of Leibniz' universal characteristic.

I hold that the ontological aspects of logic—logical properties and logical states of affairs—cannot be captured in any fixed language, such as the language of first-order logic, or of second-order logic, or even in ordinary language. In relation to this, Javier concludes his paper with the following remarks:

Now, if logical forms are not language specific and a universalist approach is adopted, implying this alleged "ineffability of semantics", a linguistic view of logical forms could still be claimed. Logical forms that we try to establish in a precise way should be the logical forms of *the* language, the colloquial language, our language, which is impossible to capture. The different symbolisms should turn out to be only *partial* attempts to give an account of the structure of logical forms of ordinary language. However, *the* language, in Hintikka's sense, is a very elusive and obscure entity, and we cannot talk about it. Following Wittgenstein and his *Tractatus*, their logical forms can

only be *shown*. A platonistic approach like Chateaubriand's can be seen as attempting a way out of this situation.

I do not think the problem is a problem of ineffability of semantics, or that logical forms can only be shown, as Wittgenstein claims in the *Tractatus*. My point is that logical forms are abstract properties and relations that can be *expressed* in language without being *part* of language. Although it was not my intention to find a way out of the alleged ineffability described by Javier, I agree with his suggestion that the Platonist approach may avoid this situation.

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