

Carnap's 1934 Objections to Wittgenstein's Say/Show Distinction

Alexei Angelides

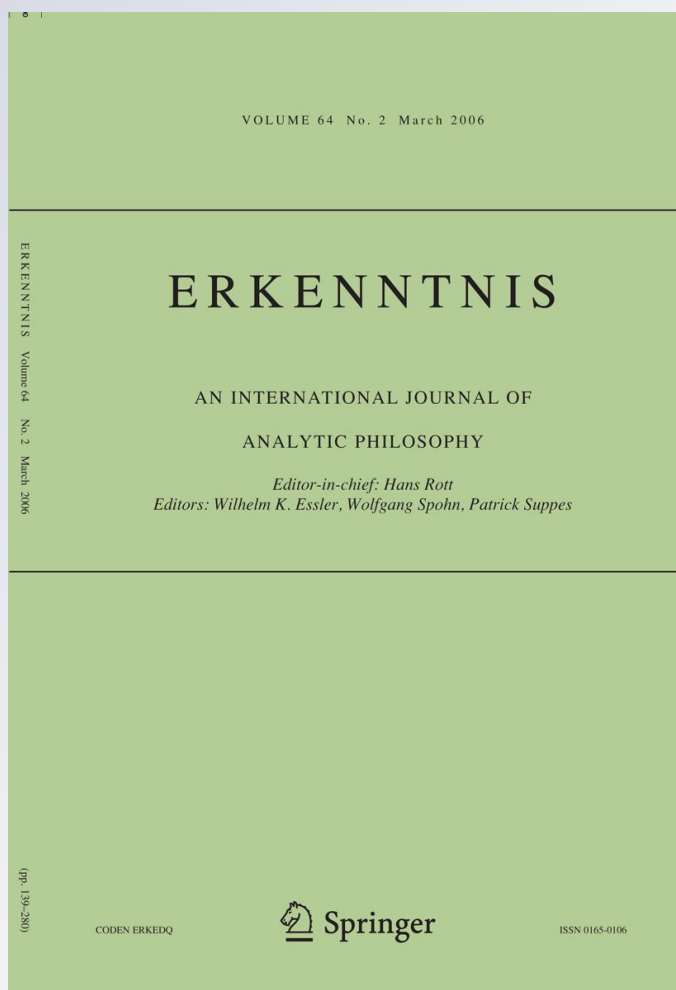
Erkenntnis

An International Journal of Scientific
Philosophy

ISSN 0165-0106

Erkenn

DOI 10.1007/s10670-011-9327-6



Your article is protected by copyright and all rights are held exclusively by Springer Science+Business Media B.V.. This e-offprint is for personal use only and shall not be self-archived in electronic repositories. If you wish to self-archive your work, please use the accepted author's version for posting to your own website or your institution's repository. You may further deposit the accepted author's version on a funder's repository at a funder's request, provided it is not made publicly available until 12 months after publication.

Carnap's 1934 Objections to Wittgenstein's Say/Show Distinction

Alexei Angelides

Received: 17 February 2009 / Accepted: 24 September 2011
© Springer Science+Business Media B.V. 2012

Abstract In sections 18 and 73 of Carnap's *Logical Syntax of Language*, Carnap famously presents what he understands to be decisive objections to Wittgenstein's Tractarian distinction between saying and showing. However, Carnap has been criticized in recent literature for severely misinterpreting that distinction. Against this criticism it is argued that Carnap reads that distinction as applying to two distinct classes of expressions (*Unsinn* and *sinnlos*) that he holds to emerge from his reading of *Tractatus* 4.1212 and related Tractarian theses. It is then argued that Carnap's counterexamples to Wittgenstein's theses are successful given his reading, and that our analysis of his counterexamples puts us in a unique position to reevaluate his conventionalism.

1 Introduction

Wittgenstein's influence on Carnap's thought throughout the latter's career is well-known. In the *Aufbau*, the theses that there is a stock of atomic sentences the business of which is to represent atomic facts, that from these atomic sentences our knowledge of the external world can be formally reconstructed, and that only these atomic sentences and what can be constructed from them are in principle verifiable appear to find their Wittgensteinian counterparts in Sect. 3, parts of Sects. 4, 5, and so on in the *Tractatus*. Wittgenstein's appearance in Carnap's *The Logical Syntax of Language* is no less ubiquitous, most obviously in the close connection between what Carnap there calls the "logic of science" and the Tractarian conception of philosophy as "critique of language."

A. Angelides (✉)
Stanford Philosophy Department, Stanford University, Stanford, CA 94305, USA
e-mail: angelides@stanford.edu

But coincidences between Wittgenstein's and Carnap's thought often conceal detailed disagreements between them. In section 18 of the *Syntax*, for example, Carnap announces the guiding question of the second part of his book. He writes:

[u]p to the present, we have differentiated between the object-language and the syntax-language in which the syntax of the object-language is formulated. Are these necessarily two separate languages?¹

Carnap's answer to the question is that object and metalanguage are not necessarily two separate languages. On this point Carnap is in agreement with Wittgenstein, for in section 18 he intends to show that "it is possible to manage with one language only" (LS 53). But Carnap also maintains that he intends to "demonstrate that without the emergence of any contradictions the syntax of this language can be formulated within this language itself." In Carnap's view, his conclusion refutes Wittgenstein's thesis that, as Carnap glosses it, "what we call syntax cannot be expressed at all—it can only be 'shown'" (ibid.). The focus of the present essay is this dispute between Wittgenstein and Carnap on the possibility of expressing formal syntactic concepts in language. Close attention is paid to the details of Carnap's 1934 reading of Wittgenstein's famous distinction between saying and showing.

The outline of the paper is as follows. In Sect. 2 a popular reading of Wittgenstein's say/show distinction is sketched wherein Wittgenstein is said to maintain imply that attempts to express what in Wittgenstein's view cannot be expressed all end in nonsense. The point of this section is not to provide our own interpretation of Wittgenstein on this distinction, but rather to sketch an outline of the Tractarian background to a prominent reading of the distinction. In this section it is argued that the reading requires us to take certain theses in the *Tractatus* as logically dependent upon one another. In Sect. 3, Carnap's 1934 interpretation of Wittgenstein's say/show distinction is reconstructed. The main point is that Carnap reads the distinction such that it applies to two separate classes of expressions: those that are meaningless, and those that are nonsense. In order for Carnap's reading to be successful, he must explain those theses from Sect. 2 of this essay that suggest that Wittgenstein maintains all metalogical sentences to be nonsense. It is argued that Carnap is successful given his reading, and the point touches on the extent to which Wittgenstein and Carnap are addressing the same concerns.²

In Sect. 4, Carnap's objections in sections 18 and 73 of LS to Wittgenstein's distinction are reconstructed. The burden is on Carnap to provide candidates for counterexamples to Wittgenstein's distinction. In LS there are two, and these candidates ramify into counterexamples that correspond to Carnap's reading of the say/show distinction. The first is the existence of the arithmetization procedure in which the metalanguage is coded into the object language. The second is the existence of a translation procedure from the material mode of speech to the formal

¹ Carnap (2002, p. 53).

² Friedman (1999, p. 193ff.), argues that Carnap's thesis that logical syntax is capable of precise linguistic formulation and Wittgenstein's denial of a "similar-sounding sentence" have little to do with one another. Part of Sect. 3 addresses Friedman's claim.

mode of speech, a procedure which Carnap primarily intends to be a criterion for distinguishing between meaningful metalogical sentences and nonsense pseudo-sentences. Finally, in our conclusion, Carnap's objections to Wittgenstein in sections 18 and 73 of LS are evaluated in light of his reading of Wittgenstein's say/show distinction. It is suggested that Carnap's objections to Wittgenstein's thesis are successful given his reading, and in the conclusion, the consequences of that claim for the interpretation of Carnap's aim in LS and for his brand of conventionalism are discussed.

2 Wittgenstein's Say/Show Distinction

We begin by sketching a kind of graph of the say/show distinction as it appears in the *Tractatus*. Wittgenstein's thoughts are notoriously difficult on this point, thus our discussion is confined to just those Tractarian theses that appear to be relevant to Carnap's reading of the distinction. The most forceful and explicit expression of the say/show distinction occurs at 4.1212:

4.1212 What *can* be shown, *cannot* be said.

In general, subsections of Sect. 4 spell out Wittgenstein's theory of sense, nonsense, meaning and logical grammar. 4.1212 is a comment on 4.121, the thesis that sentences cannot represent their own logical form, but that the logical form of a sentence is "mirrored in them." In that same section Wittgenstein goes on:

What finds reflection in language, language cannot represent.

What expresses *itself* in language, *we* cannot express by means of language.

Propositions *show* the logical form of reality.

They display it.³

The five theses that comprise 4.121 are tightly bound to the picture theory of meaning. For Wittgenstein, the only meaningful sentences are those that picture a possible state of affairs. By virtue of this, what pictures represent are contingent states of affairs (4.1). In turn, this makes it possible to say of a sentence that it is true or false of that state of affairs. Indeed, earlier in the text Wittgenstein appears to suggest that the reason a picture can represent a state of affairs correctly or incorrectly and be true or false of the state of affairs it pictures is because it "represents its subject from a position outside it. (Its standpoint is its representational form.)" (2.172). This standpoint is what Wittgenstein calls the logical form of a sentence.

The logical form of a sentence makes the picture itself possible, and Wittgenstein considers it a necessary condition of representation (cf. 5.555). Suppose, however, that on the contrary it is possible to represent logical form by means of sentences that picture the existence or non-existence of states of affairs. This would mean that we had a formal predicate, "is a name", for example, and a name "*a*" for an object

³ Other than in quotes from the Pears and McGuinness translation, uniformly "sentence" rather than "proposition" is used throughout the explication in this paper. If this seems to be inappropriate when applied to Wittgenstein, then it ought to suffice to note that for him a symbol is always an interpreted sign.

such that the sentence ϕ expressed by their combination asserts that the object a falls under the formal concept *being a name*. By assumption, ϕ pictures a possible state of affairs. Hence, if the state of affairs pictured obtains, then ϕ is true, and if the state of affairs pictured does not obtain, then ϕ is false. Suppose that the state of affairs pictured by ϕ does not obtain, such that a does not fall under the formal concept *being a name*. Then ϕ is false and $\neg\phi$ is true. Since the syntactic categories are exhaustive, it follows that “ a ” must be a predicate. If so, then it must be possible to predicate the name “ a ” of some name “ b ” such that the sentence expressed by their combination asserts that the object b falls under the object a . But this is nonsense. For Wittgenstein, names and what they stand for, objects, are logically simple. It is logically impossible to assert of an individual object that another object falls under it. Hence, writes Wittgenstein, “[w]hen something falls under a formal concept as one of its objects, this cannot be expressed by means of a proposition. Instead it is shown in the very sign for this object. (A name shows that it signifies an object, a sign for a number that it signifies a number, etc.)” (4.126; cf. 4.1211).

In the comment upon which 4.121 is a comment Wittgenstein writes:

4.12 Propositions can represent the whole of reality, but they cannot represent what they must have in common with reality in order to be able to represent it—logical form.

In order to be able to represent logical form, we should have to be able to station ourselves with propositions somewhere outside logic, that is to say, outside the world.

4.121 and 4.1212 are both comments on this comment, and 4.12 is itself a comment upon 4.1:

Propositions represent the existence and non-existence of states of affairs.

4.1 is one of the main theses of the picture theory. On the face of it, the second comment in 4.12 appears to be an elucidation of what would be the case were we able to represent logical form in sentences. But the conclusion drawn from the implicit *reductio* there appears to be stronger than the one we arrived at in the above paragraph.

This is because in fact 4.12 combines *two* Tractarian theses. One we have already noted: the thesis that the syntax of language is not expressible in language. The second, and much stronger thesis, is that there is only one language. On Wittgenstein’s view, it is (logically) impossible to step outside of *the* linguistic framework of representation and compare the logic of our language—what makes representation possible—with the logic of the world—those states of affairs that are possible representations. From this, what we might call with Carnap, Wittgenstein’s “absolutism” about language, it follows that it is impossible to represent the logical form of a sentence in a sentence. In language—the one language—we presuppose logical form in order to construct sentences. The relation between these two theses is captured in a similar thought in the 5s. There Wittgenstein writes:

5.61 Logic pervades the world: the limits of the world are also its limits
So we cannot say in logic, ‘The world has this in it, and this, but not that.’

For that would appear to presuppose that we were excluding certain possibilities, and this cannot be the case, since it would require that logic should go beyond the limits of the world; for only in that way could it view those limits from the other side as well.

We cannot think what we cannot think; so what we cannot think we cannot *say* either.

In the first comment we are told that the limits of logic are the limits of the world, in the sense that both share the same logical form. Since it is clear that Wittgenstein's use of the definite article is intentional, the limits of the one world—the totality of facts—are the limits of the one logic, thus the one logical syntax, and the one language whose formal properties are codified in the one logic. Because of this limit, logic cannot be representational. For if it were, so begins the third comment, logical syntax could represent contingent sentences that picture contingent states of affairs, implying that there might be, in Sullivan's language, "different determinations of the whole of [logical] space."⁴ If so, then there might exist valuations of tautologies for which the pictured state of affairs did not obtain; that they could be other than what they are; that, then, we could "think what we cannot think." Thus, metalogical sentences in which formal concepts are predicated of objects turn out to be logically impossible as a consequence of Wittgenstein's "absolutism" in conjunction with his picture theory of meaning. The logical form of a sentence, its syntax, cannot be expressed in sentences on pain of making it possible to say what we cannot think.

On this reading what can be shown and cannot be said is logically dependent upon the thesis that there is only one language (and some auxiliary theses from the picture theory). That thesis rules out the possibility of expressing the logical syntax of language in language, and it rules out meaningful metalinguistic ascent, full stop. If we take the relation between Wittgenstein's "absolutism" and the say/show distinction to be one of logical dependence, then a metalogical sentence such as "red' is a predicate" turns out not only to be meaningless—in the sense of the grammatically ill-formed "Caesar is and"—but also turns out to be nonsensical—in the sense of the category mistake "Caesar is a prime number". For on this reading there is simply no question of an illegitimate syntactic construction purporting to express that an object falls under a formal concept. Indeed, many interpreters have read Wittgenstein's view of the relation between these two theses in just this way.⁵ After all, on the analysis above it seems to be a natural way of reading the relation. But it was not Carnap's reading. Or at least, it was not Carnap's primary reading. It is to this point that we now turn.

3 Carnap on the Say/Show Distinction

In this section, it is argued that Carnap reads Wittgenstein's claim at 4.1212 to apply to two distinct classes of meta-sentences, those that are meaningless and those that

⁴ Sullivan (2001, p. 96).

⁵ See, for example, Diamond (2001); or Conant (2000).

are nonsense. Carnap's interpretation of Wittgenstein's say/show distinction is to be contrasted with the interpretation in Sect. 2, which on this point attributes to him the view that meta-sentences are one and all nonsense. This distinction between two kinds of "meaninglessness" is itself captured in Wittgenstein's alternating use of *Unsinn* and *sinnlos* in the *Tractatus*. Thus, it is argued in this section that Carnap reads Wittgenstein as making the weaker claim that metalogical sentences are *sinnlos* but not *Unsinn*. As a first pass at the distinction between *sinnlos* and *Unsinn*, Carnap's uses of the terms in different contexts suggest that he takes the term "*sinnlos*" to apply to expressions that are syntactically ill-formed, whereas "*Unsinn*" applies to expressions that are syntactically well-formed but "conceptually" defective in some manner. In order for this interpretation of Wittgenstein to be successful, Carnap must explain, and we show that he does, Tractarian theses that suggest that Wittgenstein maintains meta-sentences to be nonsense in the sense of *Unsinn*. Carnap's success suggests that Carnap was aware of the interpretation presented in Sect. 2, and shows clearly what is at stake in the dispute between the two on the expression of formal syntactic concepts.

In his 1963 intellectual biography, Carnap writes that in his discussions of Wittgenstein with the Vienna Circle in the late 1920s that they:

read in Wittgenstein's book that certain things show themselves but cannot be said; for example the logical structure of sentences and the relation between the language and the world.⁶

The two examples that Carnap provides of his understanding of to what the say/show distinction applies suggest that Carnap understands the distinction to apply to different classes of phenomena, namely the logical structure of sentences themselves, and the reference relation. It does not, however, suggest that Carnap holds the distinction to apply to these classes in different ways. That is, it does not tell us whether Carnap reads Wittgenstein as maintaining by 4.1212 the thesis that metalogical sentences are meaningless (*sinnlos*) or as maintaining the thesis that metalogical sentences are nonsense (*Unsinn*). For that, we must turn to LS.

Section 73 of LS introduces Carnap's famous claim that the logic of science is the syntax of the language of science. Carnap claims that there are two tasks to vindicating this thesis. First he must show that the "so-called philosophical problems concerning the foundations of the individual sciences . . . are questions of syntax."⁷ These "so-called philosophical problems" include ontological questions regarding the mind-independence or mind-dependence of numbers, the nature of "things, time and space, the relations between the psychological and the physical, etc." (*ibid.*). In Carnap's view, such problems are illegitimate "object-questions," and accordingly it must be shown that they are in fact only "pseudo-object-questions," questions which "because of a misleading formulation, appear to refer to objects while actually they refer to sentences, terms, theories, and the like" (*ibid.*). As such, pseudo-object-sentences and the questions that generate them can be formulated, in Carnap's view, as logical questions. The second task is then to show that "all logical

⁶ Carnap (1963, p. 29).

⁷ Carnap (2002, p. 281).

questions are capable of formal presentation, and can, consequently, be formulated as syntactical questions" (ibid.). Together the execution of these two tasks provides a reduction of kinds, first of philosophical problems to problems of logic, and then of the problems of logic to problems of syntax. This is notable because the commentary that follows the announcement of these two tasks is an exclusive discussion of the set of Tractarian theses discussed above that have the consequence that syntax is not expressible in language.

In the commentary of section 73, Carnap begins by identifying what Wittgenstein calls "philosophy" with what Carnap calls the "logic of science" and writes that it was Wittgenstein who first drew the close connection between philosophy and syntax. As an example of this connection, Carnap claims that Wittgenstein "made clear the formal nature of logic and emphasized the fact that the rules and proofs of syntax should have no reference to the meaning of symbols."⁸ Carnap cites 3.33, 4.0312, and 6.124 as evidence for this reading of Wittgenstein's view of logical syntax. At 3.33, for example, Wittgenstein writes:

[i]n logical syntax the meaning of a sign should never play a role.

It must be possible to establish logical syntax without mentioning the *meaning* of a sign; *only* the description of expressions may be presupposed.

On Wittgenstein's view, the meanings of logical constants are superfluous once we clearly understand the rules for their application. Thus, Carnap appears to read this section as the claim that one must detach syntactic transformation rules from their intuitive meanings. Carnap then presents two of Wittgenstein's "negative theses." The first is the sequence of claims 4.121, 4.1211, 4.1212, and 4.124. Carnap's economical gloss on those Tractarian theses is as follows:

[i]n other words: There are no sentences about the forms of sentences; there is no expressible syntax.⁹

The second negative thesis Carnap presents is at 4.112, and the set of infamous claims made at 6.63 and 6.54, which state that philosophy is an activity and not a theoretical science, an activity that consists in "elucidation," the result of which is the clarification of already existing sentences. Once this is clearly seen, in Wittgenstein's view, we shall "see the world aright" (6.54). Carnap's equally economical gloss on 4.112 and 6.54 is that, according to Wittgenstein, "the investigations of the logic of science contain no sentences, but merely more or less vague explanations which the reader must subsequently recognize as pseudo-sentences and abandon."¹⁰ Now Carnap's reading of these Tractarian theses occurs in the commentary to section 73, thus his interpretation of Wittgenstein in the commentary must exhibit some relation to the dual tasks announced in the main part of section 73. Our question now concerns the precise nature of this relationship.

As mentioned above, Carnap's reading of 3.33, 4.0312, and 6.124 suggest that he understands that set of Tractarian theses as making the claim that it is possible to

⁸ Carnap (2002, p. 282).

⁹ Carnap (2002, p. 282)

¹⁰ Carnap (2002, p. 283).

effectively detach transformation rules for a logical constant from the intuitive meaning or semantic content of the logical constant. In Carnap's view, this amounts to the claim that we may therefore, with Wittgenstein, understand logical syntax as purely formal in the sense that derivations in a formal language need make no reference to the semantic content of the concepts involved in those derivations and thus we may rely exclusively on the syntactic transformation rules. Given this, if we are then presented with a "logical question," we may show that it is reducible to a purely syntactical question that makes no reference to the intended interpretation of the concepts involved—an instance of the second of Carnap's two tasks. Carnap thus reads 3.33 and the related theses as maintaining that it is possible to reduce questions of logic to questions of logical syntax. But what of the first task, that of reducing pseudo-object-questions of a "misleading nature" to logical questions?

Section 76 is Carnap's discussion of universal words, words which appear in the material mode of expression such that when they appear in well-formed sentences, the sentence in question is analytic (whose counterparts in the formal mode Carnap designates as "universal predicates"). Examples of such words are "'thing', 'object', 'property', 'relation', 'fact' [...] 'function', 'aggregate' (or 'class'); 'expression' (in a language of pure syntax); and many others."¹¹ Carnap's criterion for individuating a universal word when confronted with a candidate is to say that an expression is a universal word just in case it "expresses a property (or relation) which belongs analytically to all the objects of a genus, any two objects being assigned to the same genus if their designations belong to the same syntactic genus."¹² Thus, for example, the sentence "7 is a natural number" is, on this view, analytic, since in LII the number 7 is contained in the extension of a second-order predicate, $N(x)$, with free-variables given by an expression with higher-order quantifiers, defined by, for example:

$$\exists R[Rx \wedge \forall u(Ru \rightarrow (u = 0 \vee \exists v(u = Sv)))]$$

where "0" is a fixed LII expression, x , u , v are expressions of type 0 ranging over individuals, S and R are expressions of type 1, and S is evaluated by substitution instances of expressions of type 0. Hence, $N(x)$ is evaluated by substitution instances of arbitrary classes of natural numbers, in which case "7 is a natural number" is analytic by fiat. Carnap calls expressions such as the above in which universal words occur that depend on the genus of the object predicated *dependent*, and contrasts them with universal words that occur independently of the genus of the object predicated, the dual class of expressions he calls *independent*.¹³ Independent expressions contain universal words that are genuinely, or informatively, predicates of their subjects. For example, in a sentence (one that we might find in Frege's *Grundlagen*) such as "five is not a thing, but a *number*," the universal word "number" plays the role of making an ontological claim about the kind of object five is.

¹¹ Carnap (2002, pp. 294–295).

¹² Carnap (2002, p. 294).

¹³ Carnap (2002, pp. 297–298).

With the distinction between independent and dependent universal words Carnap has in mind explicitly the Tractarian theses at 4.126 that the falling of an object under a formal concept cannot be expressed by means of sentences. Consider the commentary to section 76. Carnap writes:

precisely in the most important case, there is another method of use in which the universal word is employed independently (“as a proper concept-word”). There it is a question of sentences of the material mode of speech which are to be translated into syntactical sentences. Sentences of this kind with a universal word are held by Wittgenstein to be *nonsense*, because he does not consider the correct formulation of syntactical sentences to be possible.¹⁴

The important feature to notice about this quote is that Carnap explicitly singles out a class of sentences—those sentences in which universal words appear independently—as the particular class that Wittgenstein holds to be nonsense. Carnap is forced to deny *that* Tractarian thesis (4.126) in order to execute the first task of reducing pseudo-object-sentences to logical sentences. For if the class of sentences that informatively asserts of formal concepts that a set of objects falls under them—what Carnap understands as sentences in which universal words appear independently—is held to be nonsense and so logically impossible, then *a fortiori* a reduction of that class to a class of sentences in the formal mode is blocked. Wittgenstein offers no analysis of such expression other than labeling them as nonsense, and so “unthinkable.” On the other hand, Carnap’s strategy is to take this class of sentences, empty it of content, and then translate each sentence into the formal mode, thus obtaining a class of well-formed meaningful sentences of the logic of science. But the sentences of that class, of course, are what Wittgenstein considers nonsense because they are sentences with philosophical content, and not, in particular because they are sentences that attempt to express the syntax of language in language. In fact, Carnap is sensitive to the point, for he writes in section 73 of Wittgenstein’s second “negative thesis”—the thesis that, in Carnap’s words, “the logic of science (‘philosophy’) cannot be formulated”—that it does not “coincide with the first, since [Wittgenstein] does not consider the logic of science and syntax to be identical.”¹⁵

The distinction between the logic of science and syntax in Carnap’s reading of Wittgenstein’s say/show distinction resonates in Carnap’s descriptions of Wittgenstein’s views of sentences in which universal words occur dependently, that is, Carnap’s descriptions of Wittgenstein’s views of that subclass of sentences that he characterizes as analytic (in L). There is an implicit contrast between sentences that Carnap characterizes Wittgenstein as maintaining to be “inadmissible” in contradistinction to those sentences Wittgenstein maintains to be “impossible.” It is the first class that Carnap considers to be meaningless (*sinnlos*), and it is the second class that he considers to be nonsense (*Unsinn*). The contrast is consistently made in LS, as is the claim about Wittgenstein’s view that metalogical syntactic sentences are inadmissible entails that such sentences are meaningless. Thus, for example,

¹⁴ Carnap (2002, p. 296 [my italics]).

¹⁵ Carnap (2002, p. 283).

when Carnap writes that “[o]n the other hand, I do not share Wittgenstein’s opinion that this method of employing the universal words is the only admissible one.”),¹⁶ Carnap has in mind denying Wittgenstein’s claims regarding the metasyntactic use of variables, names, and predicates, Wittgenstein’s denial of which Carnap glosses as “there is no expressible syntax.”¹⁷ Of particular note is that in section 73 one of the examples Carnap uses to deny what he interprets as Wittgenstein’s claim that there is no expressible syntax is that “there are the analytic sentences of pure syntax, which can be applied to the forms and relations of form of linguistic expressions”¹⁸, just what Carnap characterizes later on as sentences in which universal predicates occur dependent upon the genus of which they are predicated. Consider further, now, what Carnap writes in his autobiography about conversations in the early 30s with Tarski and Gödel:

I had realized, chiefly in conversations with Tarski and Gödel, that there must be a mode, different from the syntactical one, in which to speak about language. Since it is obviously admissible to speak about facts and, on the other hand, Wittgenstein notwithstanding, about expressions of a language, it cannot be inadmissible to do both in the same metalanguage.¹⁹

Had Carnap understood Wittgenstein to maintain the stronger claim that expressing the syntax of language in language is nonsense, and hence in Carnap’s view logically impossible, as opposed to inadmissible, and so in Carnap’s view meaningless, then we ought to have expected him to have claimed just that.

The suggestion that is being made is that we ought to understand Carnap as parsing the Tractarian theses generated from Wittgenstein’s say/show distinction as follows. The syntax of language is inexpressible in language, but there are two classes of expressions to which the claim applies. The first is what Carnap calls dependent universal words. On Carnap’s reading of Wittgenstein’s say/show distinction relative to this class of expressions, Carnap reads him as maintaining the weaker thesis that metalogical sentences in which dependent universal words occur are *sinnlos* but not *Unsinn*. The second type of expression is what Carnap calls independent universal words. On Carnap’s reading of Wittgenstein’s say/show distinction relative to this class of expressions, Carnap reads Wittgenstein as maintaining the stronger thesis that metalinguistic sentences in which independent universal words occur are *Unsinn*. Carnap understands the target expressions of this Tractarian critique to be the philosophical elucidations. Consider, for example, the fact that he formulates the theses that there is only one language and that what can be shown cannot be said in the opening to part II of LS as two separate and logically *independent* theses:

¹⁶ Carnap (2002, p. 295).

¹⁷ Carnap (2002, p. 282).

¹⁸ Carnap (2002, pp. 282–283).

¹⁹ Carnap (1963, p. 60).

[a]ccording to another opinion (that of Wittgenstein), there exists only one language, and what we call syntax cannot be expressed at all—it can only “be shown.”²⁰

In order for the distinction between classes of sentences to which the say/show distinction applies to be applicable, Carnap must deny that 4.12 and 4.1212 are logically dependent upon one another. For if they were logically dependent upon one another, then if Carnap were to deny 4.1212, he would be forced to deny 4.12. But Carnap accepts 4.12 and denies 4.1212, and hence, he must understand them as logically independent.²¹

Michael Friedman writes of the relation between Carnap and Wittgenstein on the point of the possibility of expressing logical syntax in language that “Carnap’s assertion that logical form and logical syntax are perfectly capable of exact expression has very little to do with the Tractarian denial of a similar-sounding sentence.”²² On Friedman’s reading of Carnap and Wittgenstein on this point, this is because when Carnap claims that syntax is expressible, he means that it is possible to construct a combinatorial theory of signs, and *that* is not what Wittgenstein appears to be denying. Though there is some truth to this, as we have seen the issue between Carnap and Wittgenstein is more subtle, since so far we’ve shown that Carnap’s claim that syntax is capable of exact expression is a denial of what Carnap takes to be one Tractarian thesis, while his claim philosophical sentences are nonsense agrees, to a certain extent, with what Carnap takes to be a different Tractarian thesis. In short, it has been argued that Carnap is denying that 4.1212 is logically dependent upon 4.12. In order to deny that, Carnap distinguishes between two types of inexpressible sentences in the Tractarian sense: those that are meaningless (*sinnlos*) and thus not representable in language, and those that are nonsense (*Unsinn*) and thus logically impossible or “unthinkable.” Thus, Carnap understands Wittgenstein’s absolutism about language and the say/show distinction to be logically independent theses. In the next section it is argued that this interpretation of Carnap’s understanding of Wittgenstein’s say/show distinction provides an interesting and illuminating means for understanding Carnap’s objections to that distinction.

²⁰ Carnap (2002, p. 53).

²¹ We might also interpret this move of Carnap’s as a rejection of a forerunner to the contemporary reading of Wittgenstein that maintains that all attempts at expressing what can only be shown produce nonsense. To make this more plausible, consider the fact that in the early 30s, the Vienna Circle’s assimilation of and debate over the interpretation of many of the main themes of the *Tractatus* was part of the source of a well-known polarization within the Circle, its so-called left and right wings. By the time LS appeared, Carnap was the most prominent member of the left wing, while Schlick was the right’s representative. Schlick remained in the right wing partly because of his reading of the above Tractarian themes. He took them, in particular, to imply that because there is one language that imposes a fixed structure on thought, which in turn is about a determinate reality, it is impossible to communicate in language the structure of logical form and the content of the given. Thus, the conjecture suggests itself that in denying that the thesis that there is only one language and the thesis that syntax is inexpressible in language are logically dependent upon one another, Carnap was responding to and rejecting Schlick’s reading of the *Tractatus*. See Mancosu (2007, p. 9) for discussion of Carnap’s engagement with Schlick, Neurath and Tarski on this and similar issues. See also Friedman (1999, pp. 29–30 and pp. 34ff).

²² Friedman (1999, p. 193).

4 The Objections of Sections 18 and 73

In the last section it was argued that Carnap denies that *Tractatus* 4.1212 is logically dependent upon *Tractatus* 4.12. In order to argue for that, we argued that Carnap understands Wittgenstein's say/show distinction to apply to two distinct classes of expressions: one class in which universal words are dependent upon the genus of which they are predicated, and another class of universal words that are independent of the genus of which they are predicated. In Carnap's view, the first class, a subclass of metalogical sentences, Wittgenstein holds to be meaningless, while the second class of universal words, a subclass of philosophical elucidations, Wittgenstein holds to produce nonsense. For in contrast to the class of sentences in which dependent universal words occur—a class that Carnap explicitly characterizes as analytic (in L)—sentences in which independent universal words occur purport to provide meaningful information about the objects of which they are predicated. The first class of sentences Carnap identifies with the set of Tractarian theses 4.121, 4.1211, and 4.122. The second class of sentences Carnap identifies with 4.112, 4.126, 6.53, and 6.54. In what follows, we shall see that in Carnap's objections to Wittgenstein's say/show distinction, he provides two different types of counterexamples to that distinction, corresponding precisely to these two classes of sentences to which Carnap reads the distinction to apply. In particular, we show that Carnap's counterexample to the first class of sentences is the existence of Gödel's arithmetization procedure. But then we show that Carnap's counterexample to the second class of sentences is the translation procedure from the material mode of speech to the formal mode of speech.

The first strong denial of the say/show distinction in LS appears in the first half of the opening paragraph to section 18. We quote it in full:

[u]p to the present, we have differentiated between the object-language and the syntax-language in which the syntax of the object language is formulated. Are these necessarily two separate languages? If this question is answered in the affirmative (as it is by Herbrand in connection with metamathematics), then a third language will be necessary for the formulation of the syntax of the syntax-language, and so on to infinity.²³

The beginning of section 18 makes clear that Carnap's aim in part II of LS is to provide a formal answer to the question posed at the outset. Note that Herbrand is presented as answering the question from the point of view of metamathematics. The same is not true of Wittgenstein's answer. Carnap continues:

[a]ccording to another opinion (that of Wittgenstein), there exists only one language, and what we can syntax cannot be expressed at all—it can only “be shown”. As opposed to these views, we intend to show that, actually, it is possible to manage with one language only; not, however, by renouncing syntax, but by demonstrating that without the emergence of any contradictions the syntax of this language can be formulated within this language itself. In

²³ Carnap (2002, p. 53).

every language S, the syntax of any language whatsoever—whether of an entirely different kind of language, or of a sub-language, or even of S itself—can be formulated to an extent which is limited only by the richness in means of expression of the language S.²⁴

To the initial question he juxtaposes two answers, one given by Herbrand, the other by Wittgenstein. First note that what follows his announced opposition to the views is not a *prima facie* denial of the two theses Carnap associates with Wittgenstein. Indeed, Carnap is denying Herbrand's claim that object-language and meta-language are necessarily two different languages, accepting Wittgenstein's claim that there is only one language, and, finally, denying the Tractarian theses associated with 4.1212.

Next note that, at this point in Carnap's exposition, the denial of 4.1212 has nothing to do with the denial of 4.126, 6.53, 6.54, and related theses. It is possible to deny that syntax—as Carnap understands that term—is inexpressible in language without being forced to deny the Tractarian thesis, arising from 4.126, that it is logically impossible to assert of formal concepts that objects fall under them. Finally note that Carnap begins his gloss on 4.1212 by claiming that it is what *he* calls “syntax” that Wittgenstein maintains to be inexpressible in language. In the introduction to LS, Carnap describes the syntax of a language as being “concerned, in general, with the *structures of possible serial order* (of a definite kind) *of any elements whatsoever*” (LS 6). The pure theory of these structures is “thus wholly analytic.”²⁵ If we take Carnap at his word, then what he takes Wittgenstein to maintain to be inexpressible and meaningless is that class of sentences that constitutes Carnap's logical theory of the “possible forms of sentences.”²⁶ As argued in Sect. 4 of this essay, prominent sections of the *Tractatus* confirm that this is a plausible reading of Wittgenstein on this point. Carnap discusses the point further in his autobiography. He writes:

[w]hen we found in Wittgenstein's book statement about “the language”, we interpreted them as referring to an ideal language; and this meant for us a formalized symbolic language. Later Wittgenstein explicitly rejected this view.²⁷

Hence, from Carnap's point of view, it appears perfectly plausible to consider the arithmetization procedure to be a counterexample to his reading of the Tractarian theses that imply that metalogical sentences about formal languages are meaningless.

Let's consider the arithmetization procedure for a moment. Gödel's procedure is a means of mapping the syntax of a language onto the natural numbers. It enables expressions of a meta-language to be embedded into an object-language, such that

²⁴ Carnap (2002, *ibid.*)

²⁵ Carnap (2002, p. 7).

²⁶ Carnap (2002, *ibid.*). This is not to deny that Carnap also takes Wittgenstein's say/show distinction to apply to what Carnap calls “descriptive syntax” in LS. Here discussion of the relationship between descriptive syntax and pure syntax is omitted only for reasons of space.

²⁷ Carnap (1963, p. 29).

after application of the procedure, sentences of the object-language assert that certain properties of natural numbers hold of sets of natural numbers and these sentences make indirect assertions about certain properties of well-formed formulae holding of sets of expressions. In order to make the procedure explicit and bring out the details in LS, let f be a function mapping each symbol of a first-order language \mathcal{L}_S of a formal arithmetic S to a specific natural number by partitioning the symbols of S into predicate parameters and logical symbols, partitioning the natural numbers into even and odd numbers, and defining f such that f maps parameters to even numbers and logical symbols to odd numbers. Hence, for example:

$$f(\exists) = 0, f(\mathbf{0}) = 2, f(\mathbf{S}) = 4, \dots$$

and

$$f(()) = 1, f(()) = 3, \dots, f(v_1) = 11, f(v_2) = 13, \dots$$

S need only contain $\mathbf{0}$, \mathbf{S} and be recursively numbered such that f is a 1–1 function taking parameters of S into even numbers when the relations defining f for predicate parameters and functions symbols are expressible in S . Hence, if the relations defining f are representable in S , we define the Gödel number Gn of an expression $\epsilon = s_0 \dots s_n$ consisting of logical symbols s_i by the following:

$$Gn(s_0 \dots s_n) = \langle f(s_0), \dots, f(s_n) \rangle.$$

Suppose that $\epsilon := \exists v_1 v_1 = \mathbf{0}$. Using the function f for the language S taken to be the full language of first order Peano Arithmetic, for example, we obtain:

$$Gn(\exists v_1 v_1 = \mathbf{0}) = \langle 1, 0, 11, 11, 9, 2, 3 \rangle.$$

In order to ensure unicity, one then maps sequences $\langle a_0, \dots, a_n \rangle$ into non-zero exponents of successive primes such that:

$$\langle a_0, \dots, a_n \rangle = p_0^{a_0+1} \times \dots \times p_n^{a_n+1}.$$

Hence, from the example above, one obtains:

$$2^2 \times 3^1 \times 5^{12} \times 7^{12} \times 11^{10} \times 13^3 \times 17^4$$

as the unique natural number assigned to the above expression.

In section 19, Carnap introduces the arithmetization procedure given above in roughly the same way, the main difference being that he takes the function f to be a rule stipulating the correlation of terms and series of terms to numbers and series of numbers. He then claims that “[b]y means of these stipulations about term- and series-numbers, all the definitions of pure syntax become arithmetical definitions, namely definitions of properties of, or relations between, numbers.”²⁸ In this way, definitions for syntactic objects in S are understood in terms of satisfaction conditions for certain properties of natural numbers. Hence, the definition of a sentence no longer makes reference to the logical structure of the sentence or its formation rules, but instead takes the form of defining a natural number n to be the

²⁸ Carnap (2002, p. 57).

series-number of a sentence when that natural number has a certain property $P(x)$ with x free. In short, expressions are defined as sets of Gödel numbers satisfying certain arithmetical properties. Since f is 1–1, it is possible to map from expressions to Gödel numbers and map back from Gödel numbers to expressions, and Carnap claims that “[a]ll the sentences of pure syntax follow from these arithmetical definitions and are thus analytic sentences of elementary arithmetic” (ibid.). Note that the first half of Carnap's claim is trivial given the arithmetization procedure. But the second half, the inference Carnap draws from the first half, is by no means trivial. In fact, once we see to what that claim amounts, we will be in a position to see why Carnap thinks of the arithmetization procedure as a counterexample to one half of Wittgenstein's say/show distinction.

Recall that above it was noted that what Carnap takes Wittgenstein to maintain as inexpressible and meaningless is Carnap's theory of the “possible forms of sentences,” what Carnap understands to be the general theory of syntax. Hence, the burden is on Carnap to provide an example of a metalogical expression in which a universal word occurs dependently that is nonetheless well-formed. If successful, it will provide the required counterexample to the class of expressions Carnap takes Wittgenstein to maintain to be meaningless. The key word for Carnap here is “possible”. For what needs to be shown is that the arithmetization procedure preserves the truth of the metalogical sentences in question, and this preserves the “logicality” of the logical form of the expression. Carnap's choice in section 19, the sentence “ S_1 is not demonstrable” is thus a conspicuous (and ideal) candidate for the counterexample, for in the context of a formal language such as the one Carnap constructs, the expressions “demonstrable” and “indemonstrable” turn out to be expressions that are syntactically fixed by the language. Hence, predicating one of these predicates of a given expression is, in such cases, simply a matter of determining whether a predicate holds of a given defined genus of numbers. Carnap writes of the arithmetized version of the sentence above that:

[o]ur sentence will then have the form: “There is no number having such and such an arithmetical property.” This is a purely arithmetical sentence. By the arithmetization we are enabled, without using new and complicated auxiliary methods, to express even those syntactical concepts (such as derivability and demonstrability) which are concerned with a determinate *possibility*.²⁹

Depending upon the details of the arithmetization procedure, for example, the arithmetization of the sentence “ S_1 is not demonstrable” takes the form of the claim “there is no prime number n such that n is divisible by n , the number 1, and divisible by some number m such that m , n and 1 are distinct.” Because primes are defined to be numbers divisible only by themselves and the number 1, this expression turns out to be one of a class of expressions of which the predicate depends upon the genus of which it is predicated. Hence, it is an expression in which a universal word occurs dependently. Hence, it is analytic, and since the arithmetization is unique, so is the original metalogical sentence.

²⁹ Carnap (2002, p. 58).

Elementary arithmetic is powerful enough to express properties of natural numbers that define syntactic properties of expressions in the metalanguage. In Wittgenstein's view, arithmetical expressions are also pseudo-sentences. Hence, any expression that Wittgenstein might have considered a pseudo-sentence in the Tractarian sense remains, in Carnap's hands, analytic in the Tractarian sense. Recall for a moment the discussion of Carnap's two tasks, the first of which is to reduce logical questions to pure syntactic questions. In that discussion it was suggested that Carnap understands this task to vindicate certain Tractarian theses (e.g., 3.33, 6.124, etc.). Now consider what Carnap says only two sections after introducing arithmetization *qua* counterexample in LS, alluding to the later discussion. Of the arithmetization of syntax he writes:

[i]n this way, every so-called logical property of any sentence—for instance, its demonstrability—becomes a syntactical or formal property; it depends solely upon the formal structure of the sentence, that is, upon the arithmetical properties of the term-numbers which constitute the sentence.³⁰

The reduction of logical problems to syntactic problems is, we suggest, what Carnap has in mind when he writes that the elementary “arithmetic of the natural numbers [...] already contains within itself the whole of combinatorial analysis,” that it is “*the most important reason for the arithmetization of syntax.*”³¹ The example considered, “ S_1 is not demonstrable”, is a metalogical sentence which, when arithmetized, transforms into a Tractarian pseudo-sentence of arithmetic. But now recall that it is nevertheless a sentence which is evaluated against classes of true substitution instances. Hence, the sentence is analytic in the Tractarian sense. It is, in LS, expressions such as these that Carnap takes as counterexamples; and, in particular, the counterexample provided in section 19 discharges Carnap's denial of Wittgenstein's say/show distinction as it is applied to one half of a class of certain expressions. What, then, of the other half?

In order to gain traction on section 73 of Carnap's LS, we must first make clear what we take the aim and content of that section to be. An article by Lavers which is in part on this section should serve as an adequate foil for this discussion.³² We have already seen, in Sect. 3 of this essay, how in section 76 of LS Carnap distinguishes dependent from independent universal words. In Lavers's discussion of Carnap on universal words in section 76, he imports Carnap's discussion of Wittgenstein and Russell from section 38a of LS on the issue of whether the existence of objects should be considered a matter of logic. In the previous section, of course, Carnap is concerned with evaluating Russell's axiom of infinity, and he makes it a point of the presentation of LI and LII there to show that the two languages neither imply nor presuppose the existence of objects. Carnap does this by stressing the fact that LI and LII are not “*name languages* but *coordinate-languages.*” He continues:

³⁰ Carnap (2002, p. 68).

³¹ Carnap (2002, p. 58).

³² Lavers (2004, pp. 305ff).

[t]he expressions of type 0 here designate not objects but positions. [...] For here, those sentences [e.g., $\exists x(x = x)$] only mean, respectively, that for every position there is an immediately succeeding one, and that at least one position exists. But whether or not there are objects to be found at these positions is not stated.³³

Lavers contends that with this quote Carnap has in mind the “ordinary meaning of the terms ‘position’ and ‘object’, according to which ‘object’ means empirical object and ‘position’ means spatial position,”³⁴ and that he is rejecting the Russellian idea that formal languages are about objects and concepts. But this can't be quite correct. Carnap is not providing a general solution to the question of which language is to be preferred, Russell's “name language” or his own “coordinate language.” That question, and its solution, is ruled out by Carnap's principle of tolerance. Rather, by calling LI and LII coordinate languages, Carnap has in mind a situation analogous to one in geometry: cover a topology with a Cartesian coordinate plane, obtaining a space of geometric possibilities. Whether or not an object exists at any one point (or some, or all of them) is not, of course, stated. It is this type of analogy that should be extended to LI and LII instead of the analogy between LI and LII and the “ordinary” meanings of the terms used. Hence, Lavers's inference from the point made by Carnap in section 38a to the point made about universal words in section 76 is too quick.

In particular, this shows that Lavers is mistaken when he claims of section 38 that it fails to address “Wittgenstein's worry” that the existence of objects should not be a matter of logic because, in Lavers's words, “[i]f numerals stand for positions, then even ' $\exists x(x = 0)$ ' makes a claim (however weak) about the empirical world.”³⁵ But the existential sentence in question makes no claim about the empirical world, since in Carnap's view, the only way for a sentence of LI or LII to make a claim about the empirical world is if Reichenbach-style correlative definitions are introduced in order to fix the empirical content of the formal language.³⁶ Again the move by Carnap is one familiar from geometry, where, for example, geometric concepts defined as empirical concepts are introduced into the geometric axioms as auxiliaries in order to fix the generated geometric spaces to those suitable for the study of the curvature of empirical spaces, thereby fixing the reference relation of the geometric axioms to the empirical world. Carnap's related discussion of universal words in section 76 is not intended to eradicate the misuse of these types of expressions by reducing them to the formal mode, as Lavers seems to suggest. In Carnap's view, these types of expressions are admissible by convention.³⁷ Hence, the point is to show that philosophical expressions in the material mode that purport to be about objects, regardless of whether their “material interpretation” is linguistic, arithmetical, or empirical, are reducible to expressions of logic, which are

³³ Carnap (2002, p. 141).

³⁴ Lavers (2004, p. 305).

³⁵ Lavers (2004, p. 306).

³⁶ Carnap (2002, pp. 78ff).

³⁷ Carnap (2002, *ibid.*).

in turn reducible to expressions of pure syntax. His reduction provides a criterion for distinguishing between metaphysical sentences and sentences of the logic of science, and if a sentence fails to be so reducible, then it cannot count as a candidate for the reduction to syntax.

But this is just what we ought to expect, since we find that in Carnap's discussion of Wittgenstein's "two negative theses" in section 73 he explicitly anticipates the discussion in section 76. Carnap writes:

[i]n the following discussion we shall see that translatability into the formal mode of speech—that is, into syntactical sentences—is the criterion which separates the proper sentences of the logic of science from the other philosophical sentences—we may call them metaphysical. In some of his formulations, Wittgenstein has clearly overstepped this boundary.³⁸

The contrast, then, of Lavers's interpretation with what Carnap's aims in section 76 seem to be serves to further exemplify the point that section 76 is largely a response to the strong Tractarian thesis that formal concepts are unthinkable.

Wittgenstein's opposition to philosophical sentences is well-known and was sketched briefly in Sects. 2 and 3. His strongest denial that such sentences can be meaningful is at 6.53, and from there arises the famous admonition at 6.54, mentioned in Sect. 2 of this essay, to "throw away the ladder." Carnap, too, maintains these sentences to be problematic for similar, if not identical, reasons to Wittgenstein. But his strategy is not to reject each and every philosophical sentence that confronts us. Given an apparently well-formed philosophical sentence in which a formal predicate occurs such that the sentence appears to assert of the formal concept that a set of objects falls under it, Carnap's strategy is to take the offending expressions occurring in the material mode and replace them with expressions in the formal mode, though the aim is *not* to capture the intended interpretation of the expression in the material mode. Rather, it is to reduce those sentences in the material mode to well-formed sentences in the formal mode' those sentences can then be arithmetized, thereby showing that they are sentences of syntax in whose inferential relations to other syntactic sentences are preserved. With this strategy, we then have two further categories to consider. Sentences in which dependent universal words occur are unproblematic, since as argued in Sect. 3, they assert only that an object falls under the genus under which it falls, and are in this sense analytic. On the other hand, sentences in which independent universal words occur are problematic. We have already mentioned one of Carnap's examples of such a sentence: "five is not a thing, but a *number*." Here Carnap replaces the apparent occurrence of expressions denoting formal concepts with syntactic categories. In particular, then, "five is not a thing, but a *number*" is translated into "'five' is not a thing-word, but a number-word."³⁹ Now the question is how Carnap understands this translation procedure to be an objection to Wittgenstein's claims at 6.53 and 6.54. Let's turn to section 78 of LS in order to answer this question.

³⁸ Carnap (2002, p. 284).

³⁹ Carnap (2002, p. 297).

Consider what Carnap says about the use of the material mode of speech in section 78. He writes:

[t]he use of the *material mode of speech* leads, on the other hand, to a *disregard of the relativity to language of philosophical sentences*; it is responsible for an *erroneous conception of philosophical sentences as absolute*. [...] Any dispute about the truth or falsehood of such a [philosophical] thesis is quite mistaken, a mere empty battle of words; we can at most discuss the utility of the proposal, or investigate its consequences.⁴⁰

Given that Carnap's announced aim in section 73 is, contra Wittgenstein, to provide a criterion for translatability into the formal mode of speech, it may be assumed that, after Carnap's presentation of the translation procedure in section 78, the above comment may be taken as a conclusion. In the first part of the quote, Carnap appears to be rejecting Wittgenstein's understanding of philosophical sentences as attempts to make determinate claims in favor of Carnap's own tolerant point of view. Of course, in the second part of the quote, Carnap appears to be accepting Wittgenstein's point that, unlike disputes in the natural sciences for example, philosophical disputes cannot be resolved. Both of these Tractarian themes emerge from 6.53 and 6.54, precisely the sections Carnap has in mind at section 73. Carnap's point, then, is that it is possible to construct the critique of philosophy and the formal details underlying that critique in one, overarching language. What language we choose is, by the principle of tolerance, up to us. Hence, in one fell swoop, Carnap vindicates tolerance, a Wittgensteinian absolutism about language, a Wittgensteinian critique of philosophy, and reject the Tractarian thesis that philosophical elucidations are nonsense.

Up to now it has been argued that Carnap's objection to Wittgenstein's say/show distinction ramifies into two separate objections. The first objection is to the say/show distinction as applied to a class of sentences that Carnap considers to be analytic. The second objection is to the say/show distinction as applied to classes of sentences that Carnap considers to be meaningful philosophical elucidations. To the first class, Carnap's counterexample is the arithmetization procedure. To the second class, Carnap's counterexample is the translation procedure from the material mode to the formal mode of speech. Hence, the ramification of Carnap's objections corresponds to the ramification of his distinction between two classes of sentences to which he understands the say/show distinction to apply. The conclusions of Sects. 3 and 4 of this essay strongly suggest, then, contrary to interpretations of LS such as Friedman's or Lavers's in which Carnap is read as misunderstanding Wittgenstein on fundamental points, that Carnap has a consistent interpretation of Wittgenstein's concerns and, in fact, has a measured response to them. On the interpretation provided here, one of the central aims of LS is to vindicate his objections to Wittgenstein's claims in the context of his development of his own position on syntax, the reference relation, and the proper role that philosophy ought to play in the theoretical sciences. In the conclusion to this essay, the latter points are

⁴⁰ Carnap (2002, p. 299).

addressed alongside our discussion of the relationship between Carnap's conventionalism and his objections to Wittgenstein.

5 Tolerance, Metalogic, and the 1934 Objections

To recap. In Sect. 2 of this essay, a reading of Wittgenstein's say/show distinction was sketched that implied that 4.12 and 4.1212 are logically dependent upon one another. That reading, it was argued, then implied that attempts at expressing what in Wittgenstein's view can only be shown—be it syntax or philosophical elucidation—collapse into nonsense. In Sect. 3, the above reading was contrasted with Carnap's reading. The main point that emerged from that section was that Carnap distinguishes between two classes of expressions to which the Tractarian theses apply. In order for his reading to be successful, it was shown that Carnap must deny that 4.12 and 4.1212 are logically dependent upon one another, a move that allows Carnap to accept Wittgenstein's absolutism about language but reject the say/show distinction. In Sect. 4, it was argued that Carnap's distinction between two classes of expressions to which Wittgenstein's distinction applies produces in LS two separate counterexamples. The applications of both counterexamples to the say/show distinction are but two steps towards vindicating a reduction of philosophical problems to logical problems and a reduction of logical problems to syntactic problems. The question to be considered in the conclusion to this essay is the extent to which our analyses of his objections suggest that we ought to reconsider Carnap's conventionalism.

First let's address the question of whether or not Carnap's objections are successful. In the introduction, we announced that we'd sketch a prominent reading of the say/show distinction but we also conceded that interpretations of that distinction, and Wittgenstein in general, are controversial. So there are really two questions here. One, are Carnap's objections to Wittgenstein successful? Two, are Carnap's objections to his reading of Wittgenstein successful? Of these two questions, only the second has an answer, since the existence of his two reduction procedures count as counterexamples just in case their targets are what Wittgenstein intended with the distinction between saying and showing. If one is inclined to the interpretation sketched in Sect. 2 of this essay, then one might not be inclined to conclude that Carnap's objections to Wittgenstein are successful for the simple reason that one might deny that the two procedures count as counterexamples. If one is not inclined to that interpretation, but instead to Carnap's interpretation sketched in Sect. 3 of this essay, then one might be more likely to conclude that Carnap's objections are successful. We might think that leaves us at a bit of an impasse, since the success or failure of Carnap's objections depends upon which interpretation of Wittgenstein one accepts. But it does not. For the more interesting consequence of our analyses of sections 18 and 73 is that they reveal an interesting and often overlooked feature of Carnap's conventionalism. In the remainder of the conclusion, let's focus on this.

Conventionalism is often described as implying the conditional that if our linguistic and conceptual practices been different, then reality might have been "carved up" in ways that reflect the idiosyncrasies of those practices. But if

conventionalism is understood as the doctrine that some language-independent properties depend upon our linguistic and conceptual practices, then the stereotypical type of conventionalism cannot be Carnap's. For on many conventionalist views, an object's properties supervene, in some sense, upon our linguistic conventions, in that differences in our conventions "entail" differences in those properties.⁴¹ But Carnap's view of this "word-world" relationship is subtle. Our analyses have shown that, for Carnap, it is not that different languages don't "carve up" language-independent properties in different manners. Carnap makes it clear in the introduction to *LS* that it is possible to choose different languages whose idiosyncrasies entail idiosyncratic restrictions on what it is possible to assert about language-independent properties. In that discussion, for example, he points out that of the two competing schools in the foundations of mathematics—Brouwer's intuitionism and Hilbert's finitism—the choice of a Hilbertian framework as opposed to a Brouwerian framework entails a difference in the cardinality of the objects it is possible to consider. But for Carnap the crucial point is that these restrictions can only be meaningfully stated from within the framework itself as metalogical sentences about the framework. Hence, it follows that one can state "philosophical" facts about a finitist or intuitionist language insofar as those facts are subject to the reduction to syntax via arithmetization. Hence, if they do "carve up" language-independent objects and properties in different manners, the manner in which they do so can only be stated from within the language itself, and even then, there are strict limitations on what Carnap considers to be a meaningful assertion about that relation.

There is an interesting interpretive point to be made here about the relationship between the principle of tolerance and Carnap's conception of metalogic. Many commentators, such as Lavers and Friedman, treat Carnap's principle of tolerance as a consequence of Carnap's philosophical position, namely, conventionalism. On such interpretations, though, Carnap's conventionalism is often seen as one philosophical position among others such as platonism, nominalism, and so on. But on our interpretation, Carnap's principle of tolerance appears to be a consequence of his understanding of the relationship between metalogical sentences and arithmetization. In other words, one of the most important and recognizably Carnapian principles is not, as some might have it, a consequence of an a priori philosophical position. Instead, it is a consequence of the fact that, on the one hand, for Carnap linguistic practices "describe reality," but on the other hand, how they carve it up, if they do at all, fails to be meaningfully answerable unless that question can be translated into the formal mode of speech. If so, then via the reduction procedures discussed above, it becomes for Carnap a problem of syntax, that is, a metalogical problem formulated in and for that language. It follows that it is just not possible to philosophically criticize a linguistic framework or practice from a point of view outside that framework, and so it is not possible for there to be a single "correct" linguistic framework. Hence, on our interpretation, Carnap is putting it mildly when

⁴¹ The use of scare quotes indicates that we make no specific commitment to the sense of entailment but that our use of it should be consistent with the best or most popular sense currently used by supervenience-theorists.

in the introduction to LS he claims that “in logic there *are* no morals,” since under our interpretation, on his view there *can* be no morals.

Let's develop this thought a bit more. Although on the contemporary scene in philosophy there are a variety of conventionalist positions that concern the reference relation between word and world that one might adopt, on this interpretation, Carnap's position is unique. For while many interpretations understand the principle of tolerance as an axiom that governs the reference relation, for us the principle of tolerance follows from the relationship between metalogical sentences and arithmetization. Hence, it has little bearing on the reference relation for a language. Carnap's position on that relationship is that since the only meaningful sentences are metalogical sentences—what Awodey and Carus call his “thesis of metalogic”—and since it is possible to arithmetize all metalogical sentences, then all philosophically meaningful assertions about the reference relation for a given language are assertible in that language but only in that language. Of course, given two languages what may be asserted in one may differ from what may be assertible in another. But for Carnap there is no means to meaningfully compare the two languages other than by constructing a third language in which it is possible to express everything the two sublanguages express. Rather than a substantive point, though, Carnap is making a methodological one: evaluating a language is itself a feat of language-engineering. Instead, our interpretation suggests that his conventionalism is “methodological” rather than substantive in that the goal of LS is to show that it is possible to adopt a metaphysically neutral position towards language-engineering. It is in this sense that Carnap's position in LS differs from many contemporary views. Carnap's conventionalism bares little ontological fruit.

On the interpretation pursued in this essay, this is the feature of Carnap's conventionalism that emerges from his objections to Wittgenstein's say/show distinction. If, as we have argued, this interpretation of Carnap's LS is correct, then it is incorrect to claim that his position in LS is inconsistent (as in Friedman 1999) and that Carnap does not have the resources in LS to defend the view he outlines in ESO (as in Lavers 2004). As our discussion of Carnap's response to Wittgenstein shows, the two reduction procedures are intended to isolate the fact that it is possible to use the semantic and syntactic resources of a language to investigate the semantic and syntactic resources of that language. Friedman's point is that the Gödel phenomena “commit” Carnap to a mathematical ontology that can not be described as “formalist” or “syntactic.” But our analyses show that Carnap's position on this issue is relatively clear: one is committed to an ontology through one's choice of language only if one adds auxiliary hypotheses to the language that fix the reference relation to a specific set of objects, be they physical or mathematical. Moreover, that point suggests that, contra Lavers, Carnap has the resources in LS to explicate and defend his later “deflationary” position in ESO on the relationship between semantics and ontology. On the interpretation provided in this essay through the analyses of Carnap's objections to Wittgenstein's say/show distinction, Carnap's argument in LS should be viewed as an attempt to establish the thesis that language-engineering need not entail metaphysical claims; that the practice and development of the logic of science, the investigation of the “serial” structures produced by differing syntactic conventions, is independent of the word-world relation.

Acknowledgments I'm grateful to professors Mancosu and Sluga for helpful comments on earlier drafts of this paper, as well as Solomon Feferman, Michael Friedman, Gregory Lavers, William Demopoulos, and the anonymous referees for helpful comments and criticisms of earlier drafts.

References

- Carnap, R. (1963). Autobiography. In P. Schilpp (Eds.), *The philosophy of Rudolf Carnap, vol. 11 of the library of living philosophers*. Illinois: Open Court Press.
- Carnap, R. (2002). *The logical syntax of language* (A. Smeaton, Trans.). Chicago: Open Court Press.
- Conant, J. (2000). Elucidation and nonsense in Frege and early Wittgenstein. In A. Crary & R. Read (Eds.), *The new Wittgenstein* (pp. 174–217). New York: Routledge.
- Diamond, C. (2001). *The realistic spirit* (pp. 95–114). Boston: MIT Press.
- Friedman, M. (1999). *Reconsidering logical positivism*. New York: Cambridge University Press.
- Lavers, G. (2004). Carnap, semantics and ontology. *Erkenntnis* 60, 305ff.
- Mancosu, P. (2007). Tarski, Neurath, and Kokoszynska on the semantic conception of truth (unpublished).
- Sullivan, P. (2001). A version of the picture theory. In W. Vossenkuhl (Ed.), *Ludwig Wittgenstein: Tractatus logico-philosophicus*. Berlin: Akademie Verlag.
- Wittgenstein, L. (2001). *Tractatus logico-philosophicus* (D. F. Pears & B. F. McGuinness, Trans.). New York: Routledge Press.