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STUDII

A QUASI-FREGEAN SOLUTION TO 'THE CONCEPT *HORSE*' PARADOX

MIHAIL-PETRIŞOR IVAN

Abstract. In this paper I offer a conceptually tighter, quasi-Fregean solution to the concept *horse* paradox based on the idea that the *unterfallen* relation is asymmetrical. The solution is conceptually tighter in the sense that it retains the Fregean principle of separating sharply between concepts and objects, it retains Frege's conclusion that the sentence 'the concept horse is not a concept' is true, but does not violate our intuitions on the matter. The solution is only 'quasi'-Fregean in the sense that it rejects Frege's claims about the ontological import of natural language and his analysis thereof.

Keywords: concept, object, unterfallen, history of analytic philosophy.

I. Preliminaries

In his *Foundations of Arithmetic* ([FA]), Frege famously articulates three principles guiding him in the inquiry on the nature of numbers:

> always to separate sharply the psychological from the logical, the subjective from the objective; never to ask for the meaning of a word in isolation, but only in the context of a proposition; never to lose sight of the distinction between concept and object. (Frege 1960, p. xxii)

It is the third principle and its implications that will preoccupy me here, though the second one will also feature at various points in the argument. One of the problems that the sharp distinction between concept and object engenders is widely known as 'the

concept horse problem,' and was first articulated by Benno Kerry, a contemporary of Frege's. Crudely stated, it amounted, in Frege's reply to Kerry, *On Concept and Object* ([C&O]), to the seemingly paradoxical assertion that 'the concept *horse* is not a concept.' (Frege 1960, p. 46)

Now, Frege did not seem to believe that this is a serious problem, and he blamed the awkwardness of the expression on linguistic idiosyncrasy. However, I claim that the problem is indeed a problem, that Frege runs the risk of having his theory of language (and indeed his philosophy of mathematics) undermined by ontological incoherence, and that, ultimately, a scrupulous Fregean will have to drop some assumptions leading to the problem. On the other hand, while I will argue that Frege's response to the problem is unconvincing, he is not mistaken in believing that the proposition 'the concept *horse* is not a concept' is true.

Let us take the conceptual route that led Frege to this infamous position. There are two levels that need to be considered, the linguistic and the ontological. On the first, one must note that all meaningful expressions, for Frege, are names. According to his completed view, a name has both a sense and a reference (cf. *On Sense and Reference*). Now, some names are complete (or saturated), and the others are incomplete (unsaturated). Complete names are such expressions as proper names (e.g. 'Gottlob Frege'), sentences (e.g. 'Snow is white') and what we would, in our contemporary jargon, call definite descriptions – expressions like 'the so and so' (e.g. 'the capital of France'). Incomplete names are things like predicates (e.g. '… is white'), connectives (e.g. 'and'), or quantifiers (e.g. 'for all …').

With regard to ontology, stuff is divided into objects and functions. Objects include, among others, physical things (e.g. cars, atoms, cities), truth-values (for Frege, there are only two, the truth and the false) and, famously, numbers. Functions include, among others, mathematical functions (addition, derivatives and so on) and concepts. Now, concepts are just like mathematical functions, except their codomain consists only of the two-element set of truth-values. That is to say, when applying a concept to an object

(say, the concept of being white to snow), the result is either truth or falsity (in this case truth), whereas when applying a mathematical function to some object or objects (i.e. numbers) the result is generally another number or n-tuple of numbers (Frege 1960, pp. 30-32).

There is a very rigid connection between the linguistic and the ontological levels, to the effect that, for Frege, all complete names refer[1] to objects, and all incomplete names refer to functions. For example, 'Gottlob Frege' refers to the author of *Begriffsschrift*, 'snow is white' refers to truth, and 'the capital of France' refers to Paris. Then, of course, addition refers to that function which takes a pair of numbers into their sum (7 and 5, for example, into 12) and '… is white' refers to that function which takes all and only white physical objects into truth and all other physical objects into falsity.

II. Problems

We are now in a position to look on the issue proper. There is a tension between the form and the content of 'the concept *horse*.' According to what was explained above, we have the following:

A) 'the concept *horse*' refers to an object (by its form as a definite description);
B) 'the concept *horse*' refers to a concept (by its content, which purports to pick out a concept);
C) No concept is an object, and no object is a concept.

Prima facie at least, the position is incoherent, so one of the three will have to be dropped. Now, the third one should fall only as a last resort, since it is one of the principles of Frege's philosophy, and the first two are merely consequences of the principles. So there are two simple ways of saving Frege's

[1] I mean, here and in the rest of the paper, to use the verb 'to refer' in the strict technical sense given by Frege to *bedeuten*.

theorising from inconsistency. First, denying that the form demands us to understand that it denotes an object. Second, denying that that object is a concept.

Unfortunately, there are also, *prima facie*, fairly obvious arguments against both. Suppose we wish to deny (A). Then not all definite descriptions are to be understood as referring to objects. This entails that we cannot be certain that such expressions really do refer to objects without a further criterion distinguishing between definite description that refer to objects and definite descriptions that do not refer to objects. How are we to offer such a criterion in a rationally warranted way?

We could, of course, stipulate that expressions like 'the concept X' (where X is a concept) do not refer to objects, while all the other definite descriptions do refer to objects. The fact that this solution is simply *ad-hoc* is the least of its problems. There are many other definite descriptions whose special status we will have to stipulate. For example, 'the universal quantifier,' 'the predicate P' (where P is a predicate), and so on for every definite description of standard *and* non-standard logical operators (consider 'the and-functor' in first order logic or 'the box operator' in modal logic). It does not seem that we will ever be able to stipulate every kind of exception, all the more so since there are infinitely many logical and mathematical operations which should be functions, but which can be picked out by definite descriptions ('the derivation operation,' 'the sine function' and so on and so forth).

Further, such a criterion lacking, it seems we would not be entitled to to *use* definite descriptions to pick out proper objects from the world. In order for 'the current president of the United States' to pick out Barack Obama, we would need a proof that this definite description refers to an object, or else we would need to stipulate that it does. Eventually, we end up with a completely unprincipled way of using definite descriptions. In ordinary conversation, this will pose no problems; but this would be a disastrous result for science and philosophy, which would lose a primary conceptual tool.

Mirroring quandaries result if we take the second option, namely denying that 'the concept *horse*' refers to a concept. For then, what entitles us to claim that 'the capital of France' refers to a capital? Or that 'the number eight' refers to a number? Or that either of the two refers to an object? Again, the need for a demarcation criterion appears, only this time at the semantic rather than the syntactic level. The consequences are nevertheless the same.

But if the concept *horse* is not a concept, we have further difficulties when attempting to spell out the technical details of the proposal. Since the issue is semantic, there is a question of determining the truth of propositions including terms like this. Take the example:

(1) 'the concept F = the concept G';

What are the necessary and sufficient conditions for the truth of this statement? Clearly, the statement is true if and only if all Fs are *eo ipso* Gs and all Gs are *eo ipso* Fs. Therefore, (1) is true if and only if:

(2) $(\forall x)(Fx \leftrightarrow Gx)$;

But this is the exact truth-condition of:

(3) 'F=G';

The problem here is this: (3) is an identity between predicates (i.e. incomplete names), whereas (1) (in case expressions like 'the concept *horse*' refer to objects and are therefore saturated) is an identity between singular terms (i.e. complete names). Now, if both (3) and (1) are both logically equivalent to (2), then they are equivalent to one another and so they will have the same consequences.

Now, recall that in *Begriffsschrift*, §3, Frege rejected the logical relevance of the Aristotelian analysis of statements on the grounds that sentences with different subjects and predicates are nevertheless logically equivalent, the now-famous examples being

'The Greeks defeated the Persians at Plataea' and 'The Persians were defeated by the Greeks at Plataea' (Frege 1967, p. 12). That argument runs more or less thus:

P1) If a difference in statement analysis does not entail a logical difference, then the analysis is faulty;
P2) Aristotle analyses statements as composed of subjects and predicates;
P3) There are statements with different subjects and different predicates that are nevertheless logically equivalent;
C) Aristotle's analysis of statements is faulty.
Corollary: the subject-predicate distinction is logically irrelevant.

Now, we could formulate a parallel (i.e. not strictly analogous) argument, starting from the equivalence of the identity statements (1) and (3) above.

P1) If a difference in statement analysis does not entail a logical difference, then the analysis is faulty;
P2') Frege analyses statements as composed of functions and arguments/singular terms;
P3') There are identity statements between functions that are equivalent to identity statements between arguments/ singular terms;
C') Frege's analysis of statements is faulty.
Corollary: the function-argument distinction is logically irrelevant.

This conclusion is clearly unacceptable, since the function-argument distinction, and the logic which is founded upon it, is the cornerstone of Fregean philosophy.

And this brings us to the further conclusion that naïve rejection of (A) or of (B) runs into considerable (and possibly insurmountable) difficulties. Notice also that not all of the difficulties can be removed by rejecting (C), even if we were to consider that alternative viable. A more sophisticated solution is needed, and in the following section I shall consider Frege's own

solution in [C&O], which amounts to the postulation of proxy objects representing concepts.

III. Proxies

Frege denies that 'the concept *horse*' refers to a concept. In [C&O], however, he proposes more than just this negative thesis. His positive account is that said expression refers to 'a quite special kind of object' (Frege 1960, p. 50). As per the explanation of the third methodological principle in the [FA], concepts cannot be made into objects without them being altered in some way, and thus 'the concept *horse*' refers to the 'objectification' of '... is a horse.' The object in question stands proxy for, or represents, the concept. In what follows, I shall call such objects 'proxy objects' or 'proxies'.

Let us see whether or not this avoids the problems mentioned above for the rejection of (B). First, we had the issue of the functioning of the mechanism of definite descriptions. Frege's account defuses the issue by pushing back the semantics to the ontological level. 'The concept *horse*' may not refer to a concept, but it refers to an object that represents the concept we initially think the expression ought to refer to. So, whereas the naïve rejection of (B) simply severs the all-important semantic relation between the expression and the concept, Frege's account simply makes this relation more complex and indirect. But the chain of reference is ultimately preserved, albeit at the cost of a dubious semantic-like relation holding at the ontological level between concepts and a special kind of objects.

The second issue was undermining the logical relevance of the distinction between functions and arguments, on the basis of the equivalence between statements of identity between functions and statements of identity between arguments. Without Frege's account, the rejection of (B) left us with only one possible interpretation of (1) 'the concept F = the concept G.' This lead us to understand its truth-condition as identical to the truth-condition of (3) 'F=G.' But under Frege's understanding, we can understand

(1) as being true in virtue of the semantic-like connection between 'the concept F' and 'F'! Therefore, (1) has no truth-condition independent of (3), or better yet, (3) *is* the truth-condition of (1) – and (2) is the truth-condition of (3). Another way to express the same idea is to notice that (1) says nothing over and above (3), and so (1) is to be interpreted as another linguistic form of the same thought expressed otherwise as (3). (1) merely looks like an object identity statement just like 'the concept *horse*' merely looks like it refers to a concept.

At first sight, therefore, Frege's proposal seems to offer a robust way of getting out of the apparent paradox of definite descriptions for concepts. However, the account needs to be further spelled out. The distinction between concept and object is an ontological one, so there is a matter of specifying more precisely the ultimate nature of the two categories. One needs to answer the questions: what is the nature of concepts? What is the nature of objects? And, given that we have a peculiar kind of objects, the proxy ones, who seem to be different from the rest – what is the nature of proxy objects, what makes them different from ordinary objects?

Frege leaves us in the dark about these questions – he merely postulates that there are unbridgeable differences between concepts and objects and between ordinary objects and proxy objects. A full elucidation of Frege's ontology is beyond the scope of this paper, and has been done before, notably by Wells (1951). But, on the one hand, as it will turn out later, Wells' reconstruction proceeded along the wrong lines; and on the other hand, he ignored the issue of proxy objects. I shall therefore now focus on this last issue and attempt to locate proxy objects in Frege's ontological scheme. As it turns out, the question poses significant problems for Frege's account.

For what *are* these proxy objects? Wells points out to several kinds of objects: truth-values, ideas, ranges, and so on (Wells 1951, p. 542). If we are charitable to Frege, we can admit that we have a fairly good idea (or at least a good intuitive grasp) of the kind of *stuff* this is supposed to be. How are proxy objects any different? Frege merely mentions that they represent the respective concepts

they stand proxy for, and while this may look as if it is not very constraining, we cannot accept that just about any object can stand proxy for any concept. For instance, it does not seem conceptually satisfactory to claim that this chair I am sitting on represents the concept *horse*, or that my cup of coffee represents the concept *book*.

If 'natural' objects will not do the job, then perhaps we ought to understand proxies as 'artificial'. Suppose each concept has a proxy object attached, and this object does nothing except represent its respective concept, and *is* nothing over and above an objectual projection of the concept. This is not satisfactory for two reasons. Firstly, it is obviously an ad-hoc solution and does not seem warranted in any reasonable way.

But secondly, and more importantly, this solution brings with it a prodigious ontological promiscuity. We simply postulate the existence of infinitely many objects, each corresponding to a concept and each of whose nature is exhausted by the function of representing that object. Perhaps we can, adopting a radical platonism, admit this, and it may be that there is such an object for concepts like *horse*, *house*, etc. However, this proposal loses all plausibility once we realize we can construct an endless string of concepts from any mundane concept.

Take two concepts, first our old concept *horse* and then the concept *proxy object representing the concept horse*. The object representing the first is 'the concept *horse*,' and let us name it C_H. Now, the object representing the second is 'the concept *proxy object representing the concept 'horse''* which is yet different, and which we should represent as $\{C_H\}$. We can continue down this path with 'the concept *proxy object representing the concept "proxy object representing the concept «horse»"*,' which is again different and which we should represent as $\{\{C_H\}\}$. Analogously we can get $\{\{\{C_H\}\}\}$, and so on and so forth; we have an uncontrollable proliferation of artificial objects. This does not make for very robust metaphysics.

Proxy objects have to stand in a closer and more natural connection to their respective concepts. What if we took a specific horse, say Bucephalus, as proxy object for the concept *horse*, or my

cup of coffee as proxy for *cup of coffee*? Again, this does not seem satisfactory. For why should Bucephalus be the proxy for *horse* rather than any of the other horses, and generally, why should a specific member of the extension of a concept be the proxy for that concept rather than any other member of its extension?

If we take this route, we have to eventually concede that a concept's proxy object is an arbitrary member of its extension. As it so happens, the usual understanding for the semantic value of a variable is exactly this: that it denotes an arbitrary member of its range; and its semantic role, under e.g. Tarski's understanding of variables, is to denote the range, i.e. the set of values it can take (Fine 2007, p. 10). The option that suggests itself is that a concept's proxy object is its extension (Wright 1983, pp. 18-19).

In [C&O], Frege seems to be sympathetic to this idea:

> If he [Kerry] thinks (cf. p. 281) that I have identified concept and extension of concept, he is mistaken; I merely expressed my view that in the expression 'the number that applies to the concept F is the extension of the concept *like-numbered to the concept F*' the words 'extension of the concept' could be replaced by 'concept.' Notice carefully that here the word 'concept' is combined with the definite article. Besides, this was only an incidental remark; I did not base anything upon it. (Frege 1960, p. 48)

If indeed expressions like ‘the concept F’ refer to proxy objects, and ‘the extension of the concept …’ can be read as ‘the concept …,’ then proxy objects ought to be extensions. And while this remark is, in Frege's words, incidental, other ‘incidental’ remarks in [C&O] lend credence to this interpretation: on page 47, we are given the example ‘The concept *man* is not empty’; and then, on page 49: ‘The concept *square root of 4* is realized.’ Now, quite clearly, the only things susceptible of being empty or realized are sets. The interpretation of proxy objects as extensions, then, seems to be in line with Frege's thought. Can it answer our problem?

Unfortunately, it cannot. While so far all our bases look covered, extensions bring with them other problems. The first of them affects the semantic links at least in the cases of co-extensive predicates. Consider the famous contingently-true universal statements, 'Renates are chordates' and 'Chordates are renates' (or the less technical versions, 'All creatures with kidneys are creatures with hearts' etc.). Since the extension of *renate* is identical to the extension of *chordate*, 'the concept *renate*' will refer to the same object as 'the concept *chordate*.' But which concept does that object represent? We are inclined to think it represents both, but then we are back the problems in the second section. For we want to be able to say truthfully that

(4) 'The concept *renate* is not the concept *chordate*,'

but on this reading (and in this world where all and only renates are chordates) this sentence is at best simply false, at worst a contradiction, and somewhere in between paradoxical. This happens because this forces us, against Frege, to understand concepts extensionally, in virtue of their reference only, and by abstracting from senses. And while co-extensive concepts of this sort may be rare, there are infinitely many concepts of different sorts which are not realized, and are thus co-extensive in virtue of their extensions' being empty. For example, under this reading we may be forced to acquiesce to

(5) 'The concept *jars of zakuska consumed by me while writing this essay* is the concept *square circle*'

Chance has made it so that I did not eat any zakuska while writing this essay, so the first object in the identity above is the empty set; logic has made it so that there are no square circles, so the second object in the identity above is also the empty set. The empty set is identical to itself, *ergo* (5) is true. But this is clearly paradoxical and consequently unacceptable.

While these are issues because the consequences we draw from them are counter-intuitive, there is a further problem which does not appeal to our pre-theoretic understanding of semantics. We can, as it were, 'russellize' the notion of proxy object. Consider 'the concept *proxy object that does not include itself as an element*.' As in Russell's paradox, if the object denoted by the expression between inverted commas in this last proposition includes itself as an element, then it does not include itself as an element; and if it does not include itself as an element, then it includes itself as an element.

It would seem that, either way we turn, we are beset by insuperable difficulties. Is, then, Frege's third principle to be discarded? In the following section I will suggest that this is not so. But a reinterpretation of said principle is in order.

IV. Principles

It has to be admitted that the connection Frege sees between the linguistic, logical and ontological structures is a bit odd. For why should his theory of language have any ontological grip? Why should it turn out that the way language is organized is *exactly* the way ontology is organized? And why should purely grammatical aspects of language (such as definite articles) capture the logical aspects of thought?

After all, Frege's first principle was to distinguish between the psychological and the logical, the subjective and the objective – but natural language is definitely not logical and not objective; it is at best a messy intersubjective, contingent, and constantly changing construct. The only comment Frege passes on this matter in [C&O] is to point out that 'it is here very much to my advantage that there is such good accord between the linguistic distinction and the real one' (Frege 1960, p. 45). But this sounds like a classical case of rationalization[2]. There are languages with no future tense

[2] In the psychological sense of offering a seemingly rational explanation for decision based on feeling or other irrational mechanisms.

(e.g. Japanese or Sicilian) but we would not base a philosophical account of time on this idiosyncrasy, and then declare it a happy coincidence that linguistic usage is so much in line with conceptual reasoning!

Admittedly, language does offer insights into thought, as from a certain level of abstraction the development of one is entwined with the development of the other[3]. But this is to be taken as just what it is – an insight and nothing more. The solution I suggest is for 'the concept *horse*' problem makes use of this resource without reading too much into it. I propose that the distinction between concept and object be understood relationally and operationally.

Consider the following sentences:

(6) Peter is a student in this class.
(7) There are 5 students in this class.
(8) 5 is prime.
(9) Primality is a property of some natural numbers.

I think there is little doubt that, *pace* Frege, the natural understanding of these sentences is that 'John' is the object of concept *students in this class*, 'students in this class' is the object of concept *5*, '5' is the object of concept *prime* and 'prime' is the object of concept *property of some natural numbers*. Frege opposes this reading for several reasons.

First, he believes it to be an illusion that a concept can be made into an object without altering it. While he does not initially argue for this in [FA], he points to some reasons for this in [C&O]. Apparently, natural language requires various different constructions to indicate the distinction between what is predicated and that which it is predicated about. Notably, the use of 'is' is taken by Frege to be an integral part of predicative expressions (which in turn refer to concepts). So, e.g. in (5), what is predicated of 'John' is not 'student in this room,' but '… is a student in this room.'

[3] Cf. Davidson 1974.

Here I will charge Frege again of a linguistic *parti pris*. The ulterior developments of Frege's own logic formalize (6)-(9) above as follows (where 'J' stands for 'John,' 'S' for 'student in this class,' 'P' for 'prime' and 'Pr' for 'property of some natural numbers'):

(6') S(J);
(7') 5'(S);
(8') P''(5');
(9') Pr'''(P'')[4];

The copulas are conspicuously absent, and for good reason: they are inconsequential from a logical point of view. The above examples serve to dispel another Fregean claim: 'Second-level concepts, which concepts fall under, are essentially different from first-level concepts, which objects fall under. The relation of an object to a first-level concept that it falls under is different from the (admittedly similar) relation of a first-level to a second-level concept.' (Frege 1966, p. 50) As we can see, while there is a difference between different order concepts, a difference between the relations holding between them and their respective objects is not retained and cannot be defended formally.

With these worries put aside, I can explicit my proposal. It is quite precisely what Frege wants to reject here:

> one might, like Kerry, regard an object's falling under a concept as a relation, in which the same thing could occur now as object, now as concept. The words 'object' and 'concept' would then serve only to indicate the different positions in the relation. This may be done; but anybody who thinks the difficulty is avoided this way is very much mistaken; it is only shifted. For not all the parts of a thought can be complete; at least one must be 'unsaturated,' or predicative; otherwise they would not hold together.\ (Frege 1960, p. 54)

[4] The apostrophes are meant to indicate the order of a concept (5' is a second-order concept, P'' is a third-order concept, etc.) i.e. a syntactic rule determining which formulas are well-formed on the basis of the kinds of argument a function is allowed to take.

But his argument does not seem to touch the proposal, mainly because he seems to assume that if *unterfallen* is a relation, then it is a symmetrical relation. This need not be the case, and indeed it is not. An object's falling under a concept is a polarized relation, and the predicative component of thought is the one that stands at the unsaturated pole.

The asymmetrical nature of the *unterfallen* relation allows us at once to keep the best of both Frege's theories and of our intuitions. For with this understanding, we can preserve Frege's third principle, the truth of 'The concept *horse* is not a concept,' and the intuition that 'the concept *horse*' ought to generally denote a concept!

For notice that in 'The concept *horse* is not a concept,' 'the concept *horse*' is not at the unsaturated pole of the thought expressed therein. On the other hand, the sentence 'The concept *horse* is both a concept and an object' turns out to be false. Similarly, in this last sentence, our troublesome expression is not at the unsaturated pole, so it cannot act like a concept. Then, of course, in 'Bucephalus falls under the concept *horse*' our expression does refer to a concept, for it is placed at the unsaturated pole.

This solution makes us of the corrective capabilities of Frege's second principle: one ought never to ask for the meaning of a word (may we say: expression?) in isolation, but always in the context of a sentence. Why, then, should we ask what a certain expression refers to in isolation? All expressions, including 'the concept *horse*,' can have their references fixed by the context in which they are used, such that we shouldn't wonder that the same expression refers at one time to an object, and at another to a concept.

Finally, what is understood by 'concept' and 'object' on this interpretation? The answer is that nothing is understood by the two terms on their own. Rather, we will understand the relation concept-object as offering us an orientation in ontological reasoning. This is similar (though by no means analogous) to Aristotle's *hyle-morphe* distinction. A molecule is a *morphe* of the *hyle* made up of atoms, while an atom is a *morphe* of the *hyle* made of protons, electrons and neutrons; and so on and so forth. Like the

hyle-morphe polarization, the *concept-object* polarization offers us the tools to think about the ontological structure of the world, without committing us to claims about ultimate natures and the like.

Conclusively, this interpretation of Frege's third principles allows us to keep the best Fregean solutions while avoiding the pitfalls of a too ontologically committed conceptual stance. While diverging from the letter of Frege's philosophy, this solution seems to me to be perfectly in line with the spirit of Frege's doctrine.

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CARNAP SENTENCES AND THE NEWMAN PROBLEM

LARISA-IOANA GOGIANU

Abstract. In this paper I discuss the Newman problem in the context of contemporary epistemic structural realism (ESR). I formulate Newman's objection in terms that apply to today's ESR and then evaluate a defence of ESR based on Carnap's use of Ramsey sentences and Hilbert's ε-operator. I show that this defence improves the situation by allowing a formal stipulation of non-structural constraints. However, it fails short of achieving object individuation in the context of satisfying the Ramsified form of a theory. Thus, while limiting the scope of Newman's argument, Carnap sentences do not fully solve the problem.

Keywords: epistemic structural realism, Newman problem, Ramseification, ε-operator, individuation.

I. Introduction

This paper discusses M.H.A. Newman's objection to structuralism, in connection with today's structural realism and Carnap sentences. In this section I will present Newman's main points against Bertrand Russell's early version of structuralism in a reformulated version, in order to indicate how it applies to epistemic structural realism. Then, in the following sections, I propose to expand the argument for structuralism by introducing Rudolf Carnap's use of Ramsey sentences and Hilbert's ε-operator as a way of getting around the Newman problem. The main aim of this paper is to consider whether Newman's problem can be solved by applying Carnap sentences to the Ramseified theory. I maintain that the use of Ramsey sentences together with the Carnap

sentence can elucidate a great deal of Newman's problem, but it does not dissolve it completely.

Today's epistemic structuralists' strategy of obtaining the structure of a theory Φ involves the use of Ramsey sentences. The Ramseification of a theory Φ substitutes theoretical terms of which we do not know whether or not they denote with existentially quantified predicate variables. The corresponding Ramsey sentence for a theory $\Phi(O_1 \ldots O_n; T_1 \ldots T_m)$[1] will be $\exists t_1, \ldots, \exists t_m[(O_1, \ldots, O_n; t_1, \ldots, t_m)]$. The Ramsey sentence of a theory states only that there are some objects, properties or relations that satisfy a certain structure, but we do not know exactly what those objects, properties or relations are. Ramseification has the advantage of eliminating theoretical terms of which we do not know whether they have a referent or not in the real world, thus showing that we need not to commit to the existence of these entities.

The Newman problem says that structure is not sufficient to uniquely pick out any relation in the world. Suppose that the world consists of a set of *n* objects that satisfy a structure *W* with respect to some relation *R* about which nothing else is known. If this is the case, then only the number *n* of elements is relevant for satisfying *W*, meaning that any collection of things can be organised in that same structure, with the single condition that it contains enough elements. Thus formal structure is irrelevant for our knowledge, since it does not single out any unique referents to satisfy a certain relation.

Ladyman (1998) points out that Newman's difficulty regarding structuralism is applicable to today's epistemic structural realism. If the Ramsey sentence of a theory Φ is empirically adequate (when all its observational consequences are true), then Φ is necessarily true as well, as a simple matter of high-order logic.

We can reformulate Newman's problem for the epistemic structural realism as follows:

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[1] Where $O_1 \ldots O_n$ are observational terms, and $T1 \ldots T_m$ theoretical terms.

a. If ESR is true, then it is sufficient to know the formal structure of relations.
b. Suppose that the world consists of a set of objects that satisfy the structure W with respect to R.
c. If nothing else is known about R, then any set of objects arranged so that it takes the structure W.
d. If the structure can be obtained using any set of objects, then the formal structure does not individuate R.
e. Hence, it is not sufficient to know the formal structure.

: . Hence, ESR is false.

Clearly, the most obvious way to get around the Newman problem is to deny premise (c), which stipulates that, in a structuralist view, any set of objects can satisfy a certain structure. But how can one argue against premise (c) without further stipulating other things that go beyond structural description, such as referring to a particular relation by specifying a certain context for it?

II. Carnap sentences and the ε-operator

Friedman (2011) addresses the use of Carnap-sentences in the context of recent discussions on structural realism and concludes that the Newman problem raised in the said context does not represent a viable objection for Carnap's conception (Friedman 2011, p. 13). In what follows, I will attempt to explain how Friedman reaches this conclusion.

Friedman's own formulation of the Newman problem[2] is focused on the fifth premise of our initial reformulation of the argument. He states that the problem is that if the Ramsey

[2] 'The problem, roughly, is that, if the Ramsey sentence is empirically adequate (if all its observational consequences are true), then it is necessarily true as well—true as a simple matter of (higher-order) logic. So it does not seem, after all, that the Ramsey sentence, as Carnap proposes, can faithfully represent the *synthetic* content that our original theory is supposed to have.' (Friedman 2011, p. 4)

sentence of a theory is empirically adequate, then it is logically true – given the fact that any set of objects could satisfy the implied Ramsey sentence; but if this is the case, then the Ramsey sentence cannot faithfully represent the synthetic content of the original theory – hence, it is not sufficient to know the structure of a theory. However, Friedman notices that Carnap's Ramsey sentences have factual content simply because they state that there are observable events in the world such that there are *numbers or classes of numbers*, which are correlated with the events in a prescribed way. Thus here lies the key in avoiding the Newman problem: it seems that Carnap does not presuppose that an abstract theory has any synthetic or factual content beyond its empirical adequacy. Thus there is no synthetic content such that the Ramsey sentence would fail to successfully represent. The Newman problem is eluded as a consequence of Carnap's neutralism.

Roughly, Carnap believes that we are not ontologically committed to the idea that theoretical terms have real denotation. He stipulates that the values of the variables of a theoretical language range over a domain of entities including not electrons or atoms, but a denumerable sequence isomorphic to the natural numbers. Thus, the domain *D* of entities contains only numbers and classes of numbers. Proceeding to physics, all entities needed as values for the variables are constructed within the mathematical domain *D*. Therefore, having a language that contains theoretical terms becomes a matter of preference[3].

Moreover, Carnap makes use of Ramsey sentences but only as a constituent of the full formalisation of a theory. The Ramsey-

[3] 'It is obvious that there is a difference between the meanings of the instrumentalist and the realist way of speaking. My view, which I shall not elaborate here, is essentially this. I believe that the question should not be discussed in the form: 'Are theoretical entities real?' but rather in the form 'Shall we prefer a language of physics (and of science in general) that contains theoretical terms, or a language without such terms?' From this point of view the question becomes one of preference and practical decision.' (Friedman 2011, pp. 2-3)

sentence of a theory, (∃u)TC(u, o)[4], only captures the synthetic aspect of a theory, while the analytic feature is pictured by a meaning postulate. Roughly, Carnap takes a theory TC to be equivalent with '^{R}TC & (^{R}TC ⋅ TC)' (Psillos 2000b, p. 268), where '^{R}TC' is the Ramsey-sentence of a theory that gives the factual content, while '^{R}TC ⋅ TC' is a meaning postulate which says that if there is a class of entities that satisfy the Ramsey sentence, then the theoretical terms of that theory refer to the members of that class.

Now, as far as this goes, it seems that Newman's problem has actually deepened under the Carnap abstraction of a theory. Since any set of objects could realise the structure given by the Ramsey sentence, it follows from the postulate that the terms of any theory denote. But Carnap ingeniously makes use of Hilbert's ε-operator such that relations are properly satisfied by relevant entities and not by any random set of objects. Thus, theoretical terms are to be explicitly defined, but only partially, with the help of the ε-operator (Psillos 2000a, p. 156), which picks up certain entities from a non-empty class, such that those entities satisfy the implied relation.

The ε-operator is defined by the following axiom: ∃xFx ⋅ F(εxFx) – if anything has the property F, then the entity εxFx has the property F, where εxFx is an ε-representative of the elements of a non-empty class F, without further specifying which element it stands for. For instance (Psillos 2000b, p. 171), take ε_n, where n = 1 or n = 2 or n = 3. Take 'a' to be the abbreviation of the ε-expression that is an element of the class which contains the elements 1, 2 and 3. Now what we know is that *a* is either 1 or 2 or 3, but we cannot say whether a=1 is true or false.

Therefore, if we have a theory TC whose theoretical terms form an n-tuple $t=\langle t_1 \ldots t_n \rangle$, then the Hilbert ε-operator allows us to select an arbitrary class among the classes of entities which satisfy the representative of the i^{th} member of the n-tuple. This way we can define every theoretical term of the theory such that it is not the case that any set of objects could be arranged to satisfy the formal

[4] We use this simplified form instead of '$(\exists u_1)\ldots(\exists u_n)TC(u_1 \ldots u_n, o_1 \ldots o_n)$ where '$u_1 \ldots u_n$' are the variable that stand for logical terms.

structure of the theory. The Carnap sentence of a theory can now be re-written in the following form: 'TC((εuTC(u, o)), o) · TC(t, o)'.

III. A problem of individuation

I trust that I am not mistaken in saying that not all epistemic structural realists would come to terms with Friedman's response to the Newman problem through Carnap sentences. Clearly, it is Carnap's neutralism that makes his Ramsey sentences immune to Newman's problem by stipulating that the values of the variables of his theoretical language range over a domain containing numbers and sets of numbers. This view is definitely compatible with epistemic structural realism, since it does not imply any ontological commitment towards objects; however, it can rather satisfy a more instrumentalist kind of epistemic structuralist.

It might be possible to make use of the Carnap sentence such that it could also offer a solution to the Newman problem for the epistemic structural realists. Having an epistemic constraint on realism means commitment to the structure of our best scientific theories but agnosticism about the rest of the content. In other words, the variables of a theory are taken to range over whatever there is which satisfies the structure, yet the things that satisfy the said structure can be known only by description. In this case, the use of the ε-operator can function more or less as a *definite* description, picking up exactly those things that satisfy a certain relation, such that it is not the case that *any* set of objects could satisfy the structure of a theory.

Up until now, the conclusion is that it is no longer the case that we can obtain the structure *W* using any set of objects, since the Hilbert operator picks up elements that are relevant for satisfying certain relations. This means that an important part of Newman's problem is indeed avoided by Carnap's use of Ramsey sentences together with the ε-operator. But does it also solve the problem of individuation indicated in premise (d) of Newman's problem?

The point raised by Maxwell when introducing Ramsey sentences for eliminating theoretical terms from our discourse was that we can only have epistemic access to unobservable entities (be it objects or processes) through description, and not by acquaintance (Ladyman 2014). Thus we can only know the structural properties of these entities, such that we can merely understand the meaning of theoretical terms structurally. But dealing with descriptions is already a problematic matter.

Take the case of definite descriptions – suppose your neighbours are twins, but you do not know that. However, you use the description 'the neighbour that lives across the hall, with tiny, black eyes and greasy hair' to refer to one or the other. The description is still a definite description in virtue of its syntactical form, but it is satisfied by two different objects. Russell would say that the above definite description is not a correct one, since it does not pick up a unique object[5]. However, based solely on its structure, we have a case of isomorphism. In reality, we know that the implied description is not a correct definite description because we can also get to know the twins by acquaintance and not only by description.

Let's get back to the example used in the previous section to illustrate the use of the ε-operator. Take ε_n, where n = 1 or n = 2 or n=3. When you take 'a' to be an element of the class which contains the elements 1, 2 and 3, you know that 'a' is either 1 or 2 or 3, but you cannot say whether a = 1 is true or false. With respect to the problem of individuation, the ε-operator works no better than a flawed definite description – it picks up one of the numbers which correspond to satisfying the description, but it does not individuate, since it can be either of the three given options.

In physics we cannot always know whether there is a case of isomorphism or not. Hence the formal structure can still not individuate properly. If this is the case, then the structuralist has to either accept the fact that a problem of individuation remains

[5] 'Now *the,* when it is strictly used, it involves uniqueness; we do, it is true, speak of "*the* son of So-and-so" even when So-and-so has several sons, but it would be more correct to say "*a* son of So-and-so".' (Russell 1905)

unsettled, or to defend the idea that isomorphism does not represent an issue for our knowledge of scientific theories.

It might be inviting to conclude that the Newman problem undermines *all* forms of structural realism, in so far as it shows that some or other kind of non-structural information must be added as constraints over the range of the variables of the Ramsified theory. Rudolf Carnap, on the other hand, shows that we can impose *some* constraints on the range of the variables, constraints which we would not describe as 'non-structural information'. These guarantee that it is not the case that *any* set of objects can satisfy the Ramsified form of a theory, hence they dissolve a great deal of the Newman problem. Nonetheless, even if the Carnap sentences idea represents an improvement over the Ramsified form of a theory, it does not solve the problem of individuation.

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MOTIVATING CATEGORIES: A SIDE EFFECT OF STRUCTURAL REALISM

ANDREI SIPOŞ

Abstract. In this paper I discuss Jonathan Bain's answer to the argument against radical ontic structural realism (OSR) based on the idea that a structure is an isomorphism class and thus cannot be the only thing that exists. I examine Bain's proposal of replacing the set-theoretic approach to OSR with a categorial approach and argue that several of his argumentative moves are deficient. First, Bain seems to define wrongly some of the mathematical concepts involved in category theory, for instance that of 'maximal ideal', and he also attempts to use these concepts in ways that would be detrimental to OSR itself. Both of these deficiencies undermine his claims. Second, the very form of Bain's argument is, to some point, self-defeating, since defining any category whatsoever presupposes some fixed set-theoretic framework.

Keywords: ontic structural realism, mathematical structuralism, category theory, set theory.

I. Introduction

The main thesis of ontic structural realism is that what exists in the world at the most basic level and is probed by the methods of science is structure – and the most radical version of that statement effectively says that this 'structure' can and must exist without any objects involved that would instantiate it.

A remark on semantics surely has its place near' the beginning of our discussion, as to not throw the potential reader into depths of confusion: the usual practice in mathematics and mathematical logic is to call 'structure' what is most commonly presented as a set endowed with additional gadgets like relations

or operations or topologies. In philosophy that concept is more frequently denoted by 'structured set' or simply 'system', whereas the term 'structure' is reserved for the essence that is preserved under the appropriate notion of (iso)morphism. It is in the latter sense that the term shall be used here.

Even from this brief glimpse, we can see that a structure is something that arises from a richer construct, the system itself, and surely it would seem incoherent to bluntly state that it is the only thing that truly exists. For then, a structure would be an isomorphism class containing countless systems that satisfy the required axioms or properties, and those systems would also have to exist. This is the main counterargument brought up against the radical supporters of OSR, and this is what J. Bain seeks to overthrow in his 2013 article 'Category-theoretic structure and radical ontic structural realism'. The objection has its long history of circumvention attempts through logico-mathematical techniques like partially interpreted structures or Ramseification. However, Bain says that the counterargument is essentially correct, but it is based on a limited set-theoretic way of thinking, and by replacing it with one more 'categorial' or 'algebraic', one could actually see in a formal, mathematical way how structure can be thought of as primordial and dissolve the possible objections. My job will be to criticize the way he reaches that conclusion, but also to salvage what could be used for purposes that perhaps Bain did not have in mind.

II. Category theory

Category theory is a rather recent, but pretty controversial branch of mathematics (some would say that mathematics is a branch of category theory, a turn of phrase that is guaranteed to evoke its characteristic weirdness). It was created in 1945 by two mathematicians called Eilenberg and Mac Lane, in a paper of which they were sure it would be the last ever written on the subject, to give meaning to some terms like 'natural transformation', which were used only in an informal way when stating theorems in algebraic topology.

After several decades in which new developments were brought both into the subject, like Kan's adjoint functors or Lawvere's elementary toposes, or out of it, like Cartan and Eilenberg's recasting of homological algebra or Grothendieck's of algebraic geometry in category-theoretic terms, the subject proved that it was here to stay. Nevertheless, its highly abstract character and unintuitiveness doomed it to become only a niche interest to the majority of mathematicians.

In a way, the idea to replace sets by categories is not new. The first serious attempt was the 1965 one by Lawvere, called the 'elementary theory of the category of sets', in which he tried to provide an axiomatic set theory expressed in the language of categories. The topic has gone in and out of fashion since that time, culminating with the grand ambitious project du jour that is homotopy type theory. What is interesting about Bain's proposal is the solid philosophical foundation of structural realism that lies behind it, though, as we shall see, it is not so clear whether the project of bringing mathematical meaning to it can stay faithful to that goal.

III. Bain's arguments

Bain's actual arguments exploit the notion of 'universal property' that is familiar to category theorists. It is obvious that we can define only one function to a set with one element, and as many functions from a set with one element as there are elements in the projected co-domain of our functions. This gives a characterization of the elements of a set A as the functions that have as the co-domain the set A and as the domain the set to which only one function can be defined from any other set (called a terminal object), i.e. a definition in terms only of sets and functions, withholding any assumptions on an 'internal structure' that the sets may have a priori.

Even though I am a strong supporter of using category-theoretic concepts when doing mathematics, I cannot but point out the fact

that this sort of argumentation misses the spirit of structural realism. Of course, the objects get thrown away in the process, but why can we say that the 'relations' or 'structure' gets preserved? The whole edifice of a structured set is overthrown, and the only entities that may count as relations in a category are the morphisms, who are of a relational nature, but not between the original objects, but between the sets or structured sets or more generally containers of objects, and who take the name of categorial 'objects' that can only be thought of as a cruel coincidence.

Or perhaps not so: a category defined as a class of objects together with a class of morphisms such that so and so axioms hold is not particularly revolutionary from the way set-based systems like groups or rings are defined. The objects are rightly named, the only victory we have achieved is that we have moved up a higher level of abstraction. And it is not a hollow victory, for the crystallization of concepts like terminal objects and elements-as-morphisms can surely give us precious insights when we move to a category that does not resemble so much the one of sets.

And this movement is what Bain does in the next section of his article – he highlights the equivalent reformulation of general relativity through 'Einstein algebras' instead of Lorentzian manifolds and tensors. This is part of a grander mathematical phenomenon called 'algebra-geometry duality' in which geometrical spaces may be studied through algebras of functions of them, or, more sophisticatedly, through sheaves of functions, as he proceeds to show us. The example, however, breaks down in more than one point.

Firstly, he supposes that the points of a space are the objects that we have to dispense with, and all other notions are fair game as long as they are reformulated as corresponding enhancements on the algebra. This is highly contrary to what structural realism deals with, which is unobservable and controversial 'objects' like forces or Lagrangians, which escape largely unscathed from the tumultuous algebraic transfiguration.

Let us suppose, however, that this is simply an analogy, that we do not have to take it literally, and that points are what we are after in the (toy?) example. Bain supposes that we might recover

them from the maximal ideals, for which he gives two wrong definitions, one which is actually that of a maximal subring, and another which simply states that they are elements of an algebra. Still, it is known that maximal ideals (properly defined!) contain the information necessary to recover the points from an algebra and hence reconstruct the dually equivalent geometrical category. However, this only means that the whole theory of general relativity has two interesting categorial models, none more valid than the other. As the view of Hilbert (the one which Landry establishes in her 2012 article 'Methodological Structural Realism') shows us, 'it is not that theories come without interpretations, it is that they come without fixed interpretations' (Landry 2012, p. 38).

Finally, he brings sheaves into the picture. Now, sheaves have indeed played a large role in the rigorous development of the duality considered above. But Bain only talks about sheaves defined on a topological space, which even as they contain as many algebras as open sets are in the space, they are founded on a geometric nature and so their whole existence goes against his point. A more refined, steelmanned argument could exploit the idea of sheaves defined on a point-less 'site', a notion introduced by Grothendieck to help in proving the Weil conjectures. Or, even better, toposes of a more geometrical character. But that is a story for another time.

The elephant in the room is, however, that any category that we may define presupposes some set-theoretic framework. We cannot talk about the category of groups until we know what a group is and what the building blocks from which we forge it are. The answer, as foreshadowed above, is to axiomatize the idea of a category of sets or of another type of structure and work only with the axioms. This is what Lawvere and others did successfully. However, this raises the question: what can then we declare that 'exists', given that the only thing of which we can be sure of is finitist syntax and in a sufficiently expressive syntax any conceivable structure may be bootstrapped from scratch?

IV. Conclusion

The answer is that we have made a confusion along the way between structural scientific realism and mathematical structuralism. We are not here to answer which mathematical foundation is more 'fundamental' – only which of them can accurately represent physics and structuralist ontology at the same time. And although Bain's arguments fail to be completely accurate, it seems likely that a physics based on category theory could implement some day the philosophical ideas of structural realism – he gives, for example, small steps taken by Baez et al. And even if not, structural realism is a worthy motivation that may provide the required momentum for a definitive re-grounding of mathematics through category theory. It would be like the case of Frege: his logicist program ultimately failed, but he gave us first-order logic and new insights that could be obtained through that instrument. This may be a view motivated by pragmatism – nonetheless I think it is virtuous to seek to salvage all the good that may show up from such an endeavour.

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REJECTING WITTGENSTEIN'S CRITICISM AGAINST RUSSELL'S THEORY OF KNOWLEDGE

AIDA ŞMALBELGHER

Abstract. In this paper I reject Wittgenstein's criticism of Russell's theory of knowledge. First, I present the historical context in which Russell formulated his theory and Wittgenstein his criticism. Then, I attempt to show that Russell's views had the potential to develop into an important conceptual scheme relating knowledge to mental phenomena. I argue that Wittgenstein's criticism was a decisive factor in Russell's decision not to pursue his line of enquiry. But this criticism was misdirected, as shown by the fact that Wittgenstein's later work in the Tractatus approached a range of problems different from those targeted by Russell's theory.

Keywords: history of analytic philosophy, theory of knowledge, knowledge by acquaintance.

I. Introduction

One of the most important subjects discussed in early analytic philosophy was the problem of knowledge and the way in which this problem affected the philosophy of language and theories of logic. One of the authors who were especially interested with this topic was Bertrand Russell. His intention was to give an epistemic basis for the theory of language and to cover the theory of logic. He was so stimulated by this subject that he constructed an entire project with a lot of new notions, ideas and definitions, which would have been published as a book named *Theory of knowledge*, but Russell's enthusiasm was overthrown by his young pupil, Ludwig Wittgenstein, because of his harsh criticism.

In this paper I will argue that the criticisms raised by Wittgenstein against Russell's theory of knowledge were not only unclear, but more than that, not supported and not on point. My aim is to demonstrate that Russell's project was more important than that of Wittgenstein and that it is unfortunate that his project failed just because Wittgenstein didn't understand exactly all its implications. The ideas behind Wittgenstein's criticisms were very vague. Nevertheless, what Wittgenstein did in his *Tractatus* later on didn't follow the line of thought from Russell's view about knowledge. Wittgenstein's ideas could at most be considered a legitimate critique of Russell's project, certainly not a solution for the problem raised by Russell. I believe that Russell's intentions were more important for that time and that Wittgenstein's view consists only in some rampant ideas which attracted all contemporary analytic philosophers probably mainly through their originality. Of course that their originality and innovation don't automatically imply that they are the best solutions for a lot of problems present in the philosophy of language especially, as was believed by their contemporaries.

The first step of this paper is to shed some light on the historical facts so that it will facilitate the understanding of the reasons for which Russell's project could have been an important contribution for the entire analytic philosophy. Then, by analysing succinctly Wittgenstein's philosophy from *Tractatus*, I will offer reasons why this view is not on the same line with Russell's view. In the second part of the paper, I will discuss Russell's main argument for the importance of a theory of knowledge in the philosophy of language, along with the main problems presented in his theory, problems which could have been solved by Russell himself if he had continued and finished his project. After this, Wittgenstein's objections for Russell's theory will follow. We shall see that Wittgenstein himself meant the critique differently than it was received by Russell.

II. Wittgenstein's criticism against Russell's theory of knowledge

For a better understanding of this problem, a brief presentation of the historical facts of this story is needed. In 1911, Russell decided to focus his attention on the theory of knowledge which also included what today is called the 'philosophy of science'. His plan was to write a 'big book' on the subject of epistemology. But, in 1912, Russell's philosophical activities were disturbed by his new student, Ludwig Wittgenstein. By the spring of 1913, Russell had almost finished his work on this project and, in May 1913, he showed his manuscript to Wittgenstein. However, Wittgenstein criticized the work harshly and reinforced Russell's fears that Wittgenstein would render all his philosophical work obsolete. After this, Russell published only the first half of the manuscript in *The Monist* in 1914 and 1915, but because he published the chapters under the form of some dissipated articles, they weren't put together properly for almost 55 years. (Lackey 1981, p. 126)

The point that I want to outline here is that Russell stopped his whole ambitious project only because he believed more in Wittgenstein's philosophical vision and potential than in his own. The problem is that even he was not convinced that Wittgenstein understood exactly the deepest implications of his work and the later contributions of Wittgenstein confirmed these suspicions. Wittgenstein was beside the subject and he was preoccupied more with his new ideas about language.

Wittgenstein's *Tractatus* is a purified version of ideas that really originate with Russell, and a reading of Russell's 1913 *Manuscript* along with Wittgenstein's criticism will support this claim.

In one chapter of this supposed book, *Theory of knowledge*, Russell intended to address the problems of metaphysics of propositions and metaphysics of facts. Earlier, his views were in favour of the metaphysics of proposition, where the judgements were addressed directly to the parts of the proposition, independent of the facts represented by it. Later on, Russell embraced a multiple relation analysis of judgement, and therefore, the propositions were replaced with facts as the complexes of

metaphysic. According to this version, for Cassio to judge that Desdemona loves Othello is for a four-place relation of judging to relate Cassio, Desdemona, loving, and Othello. If there is a corresponding complex formed from Desdemona, loving, and Othello, then this judgement is true, but if there is no corresponding complex, then it is false. Then, on this approach, the 'content' of the judgement is represented by the entities of the relata of the judging relation over and above the judging mind, and this approach leaves out *the way* these relata can combine to form a complex. But this lacuna is conspicuous in the case of asymmetrical relations like loving, because there are two ways in which the relation of loving can combine Desdemona and Othello to form a fact: Desdemona can love Othello or Othello can love Desdemona (Rickets 2002, p. 233). Nevertheless, the adoption of this new kind of metaphysics confronted Russell with a lot of problems and detained him from developing a coherent logic in *Principia*, but this fact didn't motivate him to abandon the metaphysics of facts.

As it was probably expected, Wittgenstein disagreed with this view. He said that every right theory of judgement needs to make it impossible for someone to judge something nonsensical like 'that table penholders the book' and that Russell's does not satisfy this requirement (Rickets 2002, p. 234). To bring out the force of Wittgenstein's objection, we have to take into consideration the view of language that must implicitly accompany Russell's multiple relation analysis. According to this view, the words in a sentence must signify constituents of complexes and the sentences which express judgements are made true or false by the existence or non-existence of the complexes formed from these constituents. So, if the 'content' of the judgement is represented by the identity of relata of the judging relation, then only the identity of the items signified by the words are relevant for the expression of a judgement. Then, essentially, sentences are collections of names. But the problem here is raised by the question of what happens with a nonsensical array of names like 'Desdemona Othello', since, according to Russell's approach, this should be false, because there

is no complex formed just from two individuals (Rickets 2002, p. 234). Thus, Russell failed to distinguish between falsehood and nonsense. Nevertheless, this failure didn't stop Russell, because he had a response prepared for this objection: 'Desdemona Othello' cannot express a judgement, because there is no judgement-relation of the right multiplicity. His reason was that it is not *possible* for just two individuals to combine to form a fact. Since the direct appeal to logical possibility of the content of a proposition wasn't sufficient, Russell added to the judgement-relation an argument place for forms. This decides the validity of a judgement-relation, because the judgement-fact of that relation will be true only if it is a complex of the contained form with only the contained items as constituents, otherwise, it will be false. In 1913, this was the version of the multiple relation analysis. Afterwards, Russell revisited it because of Wittgenstein's disagreement, but neither the amended formulation was acceptable for the latter (Rickets 2002, p. 235).

Wittgenstein's observations and criticisms come from a completely different point of view. Russell had a view of representation in which direct realism is combined with a view of language according to which the validity of the atomic sentences depends on the association between words and things. Russell's view can be considered an adaptation of the classical empiricism of language, in which meaningful words are seen as names, and names are seen as mere labels. Wittgenstein broke decisively with this view, and he introduced a view of representation which is adequate to a conception of truth as correspondence. So, in Wittgenstein's view, in 'Desdemona loves Othello' it is the fact that the symbol 'Desdemona' stands in a certain relation to the symbol 'Othello', and not the complex that symbolizes. Thus, facts are symbolised by facts, so that if a certain thing is the case in symbol, it means that a certain thing is the case in the world. The fundamental representational relationship of sentences with reality is what Wittgenstein calls 'sense' (Rickets 2002, p. 235). Wittgenstein's insight of 1913 which sets him on the path of the philosophy of the *Tractatus* is this view of sentences as models of

reality, of which the first fruit was his treatment of the logical connectives, as they figure in singular molecular sentences.

Wittgenstein's promise in *Tractatus* was that he would give there a system for solving all the problems of philosophy. We may think that for solving philosophical problems we have to correct our misunderstandings somehow and we can reasonably expect from *Tractatus* to instruct us how to take a sentence of everyday language and to determine the logic of that sentence. The problem is that we cannot expect a result of logical analysis to be an informative statement about logical form, because Wittgenstein follows the principle that propositions cannot represent their logical form. Nevertheless, the *Tractatus* does contain two kinds of logical analysis: 'complete analysis' and 'clarificatory analysis'. But even though 'complete analysis' resembles a philosophical method of the kind we seek, this is not how Wittgenstein expects us to solve the problems of philosophy; he rather expected us to solve them by using the 'clarificatory analysis' (Phillips 2007, p. 164).

To understand the difference between what is essential and what is accidental in a proposition, we must understand the difference between sign and symbol. A symbol is anything that is essential to the proposition expressing the sense that it does; this includes the proposition as a whole and, also, the individual words within the context of a proposition. In contrast to this, a propositional sign on its own cannot express a sense. Only if it is used as the projection of a situation, it can express a sense. The symbol is just the logico-syntactic use of the sign. On the other hand, the sign must be perceptible for a proposition, it must be a fact and it must be able to stand in a projective relation to the world; thus, the sign is whatever is perceptible of a proposition. Also, a sign must have a logical form in order for it to stand in a projective relation to the world and this logical form has to correspond to the possible state of affairs it has to represent. This difference between sign and symbol explains how we can misunderstand the logic of our language. If we want to find a method for logical analysis in *Tractatus*, we must consider the

possibility of recognizing the symbol in the sign by observing the significant use (Phillips 2007, p. 165).

The details about the distinction between 'complete analysis' and 'clarificatory analysis' are not important for the thesis of this paper, and, therefore, I will skip them. The important point to note about this is that Wittgenstein recognised that the complete analysis might be the proper solution. At first, he maintained that the clarificatory analysis is the right solution for solving philosophical problems on the ground of its success, but he changed his mind later, when he directed his attention to the grammar of the proposition.

These are the most important of Wittgenstein's criticisms against Russell. There are two important reasons why his view was completely different from that of Russell and, therefore, why they may not be considered on point. Firstly, he didn't ascribe so much importance to a proper logical analysis, which was one of the most important aims of Russell. And secondly, his claim was that language must reflect only possible states of affairs perceived in the world, sacrificing all the rest in order to satisfy this requirement. Nevertheless, for a better understanding of Russell's position, we must examine his principal ideas for a right theory of knowledge.

III. Russell's theory of knowledge by acquaintance

The central theme of the *Theory of knowledge* was the epistemic basis of Russell's theory of language, especially focused on his doctrine of acquaintance. Russell tried to discover what kind of thought processes and what sort of knowledge help in understanding contingent propositions and in establishing their validity. Unfortunately, even if the problems presented by his concerns were genuine, his solutions didn't work. (Pears 1989, p. 170)

In the chapters published in *The Monist*, Russell defined 'acquaintance' as an extensional relation between subjects and objects and he demonstrated its importance in the cases in which the object is a particular. In this analysis of acquaintance, Russell dealt with three kinds of acquaintance with particulars, through

sensation, memory, and imagination (Pears 1989, p. 171). In the unpublished part of the manuscript, he writes:

> These, we found, though their objects are usually somewhat different, are not essentially distinguished by their objects, but by the relations of subject and object. In sensation subject and object are simultaneous; in memory the subject is later than the object; while imagination does not essentially involve any time-relation of subject and object, though all time-relations are compatible with it. (Russell 1984, p. 100, quoted in Pears 1989, p. 171)

There are two important points about this passage: 1) it is important in the case of sensation that the particular that is the object of acquaintance may be simple or complex; 2) it is surprising that Russell maintained that acquaintance is an extensional relation that doesn't involve any knowledge of truths about its object, even in the case of acquaintance with complex particulars.

In the first two chapters that he never published, Russell argued that we are acquainted with predicates and relations as well as with particulars. Also, he was very interested in specifying the precise object of acquaintance when a relation is involved. This is happening because some dyadic relations are asymmetrical and, in these cases, acquaintance with the relation itself without an understanding of the different properties of its two slots for particulars would not be enough. This case is applicable also for certain relations with more than two terms.

The difficulty with which he was contending is that if acquaintance is extensional, it will not include any knowledge of truths about its objects. It will be insufficient to explain the contribution of acquaintance with an asymmetrical relation to the sense of a proposition in which the name occurs. This is happening only if that acquaintance involves the knowledge that it may link the same particulars in two different ways and the ability to discriminate between them. In the same way, acquaintance with

any universal must involve knowledge of its type and of the type of particulars with which it may combine to produce complexes.

Although in 1913 Russell found out from Wittgenstein about his claim that the general words signify forms rather than objects, he refused to adopt this idea. He distinguished clearly the universals from forms and he claimed that we need acquaintance with both before we can understand a proposition. He maintained that we must be acquainted with the relation sentence itself (Pears 1989, p. 173).

Broadly speaking, if the relation is one-one, he calls it *acquaintance*, and if the relation is one-many, he calls it *understanding*. About the latter, there is an account of understanding propositions that Russell develops in *Theory of knowledge*. This involves a dramatic extension of the scope of acquaintance, because it includes forms among its objects as well as universals and particulars. Russell maintained that the only acquaintance that someone must have for understanding a proposition is the separate acquaintance with each of its elements. In order to answer to the question 'what makes it possible to combine the three constituents in thought in a way that make sense?' Russell suggests that this is possible only if we are already acquainted with the general form of dyadic relational propositions. Someone must have advanced knowledge of this form, a knowledge that supports his understanding of logic, because the difference between a relation and its terms is a *logical* difference:

> I think it may be shown that acquaintance with logical form is involved before explicit thought about logic begins, in fact as soon as we can understand a sentence. Let us suppose that we are acquainted with Socrates and with Plato and with the relation 'precedes,' but not with the complex 'Socrates precedes Plato.' Suppose now that someone tells us that Socrates precedes Plato. How do we know what he means? It is plain that his statement does not give us *acquaintance* with the complex 'Socrates precedes Plato.' What we understand is that Socrates and Plato and 'precedes' are united in a

> complex of the form 'xRy,' where Socrates has the x-place and Plato has the y-place. It is difficult to see how we could possibly understand how Socrates and Plato and 'precedes' are to be combined unless we had acquaintance with the form of the complex. (Russell 1984, p. 99, quoted in Pears 1989, 175)

What he holds is that what enables us to understand a logical form is 'logical experience' (Pears 1989, 175), which is a kind of immediate knowledge, different from judging.

But the next issue that Russell must explain is how anyone achieves advanced acquaintance with such a form, because here is a risk of an infinite regress (Pears 1989, p. 176). This difficulty is pre-eminent if the entirely general facts are contingent and this is the way Wittgenstein understood Russell's view when he first read his *Manuscript*. This was another reason for his criticism and he tried to give a solution for this issue, but failed to achieve it. However, Russell claimed that the entirely general facts (with which he identifies the forms of propositions) are facts of a very special kind: according to his description, the corresponding propositions are self-evident. Through this, there is no need to verify singular propositions of the same form, and in this case Wittgenstein's criticism misses the mark.

For self-evidence, Russell gave two arguments: 1) that in their case the transition from understanding to the apprehension of truth is immediate; and 2) that the entirely general propositions are simple, because they contain no constituents, and therefore, understanding a direct relation of the subject to a simple object is *acquaintance* (Pears 1989, p. 177). The first argument is not so strong, because it cannot be maintained even if we consider introspection; but the second is more independent and proper.

Regarding asymmetrical relations, Russell suggested that, in fact, all relations are symmetrical, since in a proposition of the type 'x before y', the term 'before' refers to the same relation as the term 'after'. According to Russell, these symmetrical relations are called '*pure* relations' (Pears 1989, p. 178). When a relation is pure, there is no need for terms in order to be intelligible. This result is

important for the theory of acquaintance, because it suggests that the mind can be acquainted directly with pure relations, not just with relational complexes containing terms.

IV. Wittgenstein's reaction

Wittgenstein's response to Russell's abandonment of his theory was that the major problem with his theory was that he needed to give a better explanation and analysis for how the constituents of the propositions come to the acquaintance, but, otherwise, it was a good project and he shouldn't abandon it.

Wittgenstein's objection regarding understanding was offered in a letter addressed to Russell in 1913. There he wrote:

> I can now express my objection to your theory of judgement exactly; I believe it is obvious that from the proposition '*A* judges that (say) *a* is in relation *R* to *b*,' if correctly analysed, the proposition 'aRb.v.~aRb' must follow directly without the use of any other premise. This condition is not fulfilled by your theory. (Wittgenstein 1961, p. 121)

We can observe that there is a similarity between Wittgenstein's view of understanding and that of Frege. Both claim that an expression can be a name or it can fail to be one only when it lies in a context in which an expression could carry out the required function. They add that it is possible for existential statements to not provide such a context, but that doesn't mean that nothing else may provide it.

Another point in which Wittgenstein's scepticism is raised is aimed at the generality of properties as ingredients[1]. About this, Wittgenstein said that it may be only a symptom of a word what at first seemed to be a defining criterion, because in general we do

[1] What general concepts are concepts of, for example: 'as alcohol is for beer or wine'.

not use language according to some strict rules. Further, he said that not only because we are unable to give the real definition of a word, but, more than that, because there is no real 'definition' for them, it ensures that we are unable to circumscribe the concepts we use. (Travis 2006, p. 57)

Wittgenstein's point was that acquaintance must be intensional if acquaintance with the constituents of a proposition will explain how the subject knows that he has put them together in a way that makes sense. This is also an objection for Russell's theory of judgement from 1910, but it is clear that his point was against the 1913 theory, because it requires acquaintance with the form of dyadic relations as well as acquaintance with the three constituents. This means that Wittgenstein claimed that Russell made no progress towards a solution to the problem, not even when he had brought the forms into the theory of acquaintance, because it remains unexplained how the subject knows that these constituents can be combined within those forms. The original idea of Wittgenstein's theory of proposition is that if the form is treated as an object of acquaintance, then it recreates the problem that it was designated to solve. (Travis 2006, p. 58)

The problem with Wittgenstein's criticisms and responses is that it doesn't seem that they are legitimate and that he understood completely Russell's theory. About this issue Russell himself pointed out in a letter where he described his meeting with Wittgenstein in 1913:

> We were both cross from the heat. I showed him a crucial part of what I had been writing. He said it was all wrong, not realizing the difficulties — that he had tried my view and knew it wouldn't work. I couldn't understand his objection — in fact he was very inarticulate — but I feel in my bones that he must be right, and that he has seen something that I have missed. If I could see it too I shouldn't mind, but as it is, it is worrying, and has rather destroyed the pleasure in my writing — I can only go on with what I see, and yet I feel it is probably all wrong and that Wittgenstein will think me a

> dishonest scoundrel for going on with it. Well, well — it is the younger generation knocking at the door — I must make room for him when I can, or I shall become an incubus. But at the moment I was rather cross. (Clark 1975, pp. 204-205, quoted in Pears 1989, p. 169)

Wittgenstein's regrets for Russell's abandonment of his project are clearly formulated in his *Notebook*, where he directly formulates his opinion, but, unfortunately, these didn't restore Russell's interests[2].

V. Conclusion

There is a lot of evidence that Russell was deeply affected and influenced by Wittgenstein's criticism and that he refrained to publish a large part of his manuscript only because of this. We can take five facts in support of this claim: 1) that Russell hoped for a collaboration with Wittgenstein on this project, but his criticism was enough to destroy this dream; 2) about the first of unpublished chapters of Russell's manuscript, named 'On the Acquaintance Involved in Our Knowledge of Relations', Wittgenstein held that relations are not objects but forms; 3) most of Russell's subsequent chapters are concerned with propositions and the understanding of propositions, but Wittgenstein rejected Russell's distinctive ideas on these topic; 4) in large part, Wittgenstein's picture theory of propositions is a reaction against Russell's 1913 theory; 5) the next major work of Russell (*The Philosophy of Logical Atomism*) contains clear departures from his 1913 doctrines about qualities, relations and propositional forms in the direction in which he believed Wittgenstein to have gone, but these are incomplete (Travis 2006, p. 170) Also, it is highly

[2] 'I am very sorry to hear that my objection to your theory of judgment paralyzes you. I think it can only be removed by a correct theory of propositions.' (Wittgenstein 1961, p. 121, quoted in Pears 1989, p. 169).

probable that Russell didn't publish the second part of his manuscript because of Wittgenstein's criticism.

It is unfortunate that Russell's 1913 project was never finished and published, because it could have been a remarkable work, providing not only a coherent and fairly complete survey of mental phenomena, but also numerous technical devices and notions. It seemed like it could be the biggest and most complete work that Russell ever attempted, because he would have introduced a lot of new technical notions, such as new standards for a contact-free syntax, a predecessor of the semantic theory of truth, an ontologically sophisticated 'no propositions' theory of judgement, a logic of certainty and others never explored by subsequent authors (Lackey 1981, p. 141) It is possible that analytic philosophy could have developed differently if this book had been finished and published in 1913. But Wittgenstein's critical vision changed and dramatically influenced this course of events. The problem is that Russell believed more in Wittgenstein's philosophical potential and hoped that he will give better solutions for the issues of his theory and, also, that he will develop a proper theory of knowledge for the philosophy of language. Unfortunately, these hopes were never accomplished, because Wittgenstein, although influenced by Russell's works, conceived a completely different philosophical system of language.

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CARNAPIAN ONTOLOGY AND WHY IT WORKS

SILVIU VELICA

Abstract. I argue that, in order to have a proper understanding of Carnap's views on ontology in his 'Empiricism, Semantics, and Ontology', one must take into account an assumption explicitly formulated elsewhere regarding what should be taken as 'real'. Approached in this manner, his views are a lot more powerful than may seem otherwise. The proper role of ontology is considered and some misunderstandings regarding facts and language are cleared away. An explanation of the separation of linguistic frameworks in terms of functional categories is briefly discussed and a few observations are made about the relation between ontology and metaphysics.

Keywords: Carnap, ontology, philosophy of language, pragmatism

I. Introduction

Carnap's treatment of ontology in his 'Empiricism, semantics, and ontology' may be regarded as one of the most trivial treatments of the subject, yet it is still considered by many philosophers as unsatisfactory. What I wish to argue is that the usual grounds for rejecting Carnap's theory are misguided and that the theory can be formulated in such a way as to be internally consistent and powerful in dealing with ontological issues. I will not stress the points of agreement and disagreement between my reconstruction and other recent interpretations of Carnap's position (in most points, I agree with Soames and Price's papers, while the opposite is true of Eklund's paper), since that would make my paper much longer than it needs to be and would also probably distract the reader from the more important issues. In what follows, I will

assume the reader is familiar with Carnap's article and also with some of Quine's papers on ontology.

II. The fundamental assumption and the job of ontology

One striking feature of Carnap's ontology is that it basically says that, in order to have whatever kind of entities, all we need to do is to introduce a linguistic framework or, in other words, to enrich our language. But then one may ask, with Soames, 'how can the mere introduction of words… guarantee the existence of entities…?' (Soames 2009, p. 433), which is a very legitimate question, if Carnap's ontology is taken to involve only languages. Carnap himself does not even mention if or what else there is to be taken into account in ontology besides language, at least not explicitly. Some hints may be taken from his idea that external questions should be considered pragmatically (Carnap 2004, p. 14), but this doesn't tell us much by itself. However, we don't need to speculate about this problem: an answer to it can be found in Carnap's philosophy. There is an assumption, not mentioned in 'Empiricism, semantics, and ontology', but in the Vienna Circle Manifesto, which runs like this: 'For us, *something is 'real' through being incorporated into the total structure of experience*' (Carnap, Hahn, Neurath 1973, p. 308; I will call this 'the fundamental assumption of ontology'). I take this to be Carnap's own position. This means, in short, that the introduction of words need not guarantee anything: the existence of entities is guaranteed by their being part of the 'total structure of experience'. Our problem becomes a false one: it is not the job of the introduction of words to *make* entities exist. But then, what is their job?

It is difficult to express and explain the fundamental assumption of ontology in a noncommittal way, since any attempt at saying something involves reference and, therefore, a framework. But I believe that the intuitive idea gets across anyhow: the assumption amounts to the claim that there is something given to us in experience. Still, we might give it a try. By Carnap's recipe,

we would have to introduce a framework specifically for this purpose: it would be a most basic and trivial framework, with only one word in it, which would refer to everything at once, without dividing it. Natural language already includes this framework, in which the only possible internal question would be 'Does the *world* exist?', and its answer is 'Of course!'; answers don't get any more trivial than that. Obviously, I am not using the word 'world' to refer to something like the physical world or whatever: it is meant to refer *indiscriminately* to everything that can be referred to. I believe that this is exactly the point Quine was trying to make when he answered the question 'What is there?' with 'Everything' (Quine 2004, p. 4). Of course, these observations are meant only as elucidations of the fundamental assumption, since the world is logically prior to any framework, but this is another issue. The important lesson here is that the entities the existence of which is asserted by the various frameworks do not appear out of nowhere: all of them are already there (we might add 'in the world', but the world itself is one of those entities), it's just that they are not separated from each other. Trivial as the fundamental assumption may be, it is nevertheless of great importance if we are to understand Carnap's position; however, it received surprisingly little attention, and many misinterpretations appeared because it was ignored (some of them will be discussed below).

But let's take matters further: suppose we introduced the framework which reflects the fundamental assumption and nothing else. In this case, it is obvious that we cannot convey any useful information; we need to be able to say things like 'Watch out for that rock!'. We need more words. Cutting the world into one big piece (which isn't even a proper cutting) is not helpful: smaller pieces are required. So the job of words (and of their introduction) is to slice this 'total structure of experience' into pieces of manageable size (depending, of course, on our purposes). What is really important to notice here is that no matter how we divide the philosophical disciplines (i.e. no matter what task we attribute to ontology, what to metaphysics and so on), this is something that needs to be done. And there is nothing more to it

than introducing names for things (or, better, for portions of our 'total structure of experience'). Obviously, we can introduce names for whatever we want, but I think it is safe to assume that most names in natural language have been introduced because they were useful (now, when it comes to evaluate usefulness, we should be as naturalistic as possible, perhaps tying usefulness to evolutionary biology). This shouldn't come as a surprise: I doubt that anyone can seriously deny that language is extremely useful (and it is useful through naming things or 'picking them out').

Let's turn now to ontology. If we understand ontology as dealing with what there is, or what exists, one obvious way of going about to say what there is is to give a list of all the names we introduced. But, if the earlier point is correct, and names are introduced for pragmatic reasons, then what there is also depends fundamentally on pragmatic considerations. This means that, if we want to make any changes in our answer to the question 'What is there?', we will have to do it on pragmatic grounds, by manipulating language. This makes the choosing of an ontology an entirely pragmatic matter. Quine makes the same point: 'Our acceptance of an ontology is, I think, similar in principle to our acceptance of a scientific theory, say a system of physics: we adopt, at least insofar as we are reasonable, the simplest conceptual scheme into which the *disordered fragments of raw experience can be fitted and arranged*' (Quine 2004, p. 10, my emphasis); also, 'Our talk of external things, our very notion of things, is just a conceptual apparatus that helps us to *foresee and control* the triggering of our sensory receptors in the light of previous triggering of our sensory receptors' (Quine 1982, p. 1, my emphasis).

III. Language, facts, and pragmatic issues

Now that we've seen what ontology is supposed to do, we need to clarify some issues about how this job should be done. I choose to begin this task with a discussion of Carnap's ideas, since these are the most general. The basic notion is that of linguistic framework:

a framework is a portion of language (or a language-fragment – see Eklund 2009, p. 132) which offers the means of referring to the new type of entities that it introduces. The way to construct a framework is to introduce a general term for the new type of entities, a new type of variable and rules for deciding which statements are true within the framework (Carnap 2004, pp. 14, 17). Now, questions of existence can be interpreted according to their relation to a framework: there are internal questions, which regard the existence of entities *after* the acceptance of the framework, and there are external questions, which regard the existence of entities *before* the acceptance of the framework (Carnap 2004, p. 14). Carnap dismisses external questions as meaningless, but a distinction needs to be drawn: if the external question is meant as a pragmatic question (something like 'Should we accept this framework?'), it is meaningful and it can be answered with the help of pragmatic considerations; but if the question is meant as completely independent of any framework, then it is meaningless (Carnap 2004, p. 14). Eklund calls these two types of external questions 'external-pragmatic' and 'external-factual' (Eklund 2009, p. 132), and I will borrow this terminology.

It is hard to explain what exactly the external-factual questions are supposed to be, since I regard them, with Carnap, as meaningless. But the idea can be made clearer like this: suppose we were to answer an external-factual question with something like 'Yes, abstract entities really exist'. We would then find ourselves in an awkward situation: if we want to remain independent of the framework of abstract entities, then we would have no means of referring to them – 'abstract entities' would be an expression which we haven't yet introduced! On the other hand, if we insist that we actually do refer to abstract entities, then we would find that we have already accepted the framework, and our question was an internal one. So when Soames says that 'what Carnap needs is for statements proclaiming that there are abstract objects to be 'empty of content'' (Soames 2009, p. 437), this emptiness may be interpreted either as meaninglessness, because we wouldn't have the language to express the statement, or as

triviality, because we would be stating within the framework something that is already implicit in the acceptance of the framework.

At this point, the reader might get the impression that there is some connection between reference and ontology, and he would be absolutely right. If adopting an ontology is a matter of accepting a framework, and this, in turn, is nothing else than the introduction of means of reference (general terms, variables etc.), then ontological commitment has to be understood in terms of reference. But reference to what? Here is where the fundamental assumption of ontology steps in: ontological commitment is to be understood in terms of reference to portions of the world (or portions of 'the total structure of experience'). However, this is not to say that reference is possible independently of a framework: it is simply meant to show how ontology can be done with frameworks: they are our vehicles of reference. Quine is strikingly clear about these points: 'To ask what the *assuming* of an object consists in is to ask what *referring* to the object consists in' (Quine 1982, p. 2, emphasis in the original); and again, 'reference *is* nonsense except relative to a coordinate system' (Quine 1969a, p. 48), which coordinate system is nothing else than a background language (Quine 1969a, pp. 48-49), which, in turn, is simply a linguistic framework (Quine wouldn't have accepted this terminology, but his reasons were mistaken, see below). Indeed, Quine's famous idea that 'to be is to be the value of a [bound] variable' (Quine 2004, p. 10) is meant to reflect exactly this connection between reference and ontology, since he rejected all the other ways of referring to objects except through variables, and especially proper names (Quine 2004, p. 7). Thus, we find ourselves returned to the idea expressed earlier, namely that what there is depends on what names we introduce: *to introduce a reference (or a referring expression) is the same as to make an ontological commitment*.

We can use the foregoing discussion to resolve the following situation, described by Eklund: suppose we have two frameworks, one which accepts Fs, and one which doesn't – let's call them L_1 and L_2, respectively. Now, we might want to say that the sentence 'Fs exist' comes out true in L_1, but false in L_2, without changing the

meaning of the sentence, or '*while meaning what it actually means*' (Eklund 2009, p. 138). But this is a trap. I will not discuss the issue of negative existential assertions, but it should be enough to notice that maintaining the meaning of a statement like 'Fs exist' amounts to maintaining that the general term F has a reference, which is the same thing as maintaining an ontological commitment to Fs. The difference between the two frameworks can be better illustrated as follows: while L_1 employs the term 'F' to refer to some particular portion of the world (or 'total structure of experience'), L_2 might use different means to refer to the same portion of the world (instead of 'rabbits' it might use 'sets of rabbit-stages'), or it might not refer to it at all. It is important to observe the proper relation between linguistic frameworks and the fundamental assumption in order to describe such situations correctly: when he added the condition that the sentence should maintain its 'actual meaning', Eklund unintentionally started with a biased premise.

However, the trouble doesn't end here: if L_2 would have no means of referring to the portion of the world to which L_1 refers through 'F', then it would seem that L_2 is *expressively impoverished*, and L_1 simply is better (Eklund 2009, p. 139). This conclusion is brought about with the observation that the two frameworks cannot 'describe the world's facts equally well and equally fully' (Eklund 2009, p. 138). Apparently, a language should enable us to describe all the facts. But this is wrongly conceived: the relation between facts and language is different than what is supposed by the above argument. Facts aren't simply out there, waiting to be included in language (or, at least, this is a very misleading way of saying things). Here I submit to Popper's idea that facts 'do not exist *as facts* before they are singled out from the continuum of events and pinned down by statements' (Popper 2007, p. 290). This makes all the more sense if we consider the fact that some facts may be useless to express. If the above discussion is correct, and what there is depends on what language we employ, then facts also depend on language. And, further, if language is introduced according to pragmatic considerations, then why would we adopt a language whose expressive power goes far beyond our needs

(except if this was an accidental consequence)? So my answer to the issue of expressively impoverished languages is that this is not necessarily a bad thing, so long as whatever purposes we may have are not hindered by our lack of linguistic resources. The expression 'all the facts', taken independently of any particular language, is as meaningless as an assertion of existence taken independently of any framework: the class would not yet be constituted for us to quantify over it.

Another important point about the theory developed here can be made clear through a discussion of Quine's critique of the distinction between external and internal questions. As noticed earlier, these notions are connected with the notion of linguistic framework, so Quine's objections would be very damaging if correct. The main idea is this: it appears to be a trivial matter, formally speaking, to rewrite a language with many types of variables as a language with only one type of variable (Quine 1951, p. 70; Quine 1969b, pp. 91-92). If the notion of framework depends essentially on having different types of variables, then this would make frameworks indistinguishable and the distinction between external and internal questions would become nonsense, since all questions would be internal. Now, Quine's observation about types of variables is correct and there is nothing we can do about it. But to interpret the division of a language into frameworks as a purely formal or syntactical division is a mistake: each framework is determined by an underlying functional category (Price 2009, p. 330). What makes abstract objects a different category from physical objects is not how we quantify over them, but their respective 'powers' or functional properties. For the several types of needs we have (say, constructing theoretical models and not getting hit by rocks), we have to use several frameworks (various combinations are acceptable, as long as our needs are satisfied). This way, external-pragmatic questions are re-instated and internal questions are returned to their proper place. Also, since frameworks are not to be viewed as a purely formal apparatus, the analytic/synthetic distinction gives way to a pragmatic trivial/non-trivial distinction, but I will not pursue this idea here.

IV. What about metaphysics?

What follows now is not strictly a part of Carnapian ontology, but it will be very useful to see what becomes of metaphysics in this context. The distinction between the two domains would be that ontology deals with what there is, whereas metaphysics deals with how things are (Varzi 2011, p. 407). I will also take the thesis that ontology is prior to metaphysics as established, even though some may not agree with it (arguments for the priority thesis are the main concern of Varzi's 2011; further support for the priority thesis from a Carnapian point of view comes from the idea discussed in the first part of this paper, namely that ontology deals with the introduction of names for portions of the world: this means that we wouldn't be able to ask how things are before saying what there is, since we wouldn't have the language to answer the questions of metaphysics).

Let us retrace a bit what we said before. We've seen that accepting entities is the same as introducing a means of reference to a certain portion of the world, and this is accomplished through linguistic frameworks. This job is done according to our needs, and so there might be labels which overlap over the same portion of the world; in introducing names there is no rule to the effect that each portion should only have one name. Given this situation, the question of how things are can be seen as a question concerning the relationships between labels: which label is more fundamental? This label-sorting activity is just what is involved when we ask whether a nail is just a piece of metal or something more, or whether a statue should be identified with its form, its matter, or both. But metaphysics sometimes does more than this: it introduces new labels to get to some more fundamental facts about things – it sometimes enriches our language. This is the way I see the discussions about distinct indiscernibles or substantial forms. The idea is that metaphysical discussions are not meaningless in this context.

However, meaningful as they may be, metaphysical discussions are often misguided. For one, given that in ontology it doesn't really matter how we choose to pick out a certain portion of the

world, as long as our purposes can be achieved through those words, the importance of metaphysics diminishes accordingly: there could simply have been other things for it to deal with instead of these. Second, the point about facts needs to be remembered: of course we can introduce whatever labels we want in order to express facts as 'fundamental' as we please, but this doesn't have any intrinsic importance. If any need appears for which we lack linguistic resources, ontology will step in and take the proper measures; pushing things further than this is just playing with the immense expressive capacities of language.

On the question of the possibility of giving up metaphysics altogether in favor of ontology I would refer the reader to Varzi's 2011, which I believe fits perfectly with the Carnapian ontology outlined above. But there is a point in his paper that I would like to mention: we should always be careful to distinguish metaphysics from semantics. If cases appear in which we ask what we mean by something before saying if we accept some entities in our ontology, then the answer to that question is a part of semantics: we need only to give a reference-fixing description (whether or not anything satisfies that description), or say what the intended thing is like (Varzi 2011, pp. 411, 414), and this is not properly a part of metaphysics.

V. Conclusion

One important source of confusion about ontology has been the fact that both Carnap and Quine overestimated the importance of variables: they are merely formal tools and we may do with them as we like. The essential points of a Carnapian ontology can be expressed no matter what role we choose to attribute to variables. Another important idea is that, besides the disagreement concerning variables, Carnap and Quine share basically the same view of ontology (the other difference is that Quine gives science a privileged role in choosing frameworks – see Quine 1969a, p. 26).

What I tried to do in the present paper was to make this Carnapian position as strong as possible, through showing what

its underlying assumption was and what it meant, and also how various difficulties can be overcome. The treatment of metaphysics has been a bit too sketchy, but this was because it went beyond my main purposes and also because a more thorough treatment can be found in Varzi's 2011. What I hope to have shown is that this Carnapian ontology has some important (and, in my opinion, fruitful) consequences in metaphysics and that more caution when dealing with metaphysical issues is desirable.

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