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**Carnap on Analyticity and Existence:
A Clarification, Defense, and Development of
Quine's Reading of Carnap's Views on Ontology**
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Does Carnap's treatment of philosophical questions about existence, such as "Are there numbers?" and "Are there physical objects?", depend on his analytic–synthetic distinction? If so, in what way? I answer these questions by clarifying, defending, and developing the reading of Carnap's paper "Empiricism, Semantics, and Ontology" that W. V. Quine proposes, with little justification or explanation, in his paper "On Carnap's Views on Ontology". The primary methodological value of studying Quine's reading of "Empiricism, Semantics, and Ontology" is that it prompts us to look for, and helps us to see the significance of, passages by Carnap that reveal the logical foundations of his views on ontology. Guided in this way by Quine's reading, I show that (1) in "Empiricism, Semantics, and Ontology" Carnap's preferred treatment of philosophical questions relies on paraphrasing them so that their answers are immediately obvious elementary logical truths, and are therefore, by his standards, trivially analytic; and (2) in its most general form, Carnap's treatment of philosophical questions about existence depends on his controversial view that the analytic truths of a language L may include sentences that are not elementary logical truths, but that are nevertheless, by Carnap's standards, analytic-in-L simply because we have stipulated that they are to be among the "meaning postulates" of L.

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1. Introduction and Overview

Does Carnap's treatment of philosophical questions about existence, such as "Are there numbers?" and "Are there physical objects?", depend on his analytic–synthetic distinction? If so, in what way? I shall answer these questions by clarifying, defending, and developing the reading of Carnap's paper "Empiricism, Semantics, and Ontology" (Carnap 1950, henceforth *ESO*) that W. V. Quine proposes, with little justification or explanation, in his paper "On Carnap's Views on Ontology" (Quine 1951, henceforth *CVO*). The primary methodological value of studying Quine's reading of *ESO*, as I shall try to show, is that it prompts us to look for, and help us to see the significance of, passages by Carnap that reveal the logical foundations of his views on ontology.

Quine's reading of *ESO* has been widely criticized in the secondary literature (Bird 1995, Yablo 1998, Gallois 1998, Alspector-Kelly 2001, Soames 2009, Eklund 2013, Thomasson 2016). Despite these criticisms, there are reasons to think that by studying Quine's reading of *ESO* we might develop a better understanding of Carnap's views on ontology. Quine was familiar with all of the logical, disciplinary, and philosophical assumptions that informed Carnap's work.[1] Quine's central aim in *CVO* is to "isolate

and reduce" his and Carnap's "divergences" (*CVO*, 65). He wrote *CVO* for a seminar meeting on ontology that he and Carnap conducted at the University of Chicago in February 1951. In March 1951 Quine sent Carnap a shortened typescript of the draft of *CVO* that he presented at the seminar, inviting Carnap to let him know if there is any point from their seminar discussions "which could be accommodated better by a change in my paper", and, if not, to forward Quine's typescript (of which Quine had no carbon copy) to the editors of *Philosophical Studies* (Letter 145, 1951–3–29, in Creath 1990, 425). There is no record of Carnap suggesting that Quine make changes to the March 1951 draft, and *CVO*, as we know it today, was published later that year in *Philosophical Studies*.

Critics of Quine's reading argue that it is refuted by the text of *ESO*. (For instance, see Bird 1995, 46–47.) I agree, of course, that if Quine's reading of *ESO* is refuted by passages in *ESO*, then it is wrong, but I do not think the critics of Quine's reading have made a convincing case for the antecedent of this conditional. Against the critics, I shall try to show that Quine's reading, though extremely compressed, is correct, illuminating, and well supported both by *ESO* and Carnap's other writings on ontology. I shall also explain how Quine's reading can be extended in ways that reveal important and previously unnoticed aspects of Carnap's treatment of philosophical questions about existence. Before getting into the details, however, in the rest of this introductory section I shall describe how the paper is organized and preview its central arguments.

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[1] In his "Homage to Carnap", written in 1970, Quine writes,

Carnap was my greatest teacher. I got to him in Prague 38 years ago, just a few months after I had finished my formal studies and received my Ph.D. I was very much his disciple for six years. In later years his views went on

evolving and so did mine, in divergent ways. But even where we disagreed he was still setting the theme; the line of my thought was largely determined by problems that I felt his position presented. (Quine 1975, xxv)

Quine earned his PhD in 1932, so presumably his six years as Carnap's disciple were from 1932 to 1938. As the letters between Carnap and Quine that are collected in *Dear Carnap, Dear Van* (Creath 1990) show, Quine carefully studied Carnap's writings, usually in manuscript form, before they were published, and corresponded regularly with Carnap about all aspects of his philosophy from 1932 through 1951.

In §§2–4 I introduce *ESO*, Quine's reading of *ESO*, and what I call the new standard reading of *ESO*, which directly challenges Quine's reading. In §5 I argue that the new standard reading is not supported by the passages that its proponents cite in its defense, and that it is incompatible with other, more central, passages in *ESO*. In §§6–9 I present a clarified version of Quine's reading of *ESO* and show that it fits the text of *ESO* and is well supported by Carnap's other writings on ontology.

The heart of my reading is that in *ESO* Carnap relies on the notion of "universal concept" that he explains in §10 of *Meaning and Necessity* (Carnap 1956, henceforth *MN*). According to Carnap's explication of "universal concept", in *MN* and elsewhere, "once you admit certain variables, you are bound to admit the corresponding universal concept" (*MN*, 44). If you admit variables, m, n, etc., that range over all and only numbers, for instance, you are bound to admit a "universal concept", such as "$m = m$", that is logically true of all and only the numbers, and may therefore be used in place of the predicate "m is a number", as a clarifying paraphrase of it. If, as Carnap supposes, one's language also contains names, such as "Five", that can be substituted for the number variables, then a decision to paraphrase "m is a number" as "$m = m$" is also a decision to paraphrase the statement "Five is a number", for instance, as "Five = Five". By Carnap's standards, "Five = Five" is trivially analytic, i.e., derivable solely from the semantical rules of one's language in a few very simple steps. And, by a step of EG, "Five = Five" implies "$\exists m(m = m)$", which is therefore also trivially analytic. Finally, a decision to paraphrase "m is a number" as "$m = m$" is also a decision to paraphrase the statement "There are numbers" as "$\exists m(m = m)$". If we decide to paraphrase "m is a number" as "$m = m$", we may therefore conclude that "There are numbers" is trivially analytic.

This reasoning is superficially compatible with the new standard reading of *ESO*, which asserts without any explanation that according to Carnap, "There are numbers" is trivially analytic in languages of the sort Carnap discusses in *ESO*. For reasons I shall

explain in §4, however, according to the new standard reading the existence statement "There are physical objects" is not analytic, but factual, or synthetic, when paraphrased in the way Carnap recommends in *ESO*. The problem for the new standard reading is that if we admit variables, x, y, etc., that range over all and only physical objects, then there is a corresponding universal concept "$x = x$" that paraphrases "physical object". If, as Carnap assumes in *ESO*, one's language for speaking about physical objects also contains names, such as "Fido", that can be substituted for the variables that range over physical objects, then "Fido = Fido", which paraphrases "Fido is a physical object", is trivially analytic. Finally, again, by a step of EG, "Fido = Fido", implies "$\exists x(x = x)$", which, together with the statement "There are physical objects" that it paraphrases, is therefore also trivially analytic.

This derivation does not imply that the paraphrases of statements about physical objects that Carnap recommends in *ESO* imply that all statements about physical objects are analytic. If we admit variables, x, y, etc., that range over all and only physical objects, and names, such as "Fido", that can be substituted for the variables, then, for reasons I just sketched, "Fido = Fido" and "$\exists x(x = x)$" are by Carnap's standards trivially analytic. But Carnap thinks a formal language with this structure that is suitable for paraphrasing ordinary English sentences about physical objects will also include other sentences, such as "Fido barks", "$\exists x(x$ barks$)$", "Fido weighs 22.6 Kilograms", and "$\exists x(x$ barks and x weighs 22.6 Kilograms$)$", that are by Carnap's standards synthetic and empirical. By contrast, according to Carnap, all true statements in a standard language for speaking about numbers are analytic; some of them, such as "Five = Five" and "$\exists m(m = m)$", are trivially analytic, while others, such as "One thousand thirty-three is prime" and "$\exists m(m$ is prime and m is greater than one thousand$)$", while analytic, are not trivially so—to derive them from the rules of the language non-trivial applications of the rules are required. On the reading

of *ESO* I shall explain and defend below, a "logical" language for Carnap is one in which all true existence statements are analytic, some trivially so and others not; whereas a "factual" language for Carnap is one in which, while some existence statements, such as "There are physical objects", are trivially analytic, all the existence statements of possible interest to inquirers who regularly use the language—existence statements such as "$\exists x(x$ barks and x weighs 22.6 Kilograms)"—are synthetic and empirical.

I presented the core of this clarification and defense of Quine's reading of *ESO* in my paper "Carnap on Ontology" (Ebbs 2017). In §§5–9 of the present paper I further support and extend my arguments in Ebbs 2017 in the following ways. In §5 I explain why recent criticisms of Quine's reading of *ESO* are unsupported by Carnap's writings. In §§6–7 I present my clarification and defense of Quine's reading of *ESO* in a new way and provide what I think is decisive new textual support for it. In §8 I show that Carnap's exposition of his philosophical treatment of questions about existence in *ESO* is a restatement, in semantical terms, of a view he first articulated in proof-theoretical terms his book *Logical Syntax of Language* (Carnap 1937, henceforth *LSL*). And in §9 I summarize my reading of *ESO* in more general terms and more precisely than I do in Ebbs 2017.

The arguments in §§5–9 support my first main conclusion, namely, that contrary to the new standard reading, in *ESO* Carnap's preferred treatment of philosophical questions relies on paraphrasing these questions into languages with a separate sort of variable for each large category of entities, such as "number" or "physical object", that figure in traditional philosophical questions about existence. When philosophical questions about existence are paraphrased in this way, their answers are immediately obvious elementary logical truths, and are therefore, by Carnap's standards, trivially analytic.

This sharpened and expanded version of Quine's reading of *ESO* opens the way for a reappraisal of Quine's efforts in *CVO* to "isolate and reduce" his disagreements with Carnap's views on ontology. Readers of *CVO* typically assume that Quine's purpose

in *CVO* is mainly critical. Quine's observation that "the use of distinctive styles of variables, explicitly or even implicitly, is the most casual editorial detail" (*CVO*, 209–210), for instance, is typically taken as a criticism of Carnap's treatment of philosophical questions about existence. (For examples of this reading, see Bird 1995, 52; Alspector-Kelly 2001, 100; and Thomasson 2015, 47.) In §§10–12, however, I recommend that we read this and most of the other of Quine's apparently critical remarks in *CVO* as *clarifications* of Carnap's views on ontology. Prompted by Quine's sketchy but suggestive remarks in *CVO*, I explain how Carnap can modify his proposals in *ESO* in ways that preserve their spirit but also accommodate Quine's observation. The modifications Carnap needs to make for this purpose together support my second main conclusion, namely, that in its most general form, Carnap's treatment of philosophical questions about existence depends on his controversial view that the analytic truths of a formalized language L may include sentences that are not elementary logical truths, but that nevertheless count as analytic in L simply because we have decided to treat them as among the "meaning postulates" of L.

2. Introduction to *ESO*

Carnap's central goal in *ESO* is try to convince his fellow anti-metaphysical empiricists, including Nelson Goodman, Ernest Nagel, and Quine, that quantification over abstract entities is "perfectly compatible with empiricism and strictly scientific thinking" (*ESO*, 206; Carnap 1963a, 65). His arguments are applications of his scientific philosophy, or what he calls *Wissenschaftslogik* (the logic of science). Carnap especially admires the empirical and formal sciences, including physics, logic, and mathematics. By "science", however, Carnap means "the totality of accepted sentences", where "this includes not only the assertions of the scientists but also those of everyday life . . . , there is no sharp boundary between these two fields" (Carnap 1934, 46). Carnap's logic of science is rooted in the principles that

everything that can be said is said by science (Carnap 1934, 47), broadly construed, and that if investigators are to agree or disagree at all, they must share clear, explicit criteria for evaluating their assertions (Carnap 1963a, 44–45).

The empirical and formal sciences are the clearest of all, according to Carnap, but are nevertheless badly misunderstood by traditional philosophy. One of the worst misunderstandings, he thinks, concerns logic and mathematics. On the one hand, traditional rationalist accounts of our knowledge of logical and mathematical truths are obscure and incompatible with empiricism and strictly scientific thinking, and must therefore be rejected. On the other hand, "the old empiricist view that the truth of '2 + 2 = 4' is contingent upon the observation of facts" has "the unacceptable consequence that an arithmetical statement might possibly be refuted tomorrow by new experiences" (Carnap 1963a, 64). To overcome these problems with rationalist and empiricist views, Carnap proposes that we clarify our vague ideas of logical truth, mathematical truth, and factual content in such a way that, relative to the clarifications, logical and mathematical truths have no factual content and are therefore not in need of empirical confirmation (Carnap 1963a, 64–65).

Carnap's efforts to clarify our ideas of logical truth, mathematical truth, and factual content in this way depend on his definitions and analyses of what he calls language systems. A language system L is defined by its syntactical formation rules, which specify the sentences and terms of L, its syntactical transformation rules (i.e., its postulates and inference rules), and its semantical rules, including Tarski-style definitions of satisfaction (denotation) and truth for the sentences of L (Carnap 1939). Relative to a language system L, a sentence is

> analytic in L if and only if it is true in L and its truth can be established on the basis of the semantical rules of L alone, without any reference to extra-linguistic facts (Carnap 1956, 10; see also Carnap 1939, 13);

> contradictory in L if and only if its negation is analytic in L;

> synthetic in L if and only if it is neither analytic in L nor contradictory in L.

The terms "analytic", "contradictory", and "synthetic" are defined in the first instance *only* for language systems (Carnap 1990 [1952], 427), not for sentences of what Carnap 1942 (11) calls an "historically given" language, such as ordinary English or any of the more technically sophisticated parts of English that are used in physics, logic, or mathematics (Carnap 1956, 8). The terms may be applied to sentences of an historically given language, but only relative to a special kind of translation, or mapping of words and sentences, from that language to some language system for which the terms are explicitly defined. Relative to such a mapping M, a sentence of an historically given language is analytic or not, according as M does or does not map the sentence to an analytic sentence of a language system. The facts about how speakers of an historically given language use their words and sentences do not uniquely determine how to map it into a language system (Carnap 1939, 6–7). Such mappings are therefore not objectively correct or incorrect. They may only be evaluated as good or bad, better or worse, relative to particular purposes.

Such purposes may include the desire to replace a useful but problematic expression *e* of an historically given language, an expression such as "true" or "analytic", by an expression *e'* of a language system that preserves and clarifies what one takes to be useful about *e* and avoids what one takes to be the problems with *e*. A replacement of this kind is what Carnap calls an *explication* (Carnap 1956, 7–8; Carnap 1962, chap. I). Explications are decisions to replace the useful but problematic subsentential expressions of an historical given language by subsentential expressions of a language system with built-in syntactical and semantical rules.

A decision to explicate a given subsentential expression in a certain way is also a decision about how to clarify the sentences in

which the expression occurs. There is no well-established label for such clarifications. The word "translation" is a misleading label for them, since a translation is normally understood to require sameness of meaning, but, since an explication of an expression *e* is not synonymous with *e*, a clarification of a sentence *s* that results from replacing the expressions that occur in *s* by explications of them is not synonymous with *s*. Such clarifications are better described as paraphrases. The word "paraphrase" is too broad, however, since not all paraphrases of a sentence clarify it. One can address this shortcoming by adding a qualifier, such as "clarifying", to the word "paraphrase". I shall sometimes do so. But it will often be more convenient to have a one-word label for the clarifications. For this reason, I shall use the term "explication" so that it applies both to the relation between a subsentential expression *e* of an historical given language and an expression *e*' of a language system that we have decided to use in place of *e*, and to the relation between a sentence *s* of an historical given language and a sentence of a language system that results from replacing the expressions that occur in *s* by explications of those expressions. I shall also use "explicates" so that if *e*' is an explication of *e*, then *e*' explicates *e* (where *e* and *e*' may be either subsentential expressions or sentences).

It is widely assumed that Carnap aimed to explicate "analytic" in a way that preserves and clarifies the traditional philosophical ideas of meaning and apriority (Sober 2000, 259–60; Soames 2003, 264). In fact, however, although Carnap uses the word "a priori" in some of his more popular writings, especially when criticizing Kant (see Carnap 1995, chap. 18), he regards traditional epistemology, including its notions of meaning, a priority, and empirical fact, as a confused mixture of logic and psychology (Carnap 1936–37, 431). Carnap recommends that we replace traditional epistemology with applications of his logic of science. To do so we need to construct language systems that suit our theoretical goals and evaluate assertions of sentences of those language systems in accord with the rules we have laid down

for them.[2] Synthetic sentences of a language system whose observational vocabulary is interpreted by appropriate behavioral criteria may be used to express and evaluate empirical claims (Carnap 1936–37, 454–56; Carnap 1939, §§23–25). Different interpreted language systems define different sets of analytic and contradictory truths and correspondingly different domains of empirical fact (Goldfarb 1996, 227). If our standard for cognitive meaningfulness is translatability into a language system, as Carnap recommends, then no clear sense can be made of traditional philosophers' language-system-independent assumptions about meanings, apriority, and empirical fact.

In "Two Dogmas of Empiricism" (Quine 1953b, first published in 1951) Quine criticizes Carnap's efforts to define his analytic–synthetic distinction. Quine distinguishes between two classes of supposedly analytic sentences: (1) the class of elementary logical truths, namely, sentences that are true and remain true "under all reinterpretations of [their] components other than the logical particles" (Quine 1953b, 23); and (2) the class of suppos-

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[2]This is not to say that in all cases we need to follow such rules self-consciously and deliberately. A language system is primarily useful to us when we find ourselves puzzled or confused, or cannot agree with each another. In other contexts, where we do not disagree with each other about which inferences to draw, we need not deliberately break our reasoning down into single steps each of which is licensed by a rule of a language system we share. As Carnap explains,

> In practice a deduction in science is usually made by a few jumps instead of many steps. It would, of course, be practically impossible to give each deduction which occurs the form of a complete derivation in the logical calculus, i.e., to dissolve it into single steps of such a kind that each step is the application of one of the rules of transformation of the calculus, including the defintions. An ordinary reasoning of a few seconds would then take days. But it is essential that this dissolution is theoretically possible and practically possible for any small part of the process. Any critical point can thus be put under the logical microscope and enlarged to the degree desired. In consequence of this, a scientific controversy can be split up into two fundamentally different components, a factual and a logical (including here the mathematical). (Carnap 1939, 36–37)

edly analytic sentences that are not elementary logical truths, but "can be turned into logical truths by putting synonyms for synonyms" (Quine 1953b, 23). Quine argues that Carnap's several related strategies for clarifying the second class of analytic sentences in scientific (including logical or mathematical) terms are unsuccessful, and concludes that the analytic–synthetic distinction should be purged from scientific philosophy.

In his paper "Meaning Postulates" (Carnap 1952) Carnap adopts a distinction that is structurally similar to Quine's distinction between two classes of analytic sentences, and tries again to clarify analyticity in scientific terms. He extends the mathematical notion of a postulate (as used, for instance, by David Hilbert in Hilbert 1902) to define what he calls a "meaning postulate", namely, a sentence of a formalized language that is not a logical truth, but that we stipulate to be true. According to Carnap, any sentence that is not a logical truth, including, for instance, "Bachelors are unmarried" and "All ravens are black", may be stipulated to be true, and hence count, relative to the stipulation, as what he calls a "meaning postulate". Together with the logical truths of a language system, the meaning postulates we choose for the language system place constraints on how the non-logical terms of the language system may be interpreted. To stipulate that "All ravens are black", for instance, is to be a meaning postulate of a language system L is to stipulate that regardless of any empirical observations one might express by using the descriptive vocabulary of L, the words "raven" and "black" of L are to be interpreted so that the sentence "All ravens are black" comes out true in L. Let M be the conjunction of all the meaning postulates of a language system L, and let "S_1 L-implies S_2" abbreviate "$\ulcorner S_1 \supset S_2 \urcorner$ is a logical truth".[3] With these abbrevi-

ations in place, Carnap defines "sentence S is analytic in L" as "M L-implies S in L" (Carnap 1952, 225). By this definition, of course, all the logical truths of L are analytic in L, but, in addition, all the meaning postulates of L, and all sentences that are L-implied by the conjunction M of the meaning postulates of L, are analytic in L.

The distinction between the logical truths of a language system L, and sentences that are not logical truths but are L-implied in L by M, will be important to my arguments in §§10–12. To keep track of the distinction I will use terminology that Carnap himself introduces. Soon after publishing "Meaning Postulates", Carnap defines the term "L-true", which he had previously used for both kinds of analytic truths, so that it applies only to the logical truths of a language system. He introduces a new term, "A-true", that applies both to the L-true sentences of a language system and to the sentences of the system that are L-implied by the conjunction of the meaning postulates, which he now calls "A-postulates", of the system. When "L-true" and "A-true" are defined in this way, Carnap explains, "all L-true sentences are A-true, although not all A-true sentences are L-true" (Carnap 1995, 260; see also Carnap 1958, 81–82). From here on I will use Carnap's terms "L-true", "A-true", and "A-postulate" as he does in these later works.

These core principles and definitions of Carnap's philosophy have consequences for our understanding of quantification. Some language systems contain sentences, such as "$\exists m(m = m)$"

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[3] According to Carnap, a sentence S is a logical truth (in the language L), "if it is either a true sentence without descriptive constants or results from one by substituting in descriptive constants" (Carnap 1958, 81). This definition may be sharpened in a way that is extensionally equivalent to the substitutional definition of logical truth that Quine presents in *Philosophy of Logic* (Quine 1986, 49–56). I shall therefore assume in this paper that Carnap's notion of

logical truth is defined à la Quine, in extensional, substitutional terms. Carnap writes that "to acertain the truth of [a logically true sentence] only the meanings of the logical particles ('is', 'or', 'not') are required" (Carnap 1952, 222). More generally, Carnap conceives of logical truth as truth in virtue of the meanings of the logical particles, whereas Quine defines logical truth in terms of truth and substitutions, without mentioning meanings. This difference reflects a deep disagreement between them about the methodological role of logical truth. But their disagreement about the methodological role of logical truth, in the narrow sense of "logical truth" that is in question here, is a symptom, not the main cause, of their disagreement about ontology, so I do not focus on it in this paper.

and "$\exists n(n$ is prime)", that quantify over abstract objects. For reasons I previewed above and will explain in more detail below, in such language systems, some of the existence sentences, including "$\exists m(m = m)$", are both L-true, and obviously so, given the rules of the language systems that contain them. Precisely because the rules for evaluating such sentences are so clear and explicit, however, sentences of such language systems do not create the peculiar psychological impression of depth and difficulty that some philosophers associate with their questions and statements about existence. These philosophers may therefore reject any paraphrases of their questions and statements about existence into a language system. Unless and until we find such paraphrases, however, Carnap thinks, we must conclude that the philosophers' questions and statements about existence are cognitively meaningless. In particular, according to Carnap, the empiricists who are concerned about quantifying over abstract objects fail to distinguish between the obscure, cognitively meaningless questions and statements of traditional ontology, on the one hand, and the clear, cognitively meaningful, and trivially L-true existence sentences that can be expressed in a language system, on the other. Once empiricists see how to draw this distinction, Carnap thinks, their objections to quantifying over abstract objects of a given kind (numbers, say) will lapse—they will see that in a properly constructed language system it is trivially L-true that abstract objects of the kind exist.

To make these points in a streamlined way, in *ESO* Carnap highlights just those features of language systems that are critical to his preferred explication of statements about existence. These features are all built into what he calls a linguistic framework. Carnap introduces the notion of a linguistic framework as follows:

> If someone wishes to speak in his language about a new kind of entities, he has to introduce a system of new ways of speaking, subject to new rules; we shall call this procedure the construction of a *linguistic framework* for the new entities in question. (*ESO*, 206)

In this passage Carnap provides only a rough, preliminary characterization of the meaning of his term "linguistic framework". Although in *ESO* Carnap does not explicitly relate this term to his more general and fundamental notion of a language system, to understand his arguments in *ESO*, and read them in light of his core philosophical commitments, it is important to see how to do so, since, as noted above, the terms "analytic" (whether "L-true" or "A-true"), "contradictory", and "synthetic", apply in the first instance only to sentences of a language system. I shall understand the relationship as follows. To a given language system L one may decide to add new syntactical and semantical rules that enable one to speak in the resulting extended language system, L', about a kind of entity that one could not speak about in L. The syntactical and semantical rules that we need to add to L in order to obtain L' together constitute what in *ESO* Carnap calls a linguistic framework. The terms "analytic" (whether "L-true" or "A-true"), "contradictory", and "synthetic", which are directly defined only for a language system L, also apply directly to the sentences of any linguistic framework that L contains.

Carnap introduces the notion of a linguistic framework in order to distinguish between two kinds of questions about existence:

> First, questions of the existence of certain entities of the new kind *within the framework*; we call them *internal questions*; and second, questions concerning the existence or reality *of the system of entities as a whole*, called *external questions*. Internal questions and possible answers to them are formulated with the help of the new forms of expressions. (*ESO*, 206)

It is in terms of this internal/external distinction that Carnap aims to reveal the emptiness of traditional philosophical questions about existence. To make his case, he presents examples of linguistic frameworks, and, for each framework, examples of internal questions that can be raised in it, and a characterization of the external question that a philosopher may try to raise about entities over which the existential sentences of the framework

quantify. He starts with the linguistic framework for speaking about things, or physical objects:

> Once we have accepted the thing language with its framework of things, we can raise and answer internal questions, e.g., "Is there a white piece of paper on my desk?", "Did King Arthur actually live?", "Are unicorns and centaurs real or merely imaginary?", and the like. These questions are to be answered by empirical investigations. ... From these questions we must distinguish the external question of the reality of the thing world itself. In contrast to the former questions, this question is raised neither by the man in the street nor by the scientists, but only by philosophers ... Those who raise the question of the reality of the thing world itself have perhaps in mind not a theoretical question as their formulation seems to suggest, but rather a practical question, a matter of a practical decision concerning the structure of our language. We have to make a choice whether or not to accept and use the forms of expression in the framework in question. ... If someone decides to accept the thing language, there is no objection against saying that he has accepted the world of things. But this must not be interpreted to mean his acceptance of a belief in the reality of the thing world; there is no such belief or assertion or assumption, because it is not a theoretical assertion. To accept the thing world means nothing more than to accept a certain form of language, in other words, to accept rules for forming statements and for testing, accepting, or rejecting them. (*ESO*, 207–208)

To understand this critique of philosophical questions about "the reality of the thing world" it helps to compare it with Carnap's similar critique of philosophical questions about "the reality of numbers". For the latter Carnap introduces a linguistic framework for speaking about numbers.[4] Since the number frame-

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[4]In *ESO* Carnap presents several other linguistic frameworks, including frameworks for quantifying over propositions, properties of physical objects, integers and rational numbers, real numbers, and spatio-temporal coordinates for physics. For each framework he identifies internal questions one may raise in it, and characterizes the external question that a philosopher may try to raise about entities over which the existential sentences of the framework quantify. To investigate and clarify the role of analyticity in Carnap's treatment

work quantifies over numbers, and therefore illustrates the kind of quantification that Carnap aims to clarify and vindicate in *ESO*, his examination of it is more detailed than his examination in *ESO* of the physical object framework. He is also more explicit about how he identifies and eschews "the philosophical question concerning the existence or reality of numbers" than he is in the above passage about how he identifies and eschews "the question of the reality of the thing world". He argues as follows:

> The framework for this system [the system of numbers] ... is constructed by introducing into the language new expressions with suitable rules: (1) numerals like "five" and sentence forms like "there are five books on the table"; (2) the general term "number" for the new entities, and sentence forms like "five is a number": (3) expressions for properties of numbers (e.g., "odd", "prime"), relations (e.g., "greater than"), and functions (e.g., "plus"), and sentence forms like "two plus three is five"; (4) numerical variables ("m", "n", etc.) and quantifiers for universal sentences ("for every n, ...") and existential sentences ("there is an n such that ...") with the customary deductive rules. (*ESO*, 208)

Each of these features (1)–(4) of the framework for numbers is important to Carnap's reasoning in *ESO*. My reading of *ESO* highlights features (1), (2), and (4). These are the features that together trivially imply "$\exists m(m = m)$", where "m" is a variable of the number framework. Relative to the stipulation that "$m = m$" explicates "number", features (1), (2), and (4) also imply that "$\exists m(m \text{ is a number})$" is trivially L-true in the number framework. It is with this kind of logical derivation in mind, I will argue, that in a continuation of the above passage, Carnap reasons as follows:

> What is now the nature of the philosophical question concerning the existence or reality of numbers? To begin with, there is the internal question which, together with the affirmative answer, can

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of questions about existence, however, I focus in this paper on the physical object framework and the number framework.

be formulated in the new terms, say, by "There are numbers" or, more explicitly, "There is an *n* such that *n* is a number". This statement follows from the analytic statement "five is a number" and is therefore itself analytic. Moreover, it is rather trivial (in contradistinction to a statement like "There is a prime number greater than a million", which is likewise analytic but far from trivial), because it does not say more than that the new system is not empty; but this is immediately seen from the rule which states that words like "five" are substitutable for the new variables. Therefore nobody who meant the question "Are there numbers?" in the internal sense would either assert or even seriously consider a negative answer.

<div align="right">(ESO, 208–209)</div>

In this passage Carnap stresses that the answer to "Are there numbers?", understood as an internal question in the number framework, is not only analytic, but "rather trivial", in contrast with the answer to the question "Are there prime numbers above a million", which is also analytic, but "far from trivial". By "analytic and rather trivial", I shall take Carnap to mean "trivially analytic", in the sense I defined in §1 above, i.e., "derivable solely from the semantical rules in a few very simple step". The answer to the question "Are there prime numbers above a million?" is also analytic, but it is not trivially so, since it's derivation from the semantical rules, while not difficult, is more complex than the derivation of "There are numbers", and, unlike "There are numbers", the answer to the question "Are there prime numbers above a million?" is part of elementary number theory. In a continuation of the passage, Carnap reasons that since the answer to the internal question "Are there numbers?" is trivially analytic, "those philosophers who treat the question of the existence of numbers as a serious philosophical problem and offer lengthy arguments on either side, do not have in mind the internal question" (*ESO*, 209). Carnap sees no way to view the traditional philosophical question of the existence of numbers as a theoretical, or cognitively contentful, question. He concludes that unless and until we find some way to explain clearly what the philosophical question of the existence of numbers amounts to,

we must conclude that it is a "pseudo-question"—i.e., one that *appears* to have cognitive content, but, in fact, does not. He also recommends that we reconceive the question so that it concerns "the practical problem whether or not to incorporate into the language the new linguistic forms which constitute the framework of numbers" (*ESO*, 209).

I shall focus in Sections §3–9 on explaining why Carnap asserts that it is trivially analytic in the number framework that numbers exist, and on showing that, contrary to the new standard reading of *ESO*, exactly analogous considerations imply that, given Carnap's preferred way of constructing linguistic frameworks in *ESO*, it is trivially analytic in such a framework for speaking about physical objects that physical objects exist. More generally, I shall argue, in the linguistic frameworks of the kind that Carnap recommends we use when speaking about entities of a large category, such as "number" or "physical object", that figures in traditional philosophical questions about existence, it is trivially analytic that entities of the category exist.

3. A Preliminary Sketch of Quine's Reading of *ESO*

According to Carnap, a sentence is contradictory if and only if its negation is analytic; it is trivially contradictory if and only if its negation is trivially analytic. Carnap's distinction between internal questions whose answers are trivially analytic and questions whose answers are not trivially analytic is therefore easily extended to yield a distinction between internal questions whose answers are trivially analytic or trivially contradictory and internal questions whose answers are neither trivially analytic nor trivially contradictory. For reasons I will explain in §§6–9, Carnap's account of linguistic frameworks in *ESO* implies that this distinction is an internal, cognitively meaningful articulation of what Quine refers to, in a rough, preliminary way that he purposefully leaves ambiguous between an "external" and "internal" reading, as "Carnap's dichotomy of questions of existence":

Carnap's dichotomy of questions of existence is a dichotomy between questions of the form "Are there so-and-sos?" where the so-and-sos purport to exhaust the range of a particular style of bound variables, and questions of the form "Are there so-and-sos?" where the so-and-sos do not purport to exhaust the range of a particular style of bound variables. Let me call the former questions *category* questions, and the latter ones *subclass* questions.

<div align="right">(CVO, 68–69, my emphasis)</div>

Some philosophers (Haack 1976, 68; Bird 1995, 50; Gallois 1998, 269–70; Thomasson 2016, 129) take Quine to be claiming in this passage that Carnap's external/internal distinction is the same as the category/subclass distinction. In fact, however, Quine does not equate the two distinctions; instead, he explains Carnap's external/internal in terms of the category/subclass distinction. This is clear from the three sentences that immediately follow the ones just quoted:

I need this terminology because Carnap's terms 'external' and 'internal' draw a somewhat different distinction which is derivative from the distinction between category questions and subclass questions. The external questions are the category questions conceived as propounded before the adoption of a given language; and they are, Carnap holds, properly to be construed as questions of the desirability of a given language form. The internal questions comprise the subclass questions and, in addition, the category questions when these are construed as treated within an adopted language as questions having trivially analytic or contradictory answers.

<div align="right">(CVO, 69, my emphasis)</div>

Here Quine says, among other things, that according to Carnap

(E) External questions are category questions (e.g., "Are there numbers?" and "Are there physical objects?") conceived as raised prior to and independently of the adoption of any linguistic framework.

(Q) Construed internally, as explicated by expressions of a linguistic framework in the way that Carnap recommends in

ESO, all category questions have trivially analytic or trivially contradictory answers.

Quine's claim that Carnap is committed to (E) and (Q) is the starting point of Quine's efforts in *CVO* to "isolate and reduce" his disagreements with Carnap about ontology (*CVO*, 65). Quine observes that the category-subclass distinction "is not invariant under logically irrelevant changes of typography" (*CVO*, 71), and concludes that the strategy Carnap recommends in *ESO* cannot succeed. If it is logically irrelevant that some internal questions are category questions and others are not, Quine reasons, then given any paraphrase of a philosophical question about existence according to which its answer is trivially analytic, we can easily specify another paraphrase of the same philosophical question according to which its answer is not trivially analytic, where there are no objective, logical grounds for preferring the first paraphrase to the second.

Despite this problem, Quine claims that the category-subclass distinction "is a distinction which [Carnap] can perfectly well discard compatibly with the philosophical purpose of [*ESO*]" (*CVO*, 71). All Carnap needs for that philosophical purpose, Quine submits, is his analytic–synthetic distinction (Quine 1951, 71). I will investigate this claim and defend a version of it (in §§10–12), after I explain (in §§4–9) why Carnap is committed to clarified versions of both (E) and (Q).

4. The New Standard Reading of *ESO*

A number of recent interpreters of *ESO* believe that Quine's reading is badly mistaken. Their criticisms of Quine's reading focus on (E) and (Q). Against (Q), they argue that according to Carnap in *ESO*, although the answer to the category question "Are there numbers?" is trivially analytic, the answer to the category question "Are there physical objects?" is based on sensory experience and is therefore not analytic or contradictory, but syn-

thetic. Graham Bird, who was the first to articulate this criticism of (Q), explains it as follows:

> Quine admits that external questions may have the same form as internal general questions, but of the latter he claims, wrongly, that they will have trivially analytic or contradictory answers. Carnap, however, makes quite clear that this will be true only of those languages which are themselves formal or logical, such as mathematics. In other contexts, such as the thing language, which is characterized as 'empirical', the answers to the general internal questions will turn on the answers to particular internal questions, and these will be typically matters of fact, not logic. (Bird 1995, 50)

This criticism of (Q) has been repeated by many other interpreters of *ESO*, and is widely regarded as decisive (Yablo 1998, 236; Alspector-Kelly 2001, 106; Soames 2009, 428–29; Eklund 2013, 245; Thomasson 2015, 47–48). It is an established part of what I call the new standard reading of *ESO*. Proponents of this reading affirm

(~Q) Construed internally, as paraphrased in a linguistic framework in the way that Carnap recommends in *ESO*, some category questions do not have trivially analytic or trivially contradictory answers.

Bird and other proponents of the new standard reading of *ESO* also reject (E). Against (E) they assert that for Carnap "external" simply means "not internal" (Bird, 43). On this reading Quine's (E) should be replace by

(E') External questions are existence questions (either category or subclass questions) conceived as raised prior to and independently of the adoption of any linguistic framework.

Definitions (E) and (E') both imply that external questions are not internal questions. But if subclass questions can be conceived as raised independently of the adoption of any linguistic framework, as some proponents of the new standard interpretation

explicitly argue (Bird 1995, 43; Thomasson 2015, 48; Thomasson 2016,129–30), then (E') implies that subclass questions can be external questions, contrary to (E).

Proponents of the new standard reading of *ESO* conclude that Quine's emphasis on the category-subclass distinction and his claims that Carnap is committed to (E) and (Q) are "Quine's own imposition" (Thomasson 2015, 48), and "have virtually no relevance to Carnap's position at all" (Bird 1995, 60). For this reason they conclude that Quine's argument that the category-subclass distinction "is not invariant under logically irrelevant changes of typography" (*CVO*, 71) does not challenge Carnap's position in *ESO*. Proponents of the new standard reading also reject Quine's claim that all Carnap needs for his philosophical purpose in *ESO* is his analytic–synthetic distinction.

5. Two Textual Problems for the New Standard Reading

Bird does not say exactly where in *ESO* Carnap "makes quite clear" that only in logical or mathematical languages are the answers to internal general questions trivially analytic or contradictory. Other writers who agree with Bird's reading are similarly casual about citing text in support of it. Some do cite text in support of it, however. Amie Thomasson, for instance, cites the following passage from *ESO*:

> The answers [to internal questions] may be found either by purely logical methods or by empirical methods, depending upon whether the framework is a logical or factual one.
> (*ESO*, 206; cited in Thomasson 2016, 123)

Thomasson apparently reads this passage as saying, in effect, the following: the answers to internal questions in a logical framework, such as the framework for speaking about numbers, may only be found by purely logical methods; whereas the answers to internal questions in a factual framework, such as the frame-

work for speaking about physical objects, may be found only by empirical methods. When read in this way the passage appears to support Bird's criticism of (Q).

This reading overlooks the fact that a trivially analytic answer to an internal question in a given linguistic framework does not need to be "found"—it is known to anyone who adopts the framework. On the most natural reading of the passage Thomasson cites, it is only those internal questions that are of practical or theoretical interest to inquirers—i.e., only those internal questions that do not receive trivially analytic answers—that "may be found" by "purely logical methods or by empirical methods, depending upon whether the framework is a logical or factual one", so the passage cites does not support Bird's criticism of (Q).

A more serious problem for the new standard reading of *ESO*, however, is that it fits poorly with Carnap's own definition of "external questions" as "questions concerning the existence or reality *of the system of entities as a whole*" (*ESO*, 206, Carnap's emphasis). As noted above, according to the new standard reading, for Carnap "external" simply means "not internal" (Bird, 43), so Carnap is not committed to (E), but only to (E'). On the new standard reading, although the external question "Are there physical objects?" purports to concern the physical object system "as a whole", as Carnap says, a supposedly "external" subclass question such as "Are there elephants in Alaska?" does not (Bird 1995, 49). On the new standard reading, then, not all external questions purport to raise a question about a system of entities as a whole. This consequence of the new standard reading conflicts with Carnap's definition of "external questions" as "questions concerning the existence or reality *of the system of entities as a whole*" (*ESO*, 206). Carnap provides no other definition of this key term in *ESO*, and he repeats it, with a minor change in formulation, at a crucial point later in the article:

> From the internal questions we must clearly distinguish external questions, i.e., philosophical questions concerning the existence or reality of the total system of the new entities. (*ESO*, 214)

Despite this textual evidence, one might speculate that by "external question" Carnap really means "existence question that is not internal", as proponents of the new standard reading claim. Such radical departures from an author's definitions of his own terms of art may sometimes be justified by other things he writes together with logical or philosophical evaluations of them. In Carnap's case, however, the countervailing textual evidence and logical or philosophical considerations would have to be very strong before they could overrule a definition of a term, such as "external question", that he himself explicitly introduces in order to solve a philosophical problem. For Carnap is a mathematical logician who always tries to explain his terminology in an orderly, systematic way. Moreover, as his many influential writings in pure and applied logic show, he is also not easily confused about the immediate consequences of his own definitions. If by "external question" he meant "existence question that is not internal", he would almost certainly have said so, both to make his meaning as clear as possible and to simplify his exposition.

One might think, however, following Bird (1995, 49), that there is an interpretation of "question about the reality of a system of entities as a whole" on which subclass questions could be of this kind. To investigate this thought, let us consider a typical subclass question in the framework of physical objects, such as "Are there elephants in Alaska?" Suppose that we have travelled to Alaska and have made observations that, together with the rules for evaluating sentences of the framework of physical objects, confirm that there are elephants in Alaska. If there is an interpretation of "question about the reality of a system of entities as a whole" on which subclass questions could be of this kind, then it could make sense for a philosopher to raise an external question about the "reality" of the supposed elephants in Alaska, while simultaneously accepting, for instance, that there "really" are elephants in New York. Suppose, for example, that Wilhelm tries to raise such an "external" question by saying, for instance,

"I see that according to our observations and the rules of the physical object framework, we are justified in asserting 'There are elephants in Alaska.' But are there really any elephants in Alaska? In asking this question, I do not intend to raise a general question about the reality of physical objects as whole, or about the existence of any other subclasses of physical objects, such as *elephant in New York*. On the basis of the rules of the physical object framework, I accept that there really are elephants in New York. More generally, I do not doubt there really are elephants in many other places in the U.S., and in many other countries. All I am questioning is that there really are elephants in Alaska."

To this strange speech, a carnapian should reply as follows:

"We know there are elephants in Alaska in the same way that we know that there are elephants in New York—by making observations and applying the rules of the physical object framework. You accept the consequences of making observations and applying the rules of the framework for finding out whether there elephants in New York. Why do you think there is a special problem with our methods of knowing that there are elephants in Alaska?"

The heart of this Carnapian reply is that the statements that there are elephants in Alaska and that there are elephants in New York are equally well confirmed by the observations Wilhelm has made, together with the rules of the physical object framework. For this reason, by Carnap's standards, the very idea of raising an external question that concerns only *elephants in Alaska*, and not also every other subclass of physical objects, including *elephants in New York*, falls apart under scrutiny.

In reply to this objection, one might be tempted agree with Bird that "If there is unclarity about the sense of such subclass questions Carnap can simply concede this and make exactly the same point about the purported category questions" (Bird, 49). But this sort of reply, while superficially plausible, does not address the problem I have identified for the effort to raise an external subclass question. The problem is not, as Bird suggests in the passage just quoted, that we see no way to express the *content* of the supposed "external" subclass question. If this were

the problem that my objection raises, then, I agree, it would not distinguish the supposed "external" subclass question from external category questions. What I have argued, instead, is that the effort to raise an external subclass question without *also* rejecting the framework-relative methods for evaluating all other subclass questions requires that one simultaneously both accept and reject the rules of a linguistic framework. This requirement is incoherent. Thus, contrary to what Bird claims, there is a clear difference between the effort to raise a supposedly external subclass question and the effort to raise an external category question: the former effort involves simultaneously both accepting and not accepting the rules of a linguistic framework, and is, for that reason, incoherent, whereas the latter effort simply yields a linguistic expression that has no cognitive content.

One might resist this conclusion, as Bird seems to do in some places (see Bird, 49, last full paragraph), solely on the grounds that it leaves Carnap's treatment of philosophical questions about existence vulnerable to Quine's observation that the category-subclass distinction "is not invariant under logically irrelevant changes of typography" (*CVO*, 71). To insist that there can be external subclass questions for this reason alone, however, is to assume without textual support that the new standard reading is correct. One might think that this assumption is warranted by a principle of charity in interpretation, according to which Carnap in *ESO* could not have been committed to a treatment of philosophical questions about existence that relies on distinctions between categories and subclasses that are not invariant under changes of typography that are acceptable to both Carnap and Quine. For reasons I will explain in §11 below, however, on the reading of *ESO* that I develop and defend later in this paper, Carnap's use of the category-subclass distinction to critique philosophical questions about existence is not undermined by Quine's observations about typography, but, instead, reflects Carnap's long-standing view that it is best to set up one's language system in a way that minimizes the need for ad hoc de-

cisions about the truth values of its sentences.

Finally, it is clear that the phrase "total system of the new entities" that occurs in Carnap's second version of definition of "external questions", quoted above, refers to the total system of entities introduced by what Carnap calls a linguistic framework for talking about a new kind of entities. The word "total" indicates that Carnap is not talking about any subclass of entities over which the variables of a linguistic framework range. He writes that

> The two essential steps [in the introduction of a linguistic framework] are . . . the following. First, the introduction [into one's language system] of a general term, a predicate of higher level, for the new kind of entities, permitting us to say of any particular entity that it belongs to this kind (e.g., "Red is a *property*", "Five is a *number*"). Second, the introduction of variables of the new type. The new entities are values of these variables; the constants (and the closed compound expressions, if any) are substitutable for the variables. With the help of the variables, general sentences concerning the new entities can be formulated. (*ESO*, 214)

In this passage Carnap describes the introduction of "a general term, a predicate of higher level, for the new kind of entities", and variables that range over all and only entities of the new kind of entities, as "essential" to the introduction of a linguistic framework for speaking about entities of the new kind. A subclass question in a given linguistic framework is one that concerns only some subset of the entities over which the variables in the framework range. A category question in a given linguistic framework, by contrast, is one that concerns the "total system of the new entities", namely, the set of all and only those entities that the variables of the new framework range over. Together with Carnap's definition of "external questions" as "philosophical questions concerning the existence or reality of the total system of the new entities", the passage strongly suggests, contrary to the new standard reading of *ESO*, that something like the category-subclass distinction is indeed central to Carnap's treat-

ment of philosophical questions about existence in *ESO*. This suggestion is correct, as it turns out, for reasons that I previewed in §1 above and shall present in more detail in the next three sections (§§6–9).

6. Analyticity and Existence in the Number Framework

In the framework for numbers one can ask, "Is there a prime number greater than a hundred?" and "Are there numbers?" The answers to both of these internal questions are found "by logical analysis based on the rules for the new expressions". According to Carnap, the answer to the second of these internal questions is different from the answer to the first, however, since

> ["There are numbers", or "There is an n such that n is a number"] follows from the analytic statement "five is a number" and is therefore itself analytic. Moreover, it is rather trivial (in contradistinction to a statement like "There is a prime number greater than a million", which is likewise analytic but far from trivial), because it does not say more than that the new system is not empty; but this is immediately seen from the rule which states that words like "five" are substitutable for the new variables. (*ESO*, 209)

I take Carnap in this passage to be making the following two claims

(1) "Five is a number" is analytic in the number framework.

(2) From the rule that states that words like "five" are substitutable for the number variables in the number framework, we can see immediately that the domain of entities over which the number variables range is not empty.

Let us consider these in turn.

Why Carnap accepts (1)

In the above passage Carnap simply asserts (1) without justification. Later in *ESO*, however, he offers a brief and revealing explanation of why he accepts (1):

> [If] our language L contains the forms of expression which we have called the framework of numbers, in particular, numerical variables and the general term "number" . . . , the following is an analytic statement in L:
>
> (b) "Five is a number".   (*ESO*, 217)

Why does Carnap reason in this way? The new standard reading of *ESO* does not raise or address this question. Quine's reading of *ESO* implies that category sentences such as "Five is a number" are trivially analytic in linguistic frameworks of the kind that Carnap favors in *ESO*, but Quine does not explain why such sentences are trivially analytic in these frameworks.

 In the Preface to the second edition of *Meaning and Necessity* (Carnap 1956, or *MN* for short), Carnap writes,

> The problem of the nature and admissibility of propositions and other entities discussed in §§6 and 10 is dealt with in greater detail in Article A.   (*MN*, v)

Article A of the Supplement is *ESO*. In §10 of *MN* Carnap first briefly introduces Quine's thesis that "to be is to be the value of a variable", and cautions that "the recognition of entities by the admission of variables" should not be understood as implying that "the decision to use certain types of variables must be based on ontological, metaphysical convictions" (*MN*, 43). He then describes a linguistic framework for speaking about numbers that has the same structure as the number framework he describes on page 208 of *ESO* (quoted in §2 above), and emphasizes that the concept of existence expressed by existential sentences of the framework "has nothing to do with the ontological concept of existence or reality" (*MN*, 43). Carnap then writes:

> By the same token, we see, furthermore, that the user of the language is willing to recognize the concept Number. Generally speaking, if the language (of ordinary structure) contains certain variables, then we can define in it a designator for the range of values of those variables. In the present case, the definition is: "'Number' for '$(\lambda m)(m = m)$'" or, if the language in question does not contain abstraction operators, "'Number(m)' for '$m = m$'". (In the definiens, any matrix '. . . m . . .' may be used which is L-universal, that is, such that '$(m)(m = m)$' is L-true.) *It is important to emphasize the point just made that, once you admit certain variables, you are bound to admit the corresponding universal concept.* (*MN*, 44, my emphasis)

This key passage from *MN* shows that Carnap is committed to a clear and simple logical justification of his claim in *ESO* that "five is a number" is analytic in the number framework, as follows. Since the number framework contains variables that range over all and only numbers, we may define "a designator for the range of values of those variables". One such designator is the open sentence "$m = m$". This open sentence is "L-universal" in the sense that "$(m)(m = m)$" is L-true in the number framework. The open sentence "$m = m$" therefore expresses in the number framework a "universal concept" that explicates the predicate "m is a number". Since the rules of the framework allow us to substitute "Five" for the number variables, and "$(m)(m = m)$" is L-true in the number framework, the sentence "Five = Five" that we obtain by substituting "Five" for the bound variable in "$(m)(m = m)$" is also L-true in the number framework. And since "$m = m$" explicates the predicate "m is a number", "Five = Five" explicates "Five is a number", so the latter is also L-true in the number framework.

Why Carnap accepts (2)

We assume (1), for the reasons just explained. As Carnap makes clear in the passages from *MN* and *ESO* quoted above, the number framework includes a rule of Existential Generalization (EG) that permits us to infer an existential sentence of the

form "$\exists v(\ldots v \ldots)$" from any matrix of the form "$\ldots v \ldots$" or "$\ldots a \ldots$", where "v" is replaced by a number variable of the framework and "a" is replaced by a name in the framework. We may therefore reason as follows. By a step of EG, "Five = Five" implies "$\exists m(m = m)$", which explicates "$\exists m(m$ is a number)" in the number framework. Hence if "Five is a number", explicated as "Five = Five", is trivially analytic in the number framework, then so is "$\exists m(m = m)$", which explicates "$\exists m(m$ is a number)". From this conditional and (1) we may infer that both "$\exists m(m = m)$" and "$\exists m(m$ is a number)" are trivially analytic in the number framework. It is a simple consequence of a standard Tarski-style definition of truth for sentences of the number framework that "$\exists m(m = m)$" and "$\exists m(m$ is a number)" are true if and only if the domain of entities over which the number variables range is not empty. Hence, from the trivially L-truth of "$\exists m(m = m)$" and "$\exists m(m$ is a number)" we may infer that the domain of entities over which the number variables range is not empty.

7. Analyticity and Existence in the Physical Object Framework

Logical inferences of the kind just described are superficially compatible with the new standard reading of *ESO*, which asserts, without any explanation, that according to Carnap, "There are numbers" is trivially analytic in languages of the sort Carnap discusses in *ESO*. The problem for the new standard reading is that exactly parallel reasoning shows that if, for example, "Fido" is a name in the physical object framework, then "Fido is a physical object" and "There are physical objects" is trivially analytic in the framework. This claim may surprise contemporary readers of *ESO*, but it is easy to justify, and is well-supported by Carnap's writings, as I will show in this and the next section.

Let us consider, for instance, the following two statements, which are parallel to (1) and (2) discussed above:

(1′) "Fido is a physical object" is trivially analytic in the physical object framework.

(2′) From the rule that states that words like "Fido" are substitutable for the physical object variables in the physical object framework, we can see immediately that the domain of entities over which the physical object variables range is not empty.

These two claims can be proved using the same kind of reasoning explained above, as follows.

Why Carnap accepts (1′)

(Parallel to the reasons given above for (1).)

Since the physical object framework contains variables that range over all and only physical objects, we may define "a designator for the range of values of those variables". One such designator is the open sentence "$x = x$". This open sentence is "L-universal" in the sense that "$(x)(x = x)$" is L-true in the physical object framework. The open sentence "$x = x$" therefore expresses in the physical object framework a "universal concept" that explicates the predicate "x is a physical object". Suppose the rules of the framework allow us to substitute "Fido" for the physical object variables. Then, since "$(x)(x = x)$" is L-true in the physical object framework, the sentence "Fido = Fido" that we obtain by substituting "Fido" for the bound variable in "$(x)(x = x)$" is also L-true in the physical object framework. And since "$m = m$" explicates the predicate "x is a physical object", "Fido = Fido" explicates "Fido is a physical object", so the latter is also L-true in the physical object framework.

Why Carnap accepts (2′)

(Parallel to the reasons given above for (2).)

We assume (1′), for the reasons just explained. By a step of EG, "Fido = Fido" implies "$\exists x(x = x)$", which explicates "$\exists x(x$ is a

physical object)". Hence if "Fido = Fido", which explicates "Fido is a physical object", is trivially L-true in the number framework, then so is "$\exists x(x = x)$", which explicates "$\exists x(x$ is a physical object)". From this conditional and (1') we may infer that both "$\exists x(x = x)$" and "$\exists x(x$ is a physical object)" are trivially L-true in the physical object framework, and hence that the domain of entities over which the physical object variables range is not empty.

These justifications of statements (1') and (2') assume only that the physical object framework contains

(a) a distinct style of variables that ranges over all and only the physical objects,

(b) a universal concept, in the sense of *MN* (44), for the physical object framework,

(c) names, such as "Fido", that are substitutable for the variables, and

(d) the customary rules EG and UI.

Recall that according to Carnap in *ESO*,

> The two essential steps [in the introduction of a linguistic framework] are . . . the following. First, the introduction [into one's language system] of a general term, a predicate of higher level, for the new kind of entities, permitting us to say of any particular entity that it belongs to this kind (e.g., "Red is a *property*", "Five is a *number*"). Second, the introduction of variables of the new type. The new entities are values of these variables; the constants (and the closed compound expressions, if any) are substitutable for the variables. With the help of the variables, general sentences concerning the new entities can be formulated.   (*ESO*, 214)

If these two steps are essential for constructing a linguistic framework, as Carnap says in this passage, then, in particular, when we construct a physical object framework we will introduce features (a) and (b) listed above. The remaining two features, (c)

and (d), are also understood to be part of a standard linguistic framework for speaking about physical objects, as Carnap's discussions in *ESO* of the physical object and number frameworks show.

There is strong textual and logical support for the reading. In §10 of *MN*, after his discussion of universal concepts and existential quantification in languages that quantify over numbers, propositions, and properties, Carnap writes, "The treatment of individual variables is not essentially different from that of other kinds of variables" (*MN*, 46). He also affirms the rule EG, given as an example of the derivation of "$\exists x \mathrm{H}x$" from "Hs". In the toy language he constructs earlier in *MN*, "$\exists x \mathrm{H}x$" and "Hs" mean, respectively, "There are humans" and "Scot is human". From the rule EG and the universal concept for the physical object framework, the justifications of (1') and (2') above immediately follow.[5] Since theses justifications are immediate consequences of principles that Carnap presents in §10 of *MN*, and, as he says in the Preface to the second edition of *MN*, he regards *ESO* as a further elaboration on the arguments in §10 of *MN*, we may

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[5] One might think one could one use the same methods to derive "Pegasus is a physical object". It follows from Carnap's method in *ESO* of defining designation for names, however, that no one who is aware of the mythical origins of the term "Pegasus" would list "Pegasus" among the names of a customary framework for speaking about physical objects. Carnap writes,

> Generally speaking, any expression of the form "'. . .' designates . . ." is an analytic statement provided the term ". . ." is a constant in an accepted framework. If the latter condition is not fulfilled, the expression is not a statement.   (*ESO*, 217)

As I argue in Ebbs 2017, assuming, as Carnap does, that a framework for speaking of physical objects includes the customary rule EG,

> Carnap's semantic principle that *if the term ". . ." is not a constant in an accepted framework, the expression "'. . .' designates . . ." is not a statement* is a constraint on our explication of proper names. Given this principle, no one who is aware of the mythical origins of the term "Pegasus" would list "Pegasus" among the names of a customary framework for speaking about physical objects.   (Ebbs 2017, 47)

assume that in *ESO* he is committed for the same reasons to the claim that "There are physical objects" is trivially analytic in the physical object framework. In short, if Carnap is committed to (1) and (2) for the reasons I explained above, he is also committed to (1′) and (2′) for the parallel reasons I summarized in this section.[6]

One might wonder why Carnap does not highlight his commitments to (1′) and (2′) in *ESO*. Here it is important to recall that Carnap's goal in *ESO* is to convince skeptical scientific philosophers, including Goodman, Nagel, and Quine, who take for granted that quantifying over physical objects is unproblematic, that quantifying over abstract entities is "perfectly compatible with empiricism and strictly scientific thinking" (*ESO*, 206). Given this goal, there is no need for Carnap to spell out the consequences of his reasoning for the physical object framework.[7] He assumes his intended readers—i.e., scientific philoso-

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[6] As I noted in §1, this derivation does not imply that all statements that one can express in a physical object framework of the sort Carnap describes in *ESO* are analytic.

[7] Although Carnap does not highlight his commitments to (1′) and (2′) in *ESO*, there are places in *ESO* where he clearly treats questions about the existence of physical objects in the same way that he treats philosophical questions about the existence of numbers. One of these places is *ESO*, 216–18, where Carnap defends his principle that "any expression of the form '"..." designates ...' is an analytic statement provided the term '...' is a constant in an accepted framework" (*ESO*, 217) from Gilbert Ryle's criticism that such a principle depends on

> a naïve inference of analogy: just as there is an entity well-known to me, viz., my dog Fido, which is designated by the name "Fido", thus there must be for every meaningful expression a particular entity to which it stands in relation of designation or naming, i.e., the relation exemplified by "Fido"–Fido.   (*ESO*, 216)

Carnap replies to this criticism as follows,

> The question of the admissibility of entities of a certain type or of abstract entities in general as designata is reduced to the question of the acceptability of the linguistic framework for those entities. ... [T]he skeptics, who express doubts concerning the existence and demand evidence for it, treat the question of existence as a theoretical question. They do, of course, not

phers of the day who doubt that quantifying over abstract objects is legitimate—are familiar with his core philosophical commitments, and therefore need no special instruction to see that his explanation on page 217 of why "There are numbers" is trivially analytic in the number framework generalizes to yield a parallel explanation of why "There are physical objects" is trivially analytic in the physical object framework. Carnap's assumption was correct, at least for Quine, as Quine's reading of *ESO* in *CVO* shows.

8. Additional Textual Support for this Reading

The reasoning of §§6–7 implies that when existence questions are explicated by the introduction of linguistic frameworks in the way that Carnap recommends in *ESO*, the expressions "number" and "physical object" are explicated by "universal concepts" of their respective linguistic frameworks. One way to challenge the reasoning of §§6–7, then, is to claim that Carnap's method of explicating "universal concepts" in §10 of *MN* is not relevant to his treatment in *ESO* of questions of existence in the framework

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> mean the internal question; the affirmative answer to this question is analytic and trivial and too obvious for doubt or denial, as we have seen. Their doubts refer rather to the system of entities itself; hence they mean the external question. They believe that only after making sure that there really is the system of entities of the kind of question are we justified in accepting the framework by incorporating linguistic forms into our language. However, we have seen that the external question is not a theoretical question but rather the practical question whether or not to accept those linguistic forms. This acceptance is not in need of a theoretical justification (except with respect to expediency and fruitfulness), because it does not imply belief or assertion. Ryle says that the "Fido"–Fido principal is "a grotesque theory". Grotesque or not, Ryle wrong in calling it a theory. It is rather the practical decision to accept certain frameworks.   (*ESO*, 217–18)

In this passage Carnap does not qualify the applications of his explication of "Fido"–Fido principle, namely, "'...' designates ...", to linguistic frameworks for speaking about abstract objects, but makes clear in the first sentence of the passage that he is speaking more generally about "the question of the admissibility of entities of a certain type". (See also note 5.)

of things, or physical objects. This is exactly what proponents of the new reading of *ESO*, in effect, do. Alspector-Kelly, for instance, argues as follows:

> The analytic/synthetic distinction . . . show[s] up in *ESO*, as the distinction between logical and empirical frameworks; the framework of numbers is an example of the first, the framework of 'things' (material objects) an example of the second. Assertions in logical frameworks are, Carnap thought, analytic, whatever the generality of the sortal might be. And assertions in empirical frameworks are synthetic, whatever their generality might be. Quine's interpretation has Carnap claiming that a sentence turns analytic when the scope widens far enough for it to count as a universal word [i.e., universal concept]. But Quine was wrong.
>
> (Alspector-Kelly 2001, 106)

I have already argued in detail in §§5–7 against this reading, drawing on textual evidence from *ESO* itself, but also from the Preface to the second edition of *MN*, and from §10 of *MN*. One might think, however, that the textual evidence in §10 of *MN* is not clear enough to establish beyond doubt that in the late 1940s, when Carnap wrote *ESO*, he applied his view of universal concepts to such statements as "Fido is a physical object", as I argue in §7. To add more textual support to the reading I presented in §§6–7, in this section I argue that Carnap's views of the role of universal concepts in *MN* and *ESO* is a semantical explication of a structurally similar view that he presented in Carnap 1937 (*LSL*).

According to *LSL*, a "universal predicate" of a language system L is an open sentence, such as "$m = m$", every full sentence of which is analytic in L, where "analytic in L" is explicated in proof-theoretical terms (*LSL*, 292–93). The proof-theoretical resources of *LSL* are rich enough to permit proof-theoretical definitions of "analytic in L" that are extensionally equivalent to the semantical explications of "analytic in L" that Carnap prefers in his later works, including *MN* and *ESO*. Hence, for my purposes in this paper, there is little difference between what Carnap in *LSL* calls

a "universal predicate" and the notion of "universal concept" he defines in *MN* §10.

Recall that for Carnap the syntactical and semantical terms defined for a language system L may be applied to sentences or words of a natural language, but only relative to a special kind of translation, or mapping of words and sentences, from that language to some language system for which the terms are explicitly defined, and that such mappings are not objectively correct or incorrect, but only good or bad, better or worse, relative to particular purposes. In particular, the notions of "universal predicate" and "universal concept" defined in a language system L may be applied to words of a natural language, relative to decisions about how to explicate those words by universal predicates or universal concepts of L. We may therefore extend our use of the adjective "universal" so that is applies not only to universal predicates or universal concepts of a given language system L, but also to the natural language words we have decided to explicate by universal predicates or universal concepts of L. In just this way, Carnap in *LSL* (292) extends his use of "universal" so that is applies to words of a natural language that we have decided to explicate by a universal predicate defined proof-theoretically in a language system L. I shall use the term "universal word" slightly more broadly, to mean "word of a natural language that we have decided to explicate by a universal predicate (defined proof-theoretically, as in *LSL*) or a universal concept (defined semantically, as in *MN* and *ESO*)." By this definition, for instance, relative to our decision to explicate "number" by the universal concept "$m = m$" in the number framework, the ordinary English word "number" is a universal word.

In *LSL*, Carnap illustrates this way of apply of the term "universal" to natural language as follows:

> "Thing" is a universal word (provided that the designations of things constitute a genus). In the word series "dog", "animal", "living creature", "thing", every word is a more comprehensive predicate than the previous one, but only the last one is a univer-

sal predicate. In the corresponding series of sentences, "Caro is a dog", "... is an animal", "... a living creature", "Caro is a thing", the content is successively diminished. But *the final sentence is fundamentally different from the preceding ones in that its L-content is null and it is analytic*.

(*LSL*, 293, my emphasis)

The reasoning in this paragraph presupposes, as Carnap says, that "the designations of things constitute a genus". In other words, the reasoning presupposes that the natural language predicate "is a thing" is explicated as the universal concept of the framework of things, so that under the translation, it exhausts the range of the variables v that occur in sentences of the form "v is a thing" (*LSL*, 293). By contrast, designations of *species* of things do not exhaust the range of the variables v that occur in sentences of the form "v is a thing". For instance, "is a dog" applies to dogs, but not to cats, yet both dogs and cats are things. Hence Carnap's conclusion in §76 of *LSL* that "Caro is a thing" is analytic depends on the kind of reasoning spelled out above in the justifications of (1′) and (2′). Immediately following his discussion of this example, Carnap presents a parallel example for the number framework, observing that "7 is odd", while analytic, does not remain true if the numeral "7" is replaced by the numeral "6", for instance, whereas "7 is a number", which Carnap explicates as "7 = 7", "has the property that every sentence which results from it if '7' is replaced by another [numeral] is again [both true and] analytic" (*LSL*, 293). Carnap's reasoning about these examples in §76 of *LSL* can be explained if we suppose both that

(i) "Caro is a thing" contains the universal word "thing", explicated in the physical object framework by "$x = x$", where "x" is a variable that ranges over all and only physical objects (things); and that

(ii) "7 is a number" contains the universal word "number", explicated in the number framework by "$m = m$", where

"m" is a variable that ranges over all and only numbers.

Universal words viewed in this way are central to Carnap's diagnosis and dissolution of what he calls pseudo-problems in philosophy, including the kinds of pseudo-problems about quantifying over numbers that he aims to expose and dissolve in *ESO*. He writes

Universal words very easily lead to pseudo-problems; they appear to designate kind of objects, and thus make it natural to ask questions concerning the nature of the objects of these kinds. For instance, philosophers from antiquity to the present day have associated with the universal word "number" certain pseudo-problems which have led to the most abstruse inquiries and controversies. It has been asked, for example, whether numbers are real or ideal objects, whether they are extra-mental or only exist in the mind, whether they are the creation of thought or independent of it, whether they are potential or actual, whether real or fictitious.

(*LSL*, 310, Carnap's emphasis)

In *LSL* Carnap recommends that to avoid these pseudo-problems, we replace sentences that contain universal words with purely syntactical counterparts that are defined in terms of explicitly adopted rules for the use of expressions of a constructed syntax language.

According to Carnap in *LSL*, the syntactical rules of a language L comprise not only finitary deductive rules for L, but also infinitary syntactical rules in terms of which one can construct a syntactical definition of "analytic in L" for the logical and mathematical sentences of L. (These infinitary syntactical rules are among the rich proof-theoretical resources I mentioned three paragraphs above.) Carnap's definitions of "analytic in L" in *LSL* are, in effect, syntactical explications of truth for the logical and mathematical sentences of L. For this reason, every true sentence of logic or mathematics has a syntactical counterpart in a properly constructed syntax language L (*LSL*, 236). A syntactical counterpart of "Either snow is white or it's not white", for

instance, is "'(snow is white) ∨ ~(snow is white)' is analytic in L"; and a syntactical counterpart of "Five is prime" is "'Five is prime' is analytic in L". The first members of these two pairs of sentences do not appear to make any syntactical claims, yet they are equivalent, relative to a suitable translation, to syntactical sentences of an explicitly defined syntax language. For this reason, Carnap calls "Either snow is white or it's not white", "Five is prime", and other such sentences, *quasi-syntactical*. More generally, a *quasi-syntactical* sentence is one whose translation into a properly constructed syntax language L is syntactical in Carnap's special sense, and hence, by definition, analytic in L.

While all quasi-syntactical sentences are misleading, according to Carnap, quasi-syntactical sentences that contain universal words, such as "Five is a number" and "Fido is a physical object", are especially misleading. When a sentence contains a universal word in the position of a predicate applied to variables or names in a given language, it is tempting to suppose one can use that sentence to raise speculative theoretical questions about the nature of entities to which the word applies, including what Carnap regards as philosophical pseudo-questions about "whether numbers are real or ideal objects, whether they are extra-mental or only exist in the mind, whether they are the creation of thought or independent of it, whether they are potential or actual, whether real or fictitious" (*LSL*, 310).

All quasi-syntactical sentences belong to what Carnap calls the "material mode of speech" (*LSL*, §77, 297). To guard against the dangers of the material mode of speech, Carnap recommends in *LSL* that we explicate sentences in the material mode of speech by syntactical (i.e., analytic) sentences of a suitable syntax language. He recommends, for instance, that the sentence "Five is not a thing but a number"—a quasi-syntactical sentence that contains the universal words "thing" and "number"—be explicated as the syntactical sentence "'Five' is a not a thing word but a number word in L", which is analytic in a properly constructed syntax language L (*LSL*, §77, 285). In contrast to the

material mode of speech, syntactical sentences are examples of what Carnap calls sentences in the formal mode of speech. He views translations of the kind just exemplified, i.e., translations from the material mode to the formal mode, as central to the new style of philosophizing that he develops in *LSL*: "*Translatability into the formal mode of speech constitutes touchstone for all philosophical sentences . . .*" (*LSL*, 313, Carnap's emphasis).

After Carnap learns of Tarski's method of defining truth he prefers to explicate "analytic" in semantical, not syntactical, terms. As I explained in §2, the leading idea for Carnap's semantical explications of "analytic" is that in a language system L with explicit semantical rules, a sentence is analytic (A-true) if and only if it is true and the semantical rules of L by themselves suffice for establishing its truth (Carnap 1939, 13). Carnap regarded this new semantical definition of "analytic" as an additional tool he could use to pursue his strategy in *LSL* for diagnosing and dissolving philosophical problems. In *Introduction to Semantics* (Carnap 1942), for instance, he writes:

> Many sentences in philosophy are such that, in their customary formulation, they seem to deal not with language but merely with certain features of things or events or nature in general, while a closer analysis shows that they are translatable into sentences of L-semantics. Sentences of this kind might be called *quasi-logical* . . . [B]y translating quasi-logical sentences into L-terms, the philosophical problems involved will often become clearer and their treatment in terms of L-semantics more precise. The same problems can often also be formalized and then dealt with by syntactical methods if a suitable calculus corresponding to the symmetrical system in question and formalizing its L-concepts is constructed. This way of syntactical formulation of philosophical problems has been dealt with in [*LSL*] Chapter V. *The method of semantical formulation of philosophical problems is to be developed in an analogous way*; it may sometimes turn out to be more appropriate than the syntactical method . . .   (Carnap 1942, 245–46, my emphasis)

Chapter V of *LSL* includes §76, on universal words, and §§77–80 on universal words in the material mode of speech, and the

dangers of the material mode of speech, including the points I highlighted above. It presents the heart of Carnap's method of *syntactical* formulation of philosophical problems. Carnap develops his method of *semantical* formulation of philosophical problems "in an analogous way" by viewing a sentence containing a universal word as *quasi-logical*, on analogy with what he calls *quasi-syntactical* sentences. A quasi-logical sentence is one that does not appear to be L-true, but is best paraphrased an L-true sentence of a language system. Thus Carnap's adoption of semantics does not fundamentally change his explanation in *LSL* of the dangers of universal words used in the material mode. He writes that

> The explanation of the dangers of the material mode of speech—which is now to include the quasi-logical sentences in addition to the quasi-syntactical ones—in [*LSL*] §§78–80 remains valid.
>
> (Carnap 1942, 250)

The continuity in Carnap's view of the dangers of the material mode of speech can be seen as follows. Given a number framework constructed in the way Carnap describes in §10 of *MN* and in *ESO*, the dangerous material mode sentence "Five is a number" is quasi-logical, since, although it appears to express a claim about the nature of five, it is best explicated in the number framework by "Five = Five", which, for reasons explained above, is a trivially L-true sentence of the framework. Similarly, the dangerous material mode sentence "There are numbers" is quasi-logical, since, although it appears to express a metaphysical claim about what there is, it is best explicated in the number framework as "$\exists m(m = m)$", which, for reasons explained above, is a trivially L-true sentence of the framework. These parallels between Carnap's syntactical and semantical translations of dangerous material mode sentences allow him to transpose his warnings in *LSL* about the dangers of the material mode of speech into his preferred new semantical key, in which they become the warnings in §10 of *MN* and in *ESO* about the dangers of using such sentences as "Five is a number", "There are

numbers", and "Fido is a physical object", and "There are physical objects". Just as, in his syntax period, Carnap holds that translatability from the material to the formal mode of speech constitute the "touchstone" for all philosophical sentences, so in his semantical period, including *ESO*, Carnap holds that translatability from the material to the semantical mode of speech is central to a proper diagnosis and treatment of philosophical sentences about existence.

9. Conclusion of the Arguments of §§5–8

I conclude that, contrary to the new standard reading, in *ESO* Carnap's treatment of philosophical questions about existence relies on his recommendation that we explicate some expressions of a natural language, such as "number" and "physical object", by open sentences (predicates) of linguistic frameworks that are trivially L-true of all and only the entities over which the variables of the respective frameworks range. Natural language expressions that we decide to explicate in this way are what Carnap calls universal words. Relative to a decision to explicate some of the expressions of a natural language as universal words, Carnap distinguishes between the following two kinds of questions one can raise in that natural language:

(I) Questions of the form "Are there Fs?", where "F" is replaced by a universal word in the material mode, such as "physical object", "number", etc.; and

(II) Questions of the form "Are there Fs?", where "F" is replaced by an open sentence (predicate), such as "elephant in Alaska" or "prime number greater than a hundred", that is not a universal word.

Carnap thinks questions of type (II) are clear and unproblematic. They are best explicated by internal questions of a linguistic framework whose answers are neither trivially analytic nor trivially contradictory in the framework. By contrast, questions of

type (I) are in the material mode and may therefore misleadingly appear to have answers that are substantive, yet not empirical. Among the most misleading and dangerous questions of type (I) are philosophical questions about existence—what Carnap calls "external questions", defined as "questions concerning the existence or reality of the system of entities as a whole". In Carnap's view there is no way to clarify these and other misleading questions in the material mode without transforming them into questions with trivially analytic or contradictory answers. To minimize the risk of raising fruitless, cognitively meaningless questions about existence, he thinks, we need to replace all questions of type (I) by corresponding internal questions of a linguistic framework whose answers are trivially analytic in the framework. This attitude is built into the above description of questions of type (I), since a universal word is by definition one that we have decided to explicate by an open sentence S_v of a linguistic framework that is trivially L-true of all and only the entities over which the variables of the framework range. Carnap also recommends that for any universal word U and name a, where a is a name that occurs, unregimented, in natural language and we stipulate that a is also a name of the framework that can be substituted for a variable v of the framework, we explicate the sentence Ua by the sentence S_a that results from substituting a for the occurrences of v in S_v. Since S_a is a trivial L-truth, so, also, is the sentence Ua that S_a explicates. By a step of EG, S_a implies $\ulcorner \exists v S_v \urcorner$. Since S_a is trivially L-true, so is $\ulcorner \exists v S_v \urcorner$. Relative to our decision that $\ulcorner \exists v S_v \urcorner$ explicates $\ulcorner \exists v U v \urcorner$, we may conclude that the latter is also L-true.[8]

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[8]I state these generalizations in this schematic way, without specifying the logical form of the sentences that explicate the universal word of a given framework, because the logical forms of such sentence may vary somewhat from framework to framework. In this paper I focus on frameworks in which the variables are first-order and one can explicate the universal word of the framework with a sentence of the form "$v = v$". In some of the frameworks Carnap describes in *ESO*, however, such an explication of the universal word of the framework is not available. For instance, in the linguistic framework that

If we identify what Quine calls "category" questions with questions of type (I), and what he calls "subclass" questions with questions of type (II), then the reasoning I presented in §§5–8 establishes that Carnap is committed in *ESO* to affirming versions of both (E) and (Q), namely (to repeat):

(E) External questions are category questions (e.g., "Are there numbers?" and "Are there physical objects?") conceived as raised prior to and independently of the adoption of any linguistic framework.

(Q) Construed internally, as explicated by expressions of a linguistic framework in the way that Carnap recommends in *ESO*, all category questions have trivially analytic or trivially contradictory answers.

I conclude that the reading of *ESO* that I presented in §§5–8 sharpens and deepens Quine's reading of *ESO* and, in the process, shows, contrary to the new standard reading, that Quine's reading of *ESO* is, in essentials, correct.

10. Quine's Clarifications

This sharpened version of Quine's reading of *ESO* opens the way for a reappraisal of Quine's criticisms of *ESO* in *CVO*. For reasons I shall explain, and as Quine himself suggests when

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Carnap recommends in *ESO* for speaking about propositions, the universal word "proposition" may not be explicated as "$x = x$" or even "x or not x", where x is a variable of first-order quantification, because closed sentences of the framework do not occupy places in sentences where it makes sense to put a variable of first-order quantification. Carnap proposes, instead, that "'p is a proposition' may be defined by 'p or not p', (or by any other sentence form yielding only analytic sentences)" (*ESO*, 210). The open sentence "p or not p" yields an L-true closed sentence when closed sentences of the framework are substituted for "p" (*ESO*, 209–210). To state my arguments and conclusions as simply and clearly as possible, in the rest of the paper I shall continue to focus on Carnapian linguistic frameworks in which one can explicate the universal word of the framework with a sentence of the form "$v = v$".

he writes that his goal in *CVO* is to "isolate and reduce" his differences with Carnap, Quine intends his criticisms of Carnap's views on ontology to be applications of philosophical methods and principles that he and Carnap both endorse. In fact, as I shall try to show, most of Quine's criticisms are best read as clarifications of Carnap's treatment of philosophical questions about existence.

Quine's first clarification is that Carnap's reliance on names is a distraction from the main issues about ontology, since it simply presupposes that if a given linguistic framework contains the name "*n*", and "*n*" can be substituted for the variables of the framework, then "$(\exists x)(x = n)$" is analytic (hence true) in the framework. The problem with including names in one's scientific language, according to Quine, is that "there is no commitment to entities through the use of alleged *names* of them; other things being equal, we can always deny the allegation that the words in question are names" (*CVO*, 205). One could suppose, following Carnap, that if a given linguistic framework contains the name "*n*" then "$(\exists x)(x = n)$" is analytic (hence true) in the framework. (This point is implicit in *CVO*, explicit in Quine 1969, 94.) In natural language, however, we are presented with *alleged* names, not names in the defined sense, so our use of such names is not a good guide to our ontological commitments. Quine concludes that: "The entities to which a discourse commits us are the entities over which our variables of quantification have to range in order that the statements affirmed in that discourse be true" (*CVO*, 67).

In footnote 3 of *ESO*, Carnap quotes with approval Quine's claim (from Quine 1943, 118) that "The ontology to which one's use of language commits him comprises simply the objects that he treats as falling . . . within the range of his variables." It is unclear, however, whether Carnap understands this claim as holding for languages in which there are no names. As I explained in §§5–9 above, Carnap's reasoning in *MN* and *ESO* relies on the existence of names, such as "Five" and "Fido" to establish

that "There are numbers" and "There are physical objects" are trivially analytic in the number framework and the physical object framework, respectively. He does not explain how to extend his reasoning in *MN* and *ESO* to languages that do not contain names. One might therefore wonder whether Quine's criterion of ontological commitment, taken by itself, without any reliance on names, is compatible with Carnap's position in *ESO*.

Quine does not address this question in *CVO*. He takes an important step toward answering it in "Meaning and Existential Inference" (Quine 1953a), where he allows that it may be convenient and useful to define "analytic" for a given language so that it applies to logical truths of the form "$(\exists x)(Fx \lor \neg Fx)$" (Quine 1953a, 160–61). If we include identity as part of elementary logic, then of course Quine's point extends to logical truths of the form "$(\exists x)(x = x)$". Unfortunately, however, Quine does not explain how to define "analytic" so that it applies to "$(\exists x)(x = x)$" in a language that contains no names. Let us briefly review the apparent obstacle to providing such a definition. As I explained earlier, in a linguistic framework for speaking about physical objects that contains a name "Fido" that one can substitute for the variables of the framework, "Fido = Fido" is L-true, and, by a step of EG, implies "$(\exists x)(x = x)$", which must therefore also be L-true. In a linguistic framework for speaking about physical objects that does not contain names, however, a key premise of this reasoning, namely, that "Fido = Fido" is L-true in the framework, it is not available. How then can we define "A-true" for such a language so that it applies to "$(\exists x)(x = x)$"?

Quine provides some hints that lead to the (eventually obvious) answer. He notes that there are "widespread misgivings as to the logical truth or analyticity" of statements of these forms, but argues that the misgivings are in "vague shape", depending, as they do, on a conception of analyticity, as "vaguely, truth by virtue of meanings", and the assumption that "meanings of words do not legislate regarding existence" (Quine 1953a, 161). He argues that those who press such vague objections to re-

garding "$(\exists x)(Fx \lor \neg Fx)$" and "$(\exists x)(x = x)$" as logically true or analytic overlook that the standard theorems of first-order logic presuppose a non-empty domain (Quine 1953a, 161). As Quine knows, and assumes that his readers know, Carnap thinks that (1) a decision to adopt a language system is not correct or incorrect, but only more or less expedient, given one's theoretical goals; and (2) an inquirer may simply stipulate that the sentence "$(\exists x)(x = x)$" is an A-postulate of a language system L that contains a physical object framework without names, so that "$(\exists x)(x = x)$" is A-true (but not L-true) in L, and trivially so, since to recognize that it is A-true one need only check the list of the A-postulates of L.

This radically pragmatic attitude toward analyticity and existence will seem strange if one assumes that the sentence "There are physical objects" cannot be true solely in virtue of its meaning, independent of the empirical facts. As I noted in §2, however, for Carnap the notion of "empirical fact" is not given prior to, or independent of, a language system. The important question for Carnap is not whether a decision to adopt a language system in which "There are physical objects" is analytic is compatible with traditional philosophical intuitions about what can be settled by meaning alone and what cannot, but whether such a decision is likely to be useful in our scientific inquiries.

Against this background, Quine's first clarification—i.e., that Carnap's reliance on names is a distraction from the main issues about ontology—reduces the question whether "There are numbers" or "There are physical objects" are trivially analytic in a given framework to the question whether "is a number" or "is a physical object" may be explicated as $\ulcorner v = v \urcorner$, where v is the variable of that framework. The clarification therefore implies that Carnap's strategy for discrediting traditional philosophical questions about existence is best interpreted as resting not on inferences from our uses of names in a given linguistic framework, but on

(a) the decision to use language systems with different styles of variables that range over distinct categories of entities, such as numbers or physical objects, that figure in traditional philosophical questions about existence;

(b) the decision to explicate words such as "number" or "physical object" that denote the large categories of entities described in (a) by open sentences of language systems that are L-true of all and only the entities, such as numbers or physical objects, in the domains of the relevant variables; and

(c) the A-truth, by A-postulation, of existential quantifications of open sentences that are L-true of all and only the entities in the domains of the relevant variables.

11. Quine's Second and Third Clarifications

It is precisely at this point—after explaining why "names are a red herring" (67)—that Quine criticizes Carnap's preference in *ESO* for languages with different styles of variables. This is *Quine's second clarification*: "the use of distinctive styles of variables, explicitly or even implicitly, is the most casual editorial detail" (*CVO*, 209–210). Quine writes:

> It is evident that the question whether there are numbers will be a category question only with respect to languages which appropriate a separate style of variables for the exclusive purpose of referring to numbers. If our language refers to numbers through variables which also take classes other than numbers as variables, then the question whether there are numbers becomes a subclass question, on a par with the question whether there are primes over a hundred. (*CVO*, 69)

Quine claims that whether or not a language has a separate style of variables for some category, such as numbers or physical

objects, "is a rather trivial consideration" (208), and concludes that "the distinction between category questions and subclass questions . . . is not invariant under logically irrelevant changes of typography" (*CVO*, 71).

This clarification is best evaluated in the context of *Quine's third clarification*, namely, that all Carnap needs in order to formulate his views on ontology is his analytic–synthetic distinction. Quine introduces his third clarification in *CVO*, on page 71, where he asserts without explanation or justification that if one grants Carnap his analytic–synthetic distinction, his critique of philosophical questions about existence in *ESO* can be extended to language systems without different sorts of variables.[9] Carnap's critique of traditional ontology in *ESO* can be so extended, I shall now argue, but only if it is modified in three crucial ways.

First modification: *A trivially analytic existence sentence that explicates an ontological statement, such as "There are numbers", or "There are physical objects", need not be a trivial A-truth of the form* $\ulcorner(\exists v(v = v)\urcorner$ *where v is a variable that ranges over all and only entities of the general kind in question, such as numbers or physical objects. It may, instead, be trivial A-truth of the form* $\ulcorner(\exists v)(Fv)\urcorner$, *where "F" is a predicate that is not equivalent to* $\ulcorner v = v\urcorner$. As we saw above, Carnap allows a sentence $\ulcorner(\exists v)(v = v)\urcorner$ to be adopted as an A-postulate of a physical object framework containing

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[9]Here is Quine's formulation of the claim:

No more than the distinction between analytic and synthetic as needed in support of Carnap's doctrine that the statements commonly thought of as ontological, viz., statements such as "There are physical objects", "There are classes", "There are numbers", are analytic or contradictory given the language. No more than the distinction between analytic and synthetic is needed in support of his doctrine that the statements commonly thought of as ontological are proper matters of contention only in the form of linguistic proposals. The contrast which he wants between those ontological statements and empirical existence statements such as "There are black swans" is clinched by the distinction of analytic and synthetic. (*CVO*, 71)

variables x, y, etc., that range over all and only physical objects, but no names of physical objects. In such a framework an open sentence of the framework, such as "$x = x$", may be treated as an explication of the universal word "physical object". In a language with a single style of variables that range over all entities, including perhaps numbers, however, "$x = x$" is not an acceptable explication of the phrase "physical object", since the range of the variables of the framework may include entities, such as numbers, that are not physical objects. To translate "$(\exists x)(x = x)$" of a physical object framework of the sort Carnap prefers in *ESO*, which contains names, into a language system L that contains no names and has a single style of variables that range over numbers as well as physical objects, one needs to treat the expression "physical object" as an unanalyzed predicate that is not true (or L-true) of every entity in the domain of quantification, and write, for instance, "$(\exists x)(x$ is a physical object)". If we stipulate that "$(\exists x)(x$ is a physical object)" is among the meaning postulates, or A-postulates, of language system L, then we may explicate "There are physical objects" as "$(\exists x)(x$ is a physical object)" in L. When explicated in this way, "There are physical objects" is A-true in L, and trivially so, since to recognize that it is A-true one need only check the list of the A-postulates of L. The strategy illustrated by this example easily applies, with appropriate changes, to any problematic philosophical existence statement.

Second modification: *Carnap's definition of "external question" must be revised, so that it still applies to the central examples that motivate Carnap's approach in* ESO. External questions are defined in *ESO* as "questions concerning the existence or reality *of the system of entities as a whole*" (*ESO*, 206). If we accept Quine's alternative analysis, as reconstructed in the previous paragraph, we must give up this characterization of external questions, and, along with it, Carnap's preferred diagnosis of external questions, namely, that they result from a misunderstanding

of "universal words" such as "number" and "physical object". If we accept Quine's alternative analysis, we will no longer explicate expressions such as "number" and "physical object" by universal concepts of a language system. We can still say, however, following Carnap's recommendations, that to identify an external question we first paraphrase it by a question of a language system L whose answer is trivially analytic or contradictory in L, and, if the person raising the question resists this paraphrase and does not accept any other paraphrase in a suitably clear language system, then unless and until we find such a paraphrase, we should conclude that his or her question is external, i.e., has no truth-evaluable content. This may now seem arbitrary, since by Carnap's methods virtually any true statement could be adopted in the language system as trivially analytic (A-true). The alternative account of the internal-external distinction that Quine sketches on Carnap's behalf is not arbitrary, however, insofar as it rests on our prior identifications of some sentences, such as "There are numbers" and "There are physical objects", as ontological. In Carnap's view what is problematic about such questions is that they *appear* substantive, but, when properly explicated by expressions of a linguistic framework, are seen to have trivially analytic or contradictory answers. Carnap and other members of the Vienna Circle agreed on which kinds of philosophical questions about existence are problematic, and ultimately meaningless, long before Carnap proposed his definition of "external" questions in *ESO* (Carnap 1928; Carnap 1963b, 870, 878). Thus, in keeping with the spirit, if not the letter, of Carnap's treatment of philosophical questions about existence in *ESO*, what Carnap calls "external questions" in *ESO* may be defined as "apparently substantive questions about existence that cannot be explicated as substantive questions by any sentence of a language system."

Third modification: *One must admit as meaningful some previously meaningless predications, now counting them false instead of mean-*

ingless. The first and second modifications of Carnap's position leave us with a critical question raised by Quine's second clarification, a question that I have deferred until now: Why does Carnap express his central points in *ESO* in terms of language systems with separate variables and names for numbers and physical objects? Part of the answer is that Carnap thinks we are independently motivated to adopt language systems with separate variables by our desire to regiment language in such a way that what Carnap takes to be garden-variety meaningless strings of letters and spaces, such as "Fido is divisible by 3" and "Nine is a dog", which might by our ordinary standards be classified as meaningless, are not sentences of the language system we use to clarify the cognitive contents of sentences of English (Carnap 1931, 67–68; Carnap 1963b, 878). If we are already committed to adopting language systems with separate variables and names for different kinds of entities, as Carnap thinks, then it is natural to prefer such language systems when we try to formulate and evaluate the puzzling questions about existence that philosophers raise.

In *CVO* Quine does not mention this motivation for preferring languages with distinct styles of variables. He considers it in a much later paper, "Existence and Quantification" (Quine 1969) in what reads like a continuation of the arguments of *CVO*. In "Existence and Quantification" Quine shows no interest in reviving the traditional philosopher's assumption that such sentences as "9 is a dog" and "Fido is divisible by 3", though strange, are perfectly meaningful in ordinary English, prior to regimentation. He grants that an empirical linguist may propose a plausible criterion of meaningfulness according to which "9 is a dog" and "Fido is divisible by 3" are meaningless, while "Fido is a dog" and "9 is divisible by 3", are not. He points out, however, that "such a criterion is of little value to a philosopher with a reform program" (Quine 1969, 92). His point is that a philosopher with a reform program may wish to construct a regimented language

in which sentences such as "9 is a dog" and "Fido is divisible by 3" are treated as meaningful. One motivation for such a program might be to avoid the complexities of a language of distinct styles of variables, and adopt, instead, a quantificational language with a single, encompassing domain that includes all and only the entities one wishes to quantify over in one's theory. To pursue such a reform program, Quine thinks, it is permissible to make ad hoc stipulations about truth values of hitherto meaningless sentences, including, perhaps, "9 is a dog" and "Fido is divisible by 3" (Quine 1969, 96).

Carnap is in no position to reject this proposal out of hand. A certain number of ad hoc decisions are unavoidable even if one explicates English sentences by sentences of a standard formalized language with different sorts of variables, as Carnap prefers. As James Shaw points out, for example, the sentence "Jack jumps over himself" is meaningless in English (Shaw 2009, 40). In a standard formalized language with a special style of variables for all and only physical objects, this sentence is best explicated by a sentence of the form "Jaa", where "Jxy" explicates "x jumps over y", "x" and "y" are physical object variables, and "a" is symbolic shorthand for "Jack". The English sentence "Jack jumps over himself", being meaningless, cannot help us understand the sentence that explicates it, "Jaa". The easiest thing to do is to count "Jaa" false by an ad hoc stipulation. This and other examples show that Carnap is already committed to making such stipulations. The only difference between his preferred approach and Quine's is that the latter requires that we make many more of these kinds of ad hoc stipulations.[10] Recall,

also, that Carnap does not think that a choice of a language system is a matter of right or wrong. He is committed in principle to considering language systems of the sort that Quine favors, even if to construct such language systems we need to make a large number of ad hoc decisions about the truth values of their sentences.[11]

12. Conclusion

Recall according to Carnap, a universal word U, such as "number" or "physical object", is an expression of a natural language that we have decided to explicate by an open sentence S_v of a linguistic framework that is trivially L-true of all and only the Us. On the reading of *ESO* that I explained and defended in §§2–9, if U is a universal word relative to such an explication, and a is a name that occurs, unregimented, in natural language and that

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[10]According to Huw Price,

Carnap holds that there is some kind of category mistake involved in the assimilation of issues of the existence of classes, say, and the existence of physical objects. His model for the construction of linguistic frameworks reflects this assumption, requiring that we mark the category boundaries in our choice of syntax—a different quantifier for each category, for example. But the distinction is not grounded at the syntactical level. (Price 2009, 330)

In fact, however, Carnap has no language-system independent notion of "cat-

egory mistake" of the kind that Price attributes to him. This is evident from the fact that Carnap sometimes prefers the approach that Quine favors. In "Testability and Meaning", for instance, Carnap says that, while he used to recommend against including a translation of the sentence "This stone is now thinking about Vienna", on the grounds that it is not false but meaningless, he now (i.e., in 1937) prefers to construct a scientific language in which there is a sentence S that translates the English sentence, "This stone is now thinking about Vienna". He stipulates that S is false, not meaningless, and writes, "the careless use of the word 'meaningless' has its dangers" (Carnap 1936–1937, IV, §18). Carnap emphasizes that neither this approach, which requires more ad hoc stipulations, nor the one that treats "This stone is now thinking about Vienna" as meaningless, is correct or incorrect. We must simply decide which approach we prefer. Hence, contrary to what Price claims, Carnap has no principled objection to Quine's preference for languages with a single style of variables.

[11]The ad hoc decisions we need in order to reduce many-sorted quantification to one-sorted may increase the risk of inconsistency. This is especially relevant in set theory. (See Carnap, Letter to Quine, 1947–4–13, in Creath 1990, 405–407; quotation from 406; cited in Lavers 2015.) Quine indirectly acknowledges and tries to address the problem in his paper "Unification of Universes in Set Theory" (Quine 1956). The technical issues are complex, but solvable, however, and do not decisively favor using only languages with two or more distinct sorts of variables.

we explicitly list as among names of L that can be substituted for a variable v of L that ranges over all and only the Us, then, according to Carnap, the sentence S_a that results from substituting a for the free occurrences of v in S_v explicates the natural language sentence Ua. By a step of the rule EG of L, S_a implies $\ulcorner\exists v S_v\urcorner$. And since S_a is trivially L-true in the framework, so is $\ulcorner\exists v S_v\urcorner$ and the sentence we take it to explicate, namely $\ulcorner\exists v U_v\urcorner$.

This may appear to show that Carnap's treatment of philosophical questions about existence relies only on the least controversial part of his analytic–synthetic distinction, namely, his view that the L-truths of a language system are A-true (analytic). In fact, as I have argued, Carnap's decision in *ESO* to construct language systems with distinct sorts of variables, such as variables for physical objects and variables for numbers—a decision that implies, in the way I explained in §§5–9, that the answers to the explicated versions of the questions "Are there physical objects?" and "Are there numbers?" are trivial L-truths of the relevant language systems—is optional. The considerations explained in §§10–11 show that Carnap's commitments are compatible with deciding to explicate such questions as "Are there physical objects?" and "Are there numbers?" in a language system L relative to which they have answers that are trivially A-true in L, but not L-true in L. Hence Carnap's decision in *ESO* to explicate such questions as "Are there physical objects?" and "Are there numbers?" so that their answers are trivially L-true, and for that reason also trivially A-true, simply reflects his preference for such explications, not a language-system-invariant explanation of why they are trivially A-true. In its most general form, I conclude, Carnap's treatment of philosophical questions about existence ultimately depends on his view that the analytic truths of a language system L may include sentences that are trivially analytic (A-true but not L-true) solely because we have stipulated that they are among the meaning postulates (A-postulates) of L.[12]

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[12]This conclusion reveals the precise point at which Quine's influential crit-

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icisms of Carnap's efforts to explicate the set of A-truths of a language system L that are not also L-truths of L challenge Carnap's treatment of philosophical existence questions.

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