

The Concept of Logic in Wittgenstein's *Tractatus*

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Although talk about the "ontology" of the *Tractatus* is quite common, Wittgenstein himself, in a certain sense, seems to regard the sentences of the *Tractatus* as sentences of logic. For example, in 2.012-2.0121, where he sets forth the theory of internal properties of objects, he points out that, "in logic", nothing can be by chance. Again, in 6.22 he talks about the "logic of the world", and in 6.12 about the "formal - logical - properties of the world". Similarly, in the *Notebooks* 1914-1916, he regards the question of the existence of simple objects as something that can be answered "in LOGIC" (9.5.1915).

This could mean, as several interpreters have thought, that ontological concepts playing a central role in the *Tractatus*, such as 'object' or 'state of affairs', could be defined in purely logical terms. The *Tractatus* ontology, then, would be reducible to logic. In this paper I propose another interpretation of Wittgenstein's conception of logic. According to my interpretation, logical and ontological concepts in the *Tractatus* are mutually dependent on each other: Neither can ontological concepts be defined without logical concepts nor logical concepts without ontological ones. Nevertheless, the ontological aspects of the *Tractatus* are restricted to purely formal and in this sense "logical" properties of reality. It is this restriction that makes the ontological aspects a genuine part of logic in the sense of the *Tractatus*.

1. Logic and the Definition of Ontological Concepts

According to Anscombe, the concept of object for Wittgenstein is a purely 'formal' concept, defined by the syntactical role of names in elementary sentences (Anscombe 1965, 82; 99). In a similar vein, Ishiguro holds the view that the concept of object for Wittgenstein is definable with the help of logical concepts alone: an object is whatever is designated by the subject term in a completely analysed sentence (Ishiguro 1990, 25-26). McGuinness gives another logical definition of the concept of object, using Wittgenstein's definition of sameness of signs as the possibility to substitute signs in all contexts (3.341; 3.344): as the same sign, for Wittgenstein, always designates the same object (5.553), an object can be defined as the reference of all signs which are mutually substitutable for each other in completely analysed sentences (McGuinness 1981, 65-

66). Finally, Mikel makes explicit an assumption implicitly contained in all these interpretations: 'object' in the *Tractatus* is used like a variable, designed to stand for whatever may be the ultimate endpoint in the analysis of language (Mikel 1998, 385-388). A similar analysis could be given of Wittgenstein's concept of 'state of affairs'. States of affairs are whatever is expressed by elementary sentences (4.21) or by sentences truth-functionally dependent on elementary sentences (cf. 4.2).

It is true that, in the *Notebooks*, Wittgenstein talks about simple objects in the way suggested by Ishiguro: "But how am I imagining the simple? Here all I can say is always " 'x' has reference " " (6.5.1915; cf. *Tractatus* 4.1272). A few days later, he says: "It need appear only as a prototype, as a variable in our sentences - *that* is the simple thing that we mean and look for." (11.5.1915). This seems to suggest that, in fact, 'object' for Wittgenstein is a concept defined by logical concepts alone. But, in the *Notebook* entry of 30.5.1915, he gives a negative answer to the question "is 'name' so to speak a logical concept?". There, he says that names signalise "what is common to a single form and a single content", i.e. names refer to objects. Here, an ontological component enters into the definition of 'name'. A similar conceptual structure can be found in the *Tractatus*. According to 3.201 and 3.203, objects are those entities, to which names ("simple signs") in completely analysed sentences refer. But in 3.202, names are defined as the simple signs *used* in a sentence. This presupposes that the sentence sign itself is used, i.e. is a meaningful sentence (3.5-4). Meaningful sentences, for Wittgenstein, are pictures of possible states of affairs (2.201; 3-3.02), which means that they are pictures of possible concatenations of objects (2.01). In this way, 'object' and 'state of affairs' enter into the definition of the concept 'meaningful sentence'.

The proposed logical definitions of 'object' and 'state of affairs' are affected by this conceptual structure. If the definitions proposed by Ishiguro and McGuinness are understood in a literal sense, they are clearly wrong. Not all subject terms of completely analysed sentences stand for objects: subject terms in mathematical or logical sentences do not refer to mathematical or logical objects (4.441; 5.4; 6.02). For the same reason, not all mutually substitutable signs in completely analysed sentences are names of objects; mutually substitutable signs in mathematics or logic do not have reference at all. In order to get a correct definition of the concept of object, the definitions suggested by Ishiguro and McGuinness have to be relativised to meaningful sentences, which excludes mathematical and logical sentences (cf. 5.534; 6.1263). Although it is true that, following Anscombe, objects can be defined through the syntactical role of names, the concept of name is not a purely logical concept, but, in turn, presupposes the concept of object. Similarly, only meaningful sentences can be elementary sentences, which means that the concept of 'elementary sentence' as well as that of 'meaningful sentence' depends on the concept of 'state of affairs'.

Consequently, in Wittgenstein's view, neither 'name' nor 'meaningful sentence' nor 'elementary sentence' is a merely logical concept. Rather, logical and ontological concepts, for Wittgenstein, are mutually dependent on each other. The *Tractatus* is built on a system of implicit definitions in which neither logical nor ontological concepts have priority.

2. Logic and the Formal Properties of Reality

Then, in what sense does Wittgenstein regard the sentences of the *Tractatus* as sentences of logic? Consider the occurrence of 'logic' (respectively 'logical') in 'logic of the world' (6.22) and 'formal - logical - properties of the world' (6.12). This use of 'logic' and 'logical' indicates that, for Wittgenstein, logical and ontological concepts are not only definitorially intertwined, but also that some aspects of ontology are to be regarded as a genuine part of logic. At the same time, this means that the ontological aspects of the *Tractatus* are restricted to formal (and in this sense logical) considerations.

The ontology inclusive sense of the *Tractatus* conception of logic is connected to Wittgenstein's semantic approach to logic. According to 6.124, sentences of logic represent the structure of the world, in that they presuppose that names have reference and elementary sentences meaning. In the *Notebooks*, he puts forward the question: "can we manage without simple objects in LOGIC?" (9.5.1915). As Wittgenstein makes clear in an early *Notebook* entry (22.1.1915), and again in *Tractatus* 5.4711, sentences of logic describe the nature of all description and *therefore* the nature of the world, the nature of all states of affairs, or the nature of being. In these passages, the structure of the world is tied inseparably to the structure of language with a view to the question of which conditions must be met for a sentence to have meaning. The inseparable connection between logical and ontological concepts in the *Tractatus* and the *Notebooks* can therefore be seen as a consequence of a semantic approach to the problems of logic.

Although this semantic approach leads in a certain sense to an ontology inclusive form of logic, it is important to see that the aspects of ontology included in logic remain purely *a priori*. At the very beginning of the *Notebooks* (22.8.1914), and again in *Tractatus* 5.473, Wittgenstein says that logic "must take care of itself". In this sense, according to Wittgenstein, logic is *a priori* (5.4731). Correspondingly, the central question around which the *Notebooks* turn is: "Is there an order in the world *a priori*, and if so what does it consist in?" (1.6.1915). As a consequence of this, the kind of self-evidence which plays a prominent role in Russell's epistemology in Wittgenstein's view is unnecessary in logic (*Tractatus* 5.4731 and *Notebooks* 8.9.1914). In the *Notebooks*, Wittgenstein makes clear that the irrelevance of any kind of self-evidence in logic holds

in the first instance for the question of subject-predicate form and relational forms: Whether elementary sentences have such forms cannot be shown through experience (3.9.1914). In the same *Notebook* entry, Wittgenstein also points out that the same holds for the question whether a point in visual space is a simple object: according to him, no evidence can decide this question. Again, in 5.552, Wittgenstein considers the kind of experience needed for understanding logic (which is not the same as understanding meaningful sentences, since in the view of the *Tractatus* the sentences of logic are not meaningful). Wittgenstein characterizes this as an experience "that there *is* something", which is not an experience of certain qualities of existing objects, i.e. not an experience of what something is like. Therefore, according to Wittgenstein logic is prior to any experience in a traditional sense.

This *a priori* conception of logic shows up again in Wittgenstein's distinction between 'logic' and the 'application of logic' (cf. Blank 2000, 211-214). According to Wittgenstein, it is the application of logic (not logic itself) that decides what elementary sentences there are (5.557). This does not hold only for examples of elementary sentences, but also for the question of their logical form (cf. 5.55). Logic, therefore, does not consider particular logical forms but what makes logical forms possible (5.555; cf. 4.128). Accordingly, logic cannot decide the question whether objects of a particular logical form - e.g. 27-placed relations - exist in the world (5.553-5.5542).

3. Conclusion

Thus, Wittgenstein's concept of logic is connected with two fundamental points concerning the structure of the *Tractatus*. (1) That the sentences of the *Tractatus*, in a certain sense, are logical sentences does not mean that ontological concepts can be defined with the help of logical concepts alone. There is no primacy of logical over ontological concepts or *vice versa*: the *Tractatus* can be seen as a system of implicit definitions comprising both logical and ontological concepts. (2) Nevertheless, the ontological aspects of the *Tractatus* form a genuine part of logic. The *Tractatus* contains only those commitments as to the formal properties of language and the world that can be stated *a priori*. In this sense, the sentences of the *Tractatus* are to be seen as sentences of logic.

Literature

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