see, for instance, Martin Davies’ (2000) discussion. But a sufficiently compelling argument for Frascolla’s conclusion requires several important additional steps.*

Manuel García-Carpintero
Departament de Lògica, Història i Filosofia de la Ciència,
Universitat de Barcelona

References


Frascolla on Logic in the Tractatus

Diego Marconi†

Pasquale Frascolla’s Tractatus logico-philosophicus. Introduzione alla lettura is an excellent book, possibly the best complete presentation of Wittgenstein’s early work in many years. I found the book’s general layout and style extremely helpful both for students and for expert readers (though I missed a final list of commented-upon sections from the Tractatus and the Notebooks). I agree with most of Frascolla’s interpretive theses, though, predictably, not with all of them. Here I will focus on an area of partial disagreement, i.e. Frascolla’s discussion of Tractatus logic as contained in his Ch. 4 and part of Ch. 5.

The account of logic that Wittgenstein provides in the Tractatus has proved controversial, both exegetically and substantively. Many have argued that it is

† I am thankful to María Cerezo, Jose Díez, Dan López de Sa, Diego Marconi and Genoveva Martí for comments on a previous version which led to improvements. Financial support for my work was provided by the DGI, Spanish Government, research project BFF2003-08355-C03-03 and the DURSI, Generalitat de Catalunya, grant SGR01-0018 and a Distinció de Recerca 2002.
‡ Dipartimento di Filosofia, Via S. Ottavio 20, 10124 Torino, Italy; Email: Marconi@cisi.unito.it
badly flawed, for two main reasons: (a) Wittgenstein seems to have thought that logic – including first-order predicate logic – is “mechanically” decidable (6.1262); but, as Church proved in 1936, there is no mechanical method to decide first-order logic, i.e. to determine whether an arbitrary formula of first-order language is a logical truth. Church’s result has been regarded as “fatal to Wittgenstein’s philosophy of logic” (Black 1964, 319); (b). According to the *Tractatus*, every proposition of logic is a truth function of elementary propositions; consequently, it must be “a result of successive applications to elementary propositions of the operation $N(x)$” (6.001). But it appears that at least some quantified propositions cannot be so generated. Hence, *Tractatus* logic is expressively incomplete: there are logical truths that cannot be reconstructed as truth functions, on Wittgenstein’s own lights.

Frascolla tends to agree with both (a) and (b); however, he sees neither as a direct challenge to Wittgenstein’s thesis that “The propositions of logic are tautologies” (6.1), which he struggles hard to rescue from criticism connected with (a), (b), and other additional considerations. I believe that, in this respect, he is too generous. Truths of quantificational logic are not decidable by truth-tabular methods; moreover, at least some of them are not constructible by Wittgenstein’s method of 6.001; in addition, it is doubtful, as I will try to show below, that they can be shown to be tautologous by informal reasoning within the *Tractatus* framework. Wittgenstein himself came to doubt that they could, except in some particular cases. It is thus hard to see in what sense they could be said to be tautologies.

Frascolla’s account of logic in the *Tractatus* is plausibly based on a detailed presentation of the notion and mechanisms of truth-functionality. He argues that the theory of truth functionality effectively extends the picture theory to all propositions: “If we accept the idea that a proposition can be attributed the role of a picture if to understand it is to know how things are in the world [come è fatto il mondo] in case it is true”, then all propositions are pictures if they are truth functions: in fact, to understand a truth function is (a) to understand the elementary propositions of which it is a function, and (b) to know how the truth function’s truth value is (determinately) related to the possible combinations of the obtaining and non-obtaining of the states of affairs that are pictured by such elementary propositions. But one who knows as much “knows, precisely, how things are in the world” if the given truth function is true: thus all propositions are pictures, if (and, according to Wittgenstein, only if) they are truth functions.

Frascolla notes that nothing, in the theory of truth functionality, hinges on whether, in each case, the relevant elementary propositions are finite in number (*op. cit.* 163–164): “The formulas for computing the truth possibilities of $n$ elementary propositions and the groups of truth conditions for $n$ elementary propositions [which formulas Frascolla explains in full detail, to his great credit] still apply even if $n$ is an infinite number”. This is literally true but misleading.
Granted, an infinitely complex proposition could still be a truth function; however, could such a proposition show its sense (4.022)? Could a propositional sign expressing it be perceived (3.32)? Could one understand such a proposition, i.e. “understand its constituents” (4.024)? Frascolla himself rightly emphasized that understanding a truth function requires understanding the elementary propositions of which it is a function. The idea of a truth function of infinitely many elementary propositions seems to be incompatible with the *Tractatus* theory of understanding.

The point is not just that, in the infinite case, “the relevant elementary propositions cannot enter a finite propositional sign”, as Frascolla seems to think (164); it is, rather, that in the *Tractatus* intelligibility is essential to the very notion of a proposition, as perceivability is essential to the notion of a propositional sign. Frascolla himself rightly points out that “Wittgenstein seems to believe that whatever concerns the logical structure of language is, at least in principle, under the speaker’s strict control” (180); and he discerns a “theoretical tension” between such a belief and the claim, stemming from “the adoption of a purely logical viewpoint”, that “the logical notions must be . . . indifferent to such issues as the existence of a finite or infinite number of elementary propositions” (180). In my opinion, this is correct to the following extent: in the *Tractatus*, Wittgenstein did not explicitly commit himself to linguistic finitism, but he all the time kept the finite option in the back of his mind. Thus he “officially” kept logic pure from finite commitments, while systematically reasoning as if the finite option were the case; which allowed him, *inter alia*, to harmonize the semantic notions with semantic competence (the speaker’s “strict control” over language). We’ll be looking at other consequences of this attitude. Now, Frascolla consistently sticks to the “official” version: consequently, he occasionally underestimates the hidden influence of the finitist option. Moreover, he tends to downplay, in actual exegesis if not in his more general interpretive claims, the devastating effects of the very tension he has highlighted.

Coming to the crucial issue of quantified (“general”) propositions, Frascolla starts by pointing out that Wittgenstein must show that they “do not introduce anything essentially different from the mechanism of expressing agreement or disagreement with the truth possibilities of a given set of elementary propositions”, for otherwise they would represent exceptions to the picture theory. He then proceeds to explain Wittgenstein’s insistence on “dissociating generality from truth functions” (5.521). The truth conditions of $(\forall x)fx$ are deceivingly similar to those of the conjunction $fc_1 \& fc_2 \& fc_3 \& \ldots$ (and the truth conditions of $(\exists x)fx$ are similar to those of the disjunction $fc_1 v fc_2 v fc_3 v \ldots$), where the $fc_i$’s are all the elementary propositions of the appropriate form; however, the conjunction

1 Like Frascolla (*op. cit.* 166), I’ll assume that the values of $fx$ are elementary propositions.
could never mean that all objects have property f, for it nowhere says that there are no other objects apart from \( c_1, c_2, c_3, \ldots (x)fx \) says this, not by including the universal quantifier but rather by including the 'propositional variable' \( fx \), which "provides a prototype for a whole class of propositions" (166): "by definition, the set of propositions that are the values of \( \ldots fx \) are the propositions that are obtained by replacing "x" with all the names of objects occurring in the language's vocabulary" (167). Generality is equally expressed in both forms, \((x)fx\) and \((\exists x)fx\), and by the same means: in the former case it is expressed together with conjunction, in the latter, with disjunction (5.521). Thus, \((x)fx\) means the conjunction of all elementary propositions of the form \( fx \) (and \((\exists x)fx\) means their disjunction).

Is such an analysis of generality equal to the task of showing that quantified propositions are no essential novelty with respect to ordinary truth functions? In particular, can Wittgenstein show that, say, \((x)fx \supset fa\) (a logical truth of first order logic) is a tautology in exactly the same sense as \(fa \lor \neg fa\)? Tautologies are "true for all the truth-possibilities of the [relevant] elementary propositions" (4.46). Does the definition apply to \((x)fx \supset fa\)? According to Frascolla, it does. For this particular example, he would reason as follows (cf. 195): the proposition \((x)fx \supset fa\) expresses disagreement with the one truth-possibility of \((x)fx, fa\) in which the first proposition is true and the second is false; therefore, it suffices to show that, for all truth-possibilities of \(fa, fb, fc, \ldots\) (i.e. of all the relevant elementary propositions), if \((x)fx\) comes out true then \(fa\) also comes out true. This is easily done: in case \(fa, fb, fc, \ldots\) are all true \((x)fx\) is true, but then \(fa\), being one of the \(fi\)'s, is also true; in any other case, \((x)fx\) is false. Thus, for every truth-possibility of the relevant elementary propositions, either \((x)fx\) is false or \(fa\) is true; consequently, \((x)fx \supset fa\) is true for all truth-possibilities of the relevant elementary propositions, i.e. it is a tautology.

It seems to me that this argument is an adequate reconstruction of what Wittgenstein must have thought at the time he wrote the *Tractatus*. However, Frascolla takes the argument to be sound, and this is another matter. The argument presupposes the definition of the truth conditions of \((x)fx\). \((x)fx\) is taken to mean the conjunction of all elementary propositions of the form \(fx\): this is why "in case \(fa, fb, fc, \ldots\) are all true \((x)fx\) is true". Is there such a thing as the conjunction of propositions that are not explicitly enumerated (but only specified by the propositional variable \(fx\))? Later, Wittgenstein said he had thought that:

---

2 One should also assume, and perhaps it would have been worth repeating here, that all objects have names in the vocabulary (for otherwise, \((x).fx\) could be true even though there are (unnamed) objects that are not \( f \).

3 For Frascolla’s own brief account of this particular example, see p. 243.
. . . though [the conjunction’s] terms aren’t enumerated here, they are capable of being enumerated (from the dictionary and the grammar of language). (Philosophical Grammar, 268).

In other words, once we know what names there are (dictionary), hence what elementary propositions there are (dictionary + grammar), we can actually enumerate all propositions of the appropriate form, say $fx$. The actual specification of the truth conditions of $(x)fx$ is thus postponed until the application of logic: “What belongs to its application, logic cannot anticipate” (5.557). What logic can anticipate is the form of such truth conditions, which is effected in this case by saying that $(x)fx$ means the conjunction of all elementary propositions of the form $fx$. Now, are we assured that such a conjunction can be found in every case? Later, Wittgenstein thought that he had had no such assurance:

Of course, the explanation of . . . $(x)fx$ as a logical product is indefensible. It went with an incorrect notion of logical analysis in that I thought that some day the logical product for a particular $(x)fx$ would be found. [. . .] For one use of words “all” and “some” my old explanation is correct, – for instance for “all the primary colours occur in this picture”, or “all the notes of the C major scale occur in this theme”. But for cases like “all men die before they are 200 years old” my explanation is not correct. (Philosophical Grammar, 268–9).

In the case of the generalization about men, there is no way we can specify all values of the variable $fx$: still, few would say that the sentence “all men die before they are 200 years old” is meaningless. Thus it seems that, if $(x)fx$ is explained by logic as a logical product, then in this case logic “clashes” with its application, as it clearly must not, according to Wittgenstein (5.557). Something has gone wrong; Wittgenstein thought it was his theory of generality. It had been the product of “an incorrect notion of logical analysis”. Such a notion is the same as underlies the idea of an elementary proposition. We reach, by a priori arguments, the conclusion that there must be elementary propositions, but we cannot indicate any; still, we believe that it will be possible to specify them in the future. “It is held that, although a result is not known, there is a way of finding it” (Wittgenstein und der Wiener Kreis, 182). In the case of generality, we believe that a general proposition must be equivalent to some definite conjunction or disjunction (for otherwise, how could the logical truth of e.g. $(x)fx \supset fa$ be established?), and that although the conjuncts or disjuncts cannot be enumerated here and now, they are capable of being enumerated and they will be, some day. But then, it turns out that this promissory note cannot be cashed out.

Clearly, Frascolla’s argument for the tautologousness of $(x)fx \supset fa$, as it stands, is predicated upon the truth conditions of general propositions being as defined above. If the definition is inadequate, the argument fails. So, perhaps quantified propositions do “introduce [some]thing essentially different from the mechanism of expressing agreement or disagreement with the truth possibilities of a given set of elementary propositions”.

© 2005 Editorial Board of dialectica
As I recalled at the beginning, several authors have claimed that Wittgenstein’s conception of logic (particularly, of quantificational logic) in the *Tractatus* must be flawed because he thought, not just that all logical truths are tautologies, but that all of logic is decidable:

One can calculate whether a proposition belongs to logic, by calculating the logical properties of the symbol (6.126).

Proof in logic is merely a mechanical expedient to facilitate the recognition of tautologies in complicated cases (6.1262).

But Church showed in 1936 that (first order) quantificational logic is not decidable; therefore, “the theory of the *Tractatus*, promising though it looked at the time, has been clearly and cogently refuted” (Anscombe 1971, 137; cf. Black 1964, 319). This argument assumes that, when he said that “proof in logic is . . . a mechanical expedient”, Wittgenstein was thinking of some mechanical decision method such as truth tables, perhaps in his own cumbersome version of 6.1203. That this interpretation is untenable is shown by the fact that Wittgenstein explicitly ruled out that the method of 6.1203 applied to quantified formulas (the method is limited to “cases where no generality-sign occurs”), as H.J. Glock has pointed out (1996, 371; see also Frascolla, 250). Moreover, Wittgenstein made it clear that “proof in logic” consisted:

in the following process: we produce [logical propositions] out of other logical propositions by successively applying certain operations that always generate further tautologies out of the initial ones (6.126).

That is, he had in mind proofs by application of inference rules (“certain operations”) to axioms and theorems, as in the system of *Principia Mathematica*. Such proofs he regarded as inessential to logic, first of all because “the propositions from which the proof starts must show without any proof that they are tautologies” (6.126), and secondly and more importantly because that a proposition is a tautology must show itself: “in a suitable notation we can . . . recognize the formal properties of propositions by mere inspection of the propositions themselves” (6.122). Putting these remarks aside, it is clear that, when he said that “proof in logic is merely a mechanical expedient etc.”, Wittgenstein did not have anything in mind that we would call a decision procedure (whose existence for general logic is ruled out by Church’s theorem). He was certainly wrong to regard *Principia*-like proofs as ‘mechanical’: boring as they may be, there is nothing strictly mechanical about them. But he did not say or imply that general logic was decidable by truth tables or other equivalent devices.

Frascolla’s account of this issue comes in two parts. He first points out, fairly enough, that though he has taken Wittgenstein to hold that “a proposition’s being a tautology can be ascertained by reasoning on its truth conditions”, Wittgen-
stein’s actual claim in 6.1262 is much stronger (195). He then interprets the claim (wrongly, I believe) as hinting at the existence of a *bona fide* decision procedure for general logic, and duly goes on to mention Church’s theorem as ruling it out (196). Much later in the book, however, Frascolla comes back to the issue, in the context of a discussion of logical consequence and inference (251). Now he introduces the reference to *Principia*-like proofs (which he had not mentioned before) to explicate the notion of ‘calculating the logical properties of a symbol’, but he still does not see it as relevant to the notion of logical proof as a mechanical expedient (6.1262); indeed, he again regards the latter as hinting at some “finite procedure of formal derivation” that would be ruled out by Church’s theorem.

As I said, I don’t see any reason not to take the notion of logical proof in 6.1262 as being illustrated by the *Principia*-like inferential procedures mentioned in 6.126. It seems to me that here Frascolla is the victim of a bias (one certainly well represented in the literature) to find in the *Tractatus* an explicit claim of general decidability, that would be contradicted by Church’s result. On the other hand, I agree with him that “It clearly comes out of sections 6.12–6.13 that Wittgenstein was persuaded that [the control procedure for tautologies] was an algorithmic procedure, in the sense of a general method of calculus” (250). Influenced as he was by reflection on finite, non-quantificational examples, Wittgenstein probably thought that all of logic was in some sense decidable, though not by the method of 6.1203. Perhaps he took the axiomatic procedures of *Principia* to be ‘mechanical’ in a serious sense (which would have been a serious logical blunder).

Concerning *Tractatus* logic, the other important issue, long belabored in the literature,⁴ is expressive completeness. In 6.–6.01, Wittgenstein presented “a general procedure by which all truth functions of elementary propositions can be generated”, including quantified propositions. The procedure is represented by the expression:

\[ [\pi, \zeta, N(\xi)] \]

where ‘\(\pi\)’ denotes the set of all elementary propositions, ‘\(\zeta\)’ denotes any set of propositions, and ‘\(N(\xi)\)’ denotes the result of the application of the operation \(N\) to the propositions in \(\xi\). \(N\) has the effect of joint negation: \(N(p, q, r)\) coincides with \(\neg p \land \neg q \land \neg r\). It can be seen as a generalized Sheffer stroke. That the application of \(N\) could generate all truth functions of \(n\) elementary propositions, for \(n\) finite, was already well know at the time the *Tractatus* was written. In addition, Wittgenstein thought that quantified propositions could also be generated by the

---

procedure: “If \( \xi \) has as its values all the values of a function \( f_x \) for all values of \( x \), then \( N(\xi) = \neg(\exists x).fx \)” (5.52). This may require that the operation \( N \) takes an infinity of arguments (for the values of \( f_x \) may turn out to be infinite in number), which would raise difficulties similar to those that were pointed out in connection with (alleged) truth functions of infinitely many propositions. However, this is not the main difficulty underlined in the literature. In 1976, R. J. Fogelin remarked that Wittgenstein’s method is incomplete: multiply general propositions of the forms \( (\exists x)(y)f_{xy} \), \( (\exists x)(y)\neg f_{xy} \), \( (x)(\exists y)f_{xy} \), \( (x)(\exists y)\neg f_{xy} \) cannot be generated by it. In fact, suppose one starts with:

\[
A = \{ f_{aaa}, f_{aab}, f_{aac}, \ldots, f_{baa}, f_{bab}, f_{bac}, \ldots, f_{ca}, \ldots \}
\]

i.e. with all the values of the propositional variable \( f_{xy} \). Applying \( N \) to \( A \) results in a truth function that has the same truth conditions as \( \neg(\exists x)(\exists y)f_{xy} \) (or, equivalently, \( (x)(y)\neg f_{xy} \)). We can further obtain (truth functions equivalent to) the negations of such formulas, but there is clearly no way of obtaining the multiply general propositions. If, instead, we start with the values of \( \neg f_{xy} \), we get \( (\exists x)(\exists y)\neg f_{xy} \), \( (x)(y)f_{xy} \), and their equivalents, but, again, we do not obtain the multiply general propositions. So the system of the *Tractatus* is expressively incomplete.

A few years later, P. Geach proposed an extension of Wittgenstein’s notation that would “bring out in full the way Wittgenstein’s \( N \) operator works” (Geach 1981, 169). The extension entailed allowing such ‘truth functions’ as \( N(x:N(f_x)) \), where \( (x:N(f_x)) \) is the (possibly infinite) class whose members are the result of applying \( N \) to individual values of \( f_x \) (in other words, it is the class \( \{ N_{fa}, N_{fb}, N_{fc}, \ldots \} \), i.e. \( \{ \neg f_{a}, \neg f_{b}, \neg f_{c}, \ldots \} \)). The application of \( N \) to such a class results in the equivalent of \( (x)f_{x} \). By this method, the multiply general proposition \( (\exists x)(y)f_{xy} \) can be represented as \( N(N(x: N(f(xy)))) \). The other multiply general forms can be generated as well.

However, Geach’s method violates essential *Tractatus* constraints. In the generation of \( (\exists x)(y)f_{xy} \), for example, the innermost \( N \) does not apply to propositions (or to a class of propositions): it applies to individual members of the class \( \{ f_{aaa}, f_{aab}, f_{bac}, \ldots \} \), which are neither elementary propositions nor truth functions of elementary propositions. Consequently, the second application of \( N \) from inside out – the one that has the effect of generating \( (y)f_{xy} \) – does not take a class of propositions as argument. Moreover, as Fogelin pointed out (1987, 81), the

\[
5 \quad \text{More precisely, no finite set of successive applications of } N \text{ to sets of propositions (starting with elementary propositions) determines a truth function equivalent to any of such quantified propositions.}
\]

\[
6 \quad \text{More precisely, with propositions } \neg f_{aa}, \neg f_{ab}, \text{ etc., obtained by applying } N \text{ to } f_{aaa}, f_{aab}, \text{ etc.}
\]

\[
7 \quad \text{Not as as } N(N(x:N(fxy))), \text{ as Fogelin says (1987, p. 80).}
\]
application of \(N\) to \((x:N(fx))\), as in \(N(x:N(fx))\), may presuppose an infinity of applications of \(N\); thus, Geach’s solution violates the Tractarian requirement that “All truth-functions are results of successive applications to elementary propositions of a finite number of truth-operations” (5.32). In Geach’s case, “if the set of base propositions is infinite, nothing will count as the immediate predecessor of the final application of . . . \(N\)”. A similar solution was later but independently put forth by S. Soames (1983); in Soames’s solution, too, \(N\) applies to formulas that contain free occurrences of variables and therefore are not propositions.

A different treatment was later proposed by Von Kibéd (1990) and Jacquette (2001). Here, the idea is to start with applications of \(N\) to possibly infinitely many distinct, possibly infinite set of elementary propositions \([faa, fab, fac, \ldots], [fba, fbb, fbc, \ldots], \ldots\). One gets the set:

1. \(~faa \& \sim fab \& \sim fac \& \ldots\), \(~fba \& \sim fbb \& \sim fbc \& \ldots\), \(~fca \& \sim fcb \& \sim fcc \& \ldots\), . . .

Applying \(N\) to that set yields:

2. \(~(~faa \& ~fab \& ~fac \& \ldots\) \& ~(~fba \& ~fbb \& ~fbc \& \ldots\) \& ~(~fca \& ~fcb \& ~fcc \& \ldots\) \& \sim \ldots\)

i.e.:

\((faa \lor fab \lor fac \lor \ldots) \& (fba \lor fbb \lor fbc \lor \ldots) \& (fca \lor fcb \lor fcc \lor \ldots) \& \ldots\)

which may be read:

\((x)(\exists y) fxy\)

Other multiply quantified sentences can also be obtained by this method. Notice, however, that at step 1 \(N\) may have to be simultaneously applied to an infinity of sets, each of which may be infinite; and at step 2, \(N\) may have to be applied to an infinite set, each member of which may be an infinite conjunction. Thus, even if in these solutions \(N\) is never applied to open sentences or sets thereof, Fogelin’s criticism stands: step 2 may require that an infinity of operations has been performed beforehand.

It thus seems that, so far, nobody has come up with a generation method for multiply quantified propositions that is both expressively complete and coherent with Tractatus requirements. It is natural to see a connection between the unavailability of a genuinely Wittgensteinian generation method and the undecidability of first order logic. If there is such a connection, however, it is not trivial, for

\[^{8}\text{On the unacceptability of this kind of solution, applying } N \text{ to open sentences, see Jacquette’s comment on Stalnaker’s suggestion, Jacquette 2001, 198, fn. 23.}\]
multiple quantification, though necessary, is not sufficient for undecidability. For example, both $(x)(\exists y)fxy$ and $(\exists x)(y)fxy$ are harmless in point of decidability.

Frascolla’s treatment of the issue of $N$ is clear, accurate, and relatively brief (174–80). He does not even mention the problem of multiple quantification; he already sees a difficulty for Wittgenstein’s method in the generation of a truth function that would be equivalent to $(x)f$. The reader will remember that, in this case, the operation $N$ is applied to the set $\{N(fa), N(fb), N(fc), \ldots\}$ consisting of applications of $N$ to all values of $f$. Now, such applications may be infinite: so the final application of $N$ may come after infinitely many applications of $N$. Frascolla makes it clear that such applications are not to be seen as simultaneous: “We ought to proceed in the following way: first, select proposition $fa$ from the set of elementary propositions; then apply $N$ to $fa$, obtaining $N(fa)$; next, from the set of elementary propositions plus proposition $N(fa)$ select proposition $fb$ and apply $N$ to $fb$ [and so forth]”. But then, Frascolla asks, “When will it be possible to perform [the] last step [i.e. the final application of $N$] if the propositional variable $fx$ has infinitely many values?” (178). In other words, Frascolla’s criticism of Wittgenstein’s method is essentially Fogelin’s, except that it does not (only) apply to proposals such as Geach’s or Soames’s; it is directed against the possibility of generating basic quantified propositions, such as Wittgenstein himself certainly believed could be generated by his method. Even in these cases, “some application is bound to be performed after infinitely many other applications have been performed” (179). It is to Frascolla’s credit that, taking Wittgenstein’s description of his method seriously, he sees the difficulty emerging where all other commentators (to my knowledge) had taken the method’s applicability for granted.

His tentative conclusion is that “Wittgenstein had not realized the inherent limitations of the method he had proposed” (179). There is little doubt about that, and the reason is, once more, that Wittgenstein’s unacknowledged finitism prevented him from seeing through the complications arising from the infinite cases he explicitly, though superficially countenanced.

Diego Marconi
Dipartimento di Filosofia, Torino

References
To begin with, I want to focus on some minor points of disagreement with Carpintero’s sketchy presentation of the picture theory. He explicitly identifies logical space with the set of all possible maximal combinations of the obtaining and non-obtaining of states of affairs (I would say: the set of all possible worlds, in the Tractarian sense of Leibniz’s expression), and I think this identification is a blunder. Logical space is to be identified with the set of all states of affairs, i.e. the set of all possible combinations of objects, and for this very reason is as fixed and unalterable as objects, with their formal properties, are. In the terms of Wittgenstein’s metaphor, a state of affairs is a logical place and the obtaining of a state of affairs is compared to the filling up of a physical place by a body (see TLP 3.411). Hence a possible maximal combination of the obtaining and non-obtaining of states of affairs can be metaphorically described as a distribution of matter over the whole logical space. It is worth noting that even the distribution of matter which leaves logical space empty is to be acknowledged as admissible.

A further point of disagreement concerns Carpintero’s claim that in the Tractatus framework logical constants would be required to provide language with an expressive potential which goes beyond that which is ensured by elementary propositions alone. As it stands, this statement seems to me to be rather misleading, given Wittgenstein’s well-known assumption that in an adequate notation logical constants should be analysed away. But what is at stake here probably is a mere ambiguity in Carpintero’s inevitably condensed way of expression.

Let’s come now to the main point of Carpintero’s review of my book, the one concerning my attempt to weaken the Tractatus’ original requirement of the identity of pictorial form between a picture and the reality it depicts. I suspect that Carpintero has perhaps overlooked something here. According to his recon-

---

**Rejoinder to Carpintero**

Pasquale Frascolla

To begin with, I want to focus on some minor points of disagreement with Carpintero’s sketchy presentation of the picture theory. He explicitly identifies logical space with the set of all possible maximal combinations of the obtaining and non-obtaining of states of affairs (I would say: the set of all possible worlds, in the Tractarian sense of Leibniz’s expression), and I think this identification is a blunder. Logical space is to be identified with the set of all states of affairs, i.e. the set of all possible combinations of objects, and for this very reason is as fixed and unalterable as objects, with their formal properties, are. In the terms of Wittgenstein’s metaphor, a state of affairs is a logical place and the obtaining of a state of affairs is compared to the filling up of a physical place by a body (see TLP 3.411). Hence a possible maximal combination of the obtaining and non-obtaining of states of affairs can be metaphorically described as a distribution of matter over the whole logical space. It is worth noting that even the distribution of matter which leaves logical space empty is to be acknowledged as admissible.

A further point of disagreement concerns Carpintero’s claim that in the Tractatus framework logical constants would be required to provide language with an expressive potential which goes beyond that which is ensured by elementary propositions alone. As it stands, this statement seems to me to be rather misleading, given Wittgenstein’s well-known assumption that in an adequate notation logical constants should be analysed away. But what is at stake here probably is a mere ambiguity in Carpintero’s inevitably condensed way of expression.

Let’s come now to the main point of Carpintero’s review of my book, the one concerning my attempt to weaken the Tractatus’ original requirement of the identity of pictorial form between a picture and the reality it depicts. I suspect that Carpintero has perhaps overlooked something here. According to his recon-

---

1 Università degli Studi della Basilicata, Via N. Sauro 85, 85100 Potenza, Italy; Email: frascolla@libero.it