

Saving Logic from a Metaphysical Limbo.

Susanne Langer on Logical Assertion

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Abstract Can a logic free from psychological considerations be free from metaphysical ones? The topic of this paper is Susanne Langer's discussions of the notion of logical assertion, which aim at addressing this question. We will see both that Langer's remarks are historically of interest and that they can help us understand better what logic should be taken to be concerned with, and what logical assertion should be taken to be.

I

Introduction. Suppose we think that logic should not contain or rely on psychological notions. If we think this, then we probably think that logic should be a pure discipline that should not contain or rely on any metaphysical notion, either. While logic can ground and shed light on many metaphysical issues, one might insist, logic comes before any metaphysics and psychology. But can a logic free from psychological considerations really be free from metaphysical ones? Susanne Langer's discussion of the notion of logical assertion aims at addressing this question. Such discussion will be the topic of this paper.

Our starting point will be Langer's own starting point of her discussion, that is, Russell's notion of logical assertion in the *Principles* and *Principia Mathematica* [PM]'s account of the assertion-sign¹, which are characterized, albeit tentatively, in terms of the notion of truth (II). We will then see Langer's considerations, as they appear in her doctoral dissertation for Radcliffe College, *A Logical Analysis of Meaning* (1926), and in her paper 'A Logical Study of Verbs', published in the *Journal of Philosophy* in 1927. While there is some overlapping between the two pieces, in the two Langer discussed the matter in significantly different ways. We will then start from the dissertation and see that in it, Langer put forward a proposal that is usually considered to have first been advanced by Wittgenstein twenty years after Langer (III). We will then move to her 1927 paper and her suggestion to depart from Russell's notion and hence to separate the notion of assertion from the notion of truth. We will see how Langer's work, as Floyd maintains, 'forms a bridge between the American idealist tradition in which the status of logic, intentionality, and the categories are central (Royce, Peirce, Sheffer, and C. I. Lewis) [and] the British tradition of Russell and Whitehead' (2009, p. 199). For Langer suggests to depart from the understanding of what logic is concerned with common to both Russell and Wittgenstein and to embrace instead Royce's stance on what the material of logic is. By embracing Royce's stance Langer could put forward an original suggestion about what logical assertion is, in which neither psychology nor metaphysics intrudes (IV). The most famous critic of the assertion-sign and the notion of

¹ Whitehead was at Harvard when Langer was and briefly discussed with her her dissertation (Chaplin 2002, p. 100), but she did not study PM with him. As Weiss reported: 'You would never know from being in his class that he was an author of Principia Mathematica. He never referred to it.' (Weiss & Ford 1980, p. 48). Moreover, there is room to doubt that Whitehead endorsed all the PM's claims (Chaplin 2020, ch. 6) and there is no reason to think that the claims concerning logical assertions would be an exception. I will then phrase things in terms of the points made by Russell, or in PM.

logical assertion is Wittgenstein. We will then look at how she replies and would reply to those of Wittgenstein's objections that aim at hitting aspects of the notion of logical assertion and of the assertion-sign that Langer explicitly deals with or endorses in her 1927 paper (V). We will conclude that both of Langer's neglected discussions concerning the notion of logical assertion truly allow logic to be independent from both psychology and metaphysics and that Langer has shown us how the widespread claim that logic deals only with propositions and propositional forms can be profitably called into question.

II

Langer's starting point. Langer's starting point in both pieces where she discusses logical assertion are five claims within Russell's discussion of the notion of logical assertion in the *Principles* (1903, §5, §38, §52, §§477–478) and the related discussion of the assertion-sign in PM (1910, p. 8, pp. 92–3, p. 115; 1927, Introduction to the second edition). These claims will also be our starting point.

First, Russell thought that there is a logical difference that needs to be accounted for in logic, a difference not accountable for in terms of concepts or grammatical forms. This is the difference in the logical import of the proposition p as it occurs in isolation, that is, as 'contained between full stops' (PM, p. 8), and as it occurs in more complex propositions, such as one of the form If p then q: 'The p and the q which enter into [the proposition "p implies q"] are not strictly the same as the p or the q which are separate propositions, at least, if they are true.' (1903, §38) The very same logical difference is present in 'the verb in the form which it has as verb (the various inflexions of this form may be left out of account), and [...] the verbal noun, indicated by the infinitive or (in English) the present participle' (1903, §52), and Russell stresses that this difference cannot be taken to 'depend upon grammatical form; for if I say "Caesar died is a proposition," I do not assert that Caesar did die, and an element which is present in "Caesar died" has disappeared.' (1903, §52)

Langer agrees completely on this, and elaborates further. In the *Principles* Russell does not speak about inverted commas, and inverted commas and 'that'-constructions are touched upon only very briefly in PM: 'In language, we indicate when a proposition is merely considered by "if so-and-so" or "that so-and-so" or merely by inverted commas.' (PM, p. 92). Langer instead does explain things in further detail:

In common speech [...] inverted commas [...] mark an unasserted proposition in common discourse. The inverted commas have a function similar to that of the symbol "b" of musical notation. They cancel a previously accepted function of the term they modify. [...] the inverted commas [...] change the proposition to a propositional concept. The unasserted proposition functions exactly as a propositional concept. If we say "'Caesar died" is true," we are cancelling the truth-value of "Caesar died," and assert the same proposition as "It is true that Cesar died," where "Cesar died" becomes a subordinate construct in grammatical form as well as in meaning (1927, p. 128. See also 1926, pp. 66–7).

Now, surely her (and PM's) point about inverted commas is a bit quick. It seems that the function of inverted commas and the effect they produce is quite different in different cases, so that quotation might well be an umbrella term for what are quite different phenomena. It is then not obvious that there is anything like the function of inverted commas. A fortiori, it is not clear that such a function common to all cases of inverted commas is to change the

proposition to a propositional concept. For example, in cases of mixed quotations, such as ‘As Langer said, “there is some uncanny property of verbs”’, it is not clear that there is no assertion of the quoted material. Still, it seems difficult to dispute that in cases such as “‘There is some uncanny property of verbs’ is false’, it is not asserted that there is some uncanny property of verbs and moreover that this lack of assertion is not merely psychologically, but also logically relevant. In not disputing this, Langer then agrees with Russell and the PM’s claim that there are some logical differences that need to be logically accounted for.

So, how account for these differences? This is the second of Russell’s claims Langer agrees upon: to account for these differences, Russell claimed, we need to introduce in logic Frege’s (1879; 1893–1903) judgment stroke ‘⊢’ as a ‘special symbol to denote assertion’ (1903, §38f.†. See also PM, p. 92f.*).

The judgment stroke allowed Frege to distinguish judgement from the mere entertainment of a proposition. We can surely merely entertain a proposition, there is ‘a *mere combination of ideas*, of which the writer does not state whether he acknowledges it to be true or not’ (1879, §2). But we can instead make a judgment, in which the author of the judgment acknowledges the proposition to be true. Alongside Frege, Russell distinguishes assertions from mere cases of assumptions, propositions ‘merely thought of’ (1903, §478), but, and this is the third of Russell’s claims that is relevant for our discussion of Langer, he does not think that logic should include Frege’s notion of assertion: ‘There is great difficulty in avoiding psychological elements here, and it would seem that Frege has allowed them to intrude in describing judgment as the recognition of truth’ (1903, §478).² Langer agrees with Russell on this too: for her logic neither can nor should rely on a psychological notion of assertion:

The *psychological* element of assertion [...] will not be caught in any calculus; but this is not due to the shortcomings of formalism, but to the fact that these are interpretational elements, which cannot be rendered *in abstracto*, any more than the sound of “one-lined C#” or the feel of velvet. (1926, p. 67)

That verbs have a psychological force is evident from their indispensability in judgment. Idealists, pragmatists, and laymen proverbially confound propositions with judgments, just as they fail to distinguish between concepts and ideas. But logicians, especially of the mathematical sort, are not supposed to fall into such confusion. (1927, p. 121)

What can be done to avoid the intrusion of psychology into logic, while at the same time being able to account for the logical differences that need to be accounted for? The fourth of Russell’s claims that we need to look at is that there is a ‘genuinely logical’ (1903, §38), ‘ultimate notion’ (1903, §52) of assertion:

there is a psychological sense of assertion, which [...] does not run parallel with the logical sense. [...] In *p* implies *q*, either or both of the propositions *p*, *q* may be true, yet each, in this proposition, is unasserted in a logical, and not merely in

² See Kremer 2000; Pedriali 2017; Ricketts 1986; 1996; van der Schaar 2018 and references there for discussion of whether Frege’s notion is genuinely incompatible with his anti-psychologism.

a psychological, sense. Thus assertion has a definite place among logical notions, though there is a psychological notion of assertion to which nothing logical corresponds. (1903, §38. See also §478)

How is this genuinely logical, ultimate notion of logical assertion to be characterized? This is the fifth, final claim by Russell that is important for our purposes. Russell admits that the notion of logical assertion is ‘very difficult to bring clearly before the mind’ (1903, §52). Still, he maintains that the notion is ‘yet quite undeniable’ (1903, §52) and both in the *Principles* and in PM logical assertion is at least partially characterized in terms of truth. First, in PM the meaning of the assertion-sign is provided in terms of truth – ‘if “ $\vdash (p \supset p)$ ” occurs, it is to be taken as a complete assertion convicting the authors of error unless the proposition “ $p \supset p$ ” is true (as it is).’ (PM, p. 8); ‘the assertion-sign is to mean that what follows has the value 1’ (PM, p. 115)³ – even though it is also stated that while the assertion-sign ‘may be read “it is true that”’ (PM, p. 92), ‘philosophically this is not exactly what it means’ (PM, p. 92). Moreover, in the *Principles*, Russell suggests, albeit only tentatively, that only true propositions can be logically asserted. Whereas ‘[p]sychologically, any proposition, whether true or false, may be merely thought of, or may be actually asserted’ (1903, §478), as shown by the case of a mistaken friend who psychologically asserts that $2+2=5$,

there is another sense of assertion, [...] in which only true propositions are asserted. True and false propositions alike are in some sense entities, and are in some sense capable of being logical subjects; but when a proposition happens to be true, it has a further quality, over and above that which it shares with false propositions, and it is this further quality which is what I mean by assertion in a logical as opposed to a psychological sense. (1903, §52)

To ‘divorce assertion from truth’ (1903, §478), Russell continues ‘seems only possible by taking assertion in a psychological sense.’ (1903, §52)

As we will see in the rest of the paper, Langer’s views on logical assertion evolved and, in her dissertation, she disagreed on the fourth claim above, arguing that we do not need a *notion* of logical assertion. In her 1927 paper, she maintained instead that we do need it, but that it cannot and should not be characterized in terms of truth.

III

Langer’s dissertation: the assertion-sign as an item of punctuation. Assertion is only briefly touched upon by Langer in her dissertation. Nonetheless, for how brief her remarks are, they are still of interest, at least historically. For, after having urged that ‘*[a]ssertion is related to belief*, despite Mr. Russell’s somewhat vague allegation that there is a non-psychological sense of assertion’ (1926, p. 67), she states: ‘in this “non-psychological sense,” “ $\vdash = p$ ” simply means that p has some place in the system, and the assertion-sign is an item of punctuation.’ (1926, p. 67) Langer does not provide any consideration in support of this remark, and she will never go back to it. But she still claims that the assertion-sign is a sign of punctuation, and this point is usually considered to have first been put forward by Wittgenstein in his

³ It is arguably difficult to square the ‘convicting the authors’ in the quote above with a non-psychological characterization of logical assertion. Thanks to Maria van der Schaar for raising this point with me. The second quote seems immune to this issue.

Philosophical Investigations, where he says: ‘Frege’s assertion sign marks the beginning of the sentence. Thus its function is like that of the full-stop. It distinguishes the whole period from a clause within the period.’ (1953, §22) Wittgenstein put the point forward twenty years after Langer submitted her dissertation, so in fact she was the first to advance the point. Besides the historical interest of this point of hers, her remark is interesting also for another reason. For treating the sign ‘ $\vdash$ ’ as a sign of punctuation allows us to obtain a logic in which, differently from what happens in PM, we do not need, in order to account for ‘ $\vdash$ ’, to provide a notion of assertion, exactly as introducing in a language the full-stop does not force us to introduce a notion that would provide its meaning. So, the proposal in Langer’s dissertation does allow us to claim that we surely do not need to traffic with any metaphysics to logically distinguish, as we should, between, first, the logical import of a proposition as it occurs in isolation and as part of a more complex proposition, and, second, a verb occurring as a verb and a verbal noun.

IV

Langer’s 1927 paper: saving the notion of logical assertion from a metaphysical limbo. In the 1927 paper, the dissertation’s suggestion that the assertion-sign is an item of punctuation is completely absent, and Langer instead quotes the *Principles*, and agrees with Russell that there is ‘assertion in a logical as opposed to a psychological sense’ (1927, p. 120f.1), there is indeed Russell’s “‘purely logical sense of assertion’” (1927, p. 120f.1). What she disagrees with Russell on is how such a notion is to be characterized. We saw above Russell’s claim that logical assertion is to be characterized in terms of truth. In her 1927 paper, Langer’s disagreement with Russell starts from urging that it is part of the claims of PM themselves that truth should be outside logic: Russell’s correct remark, seen above, that asserted and unasserted propositions do not differ in concepts or grammatical form

puts the question of truth-value, and the closely related problems of meaning and assertion, definitely outside the scope of *Principia Mathematica*; for the material of logic, according to that inimitable classic, is the general forms of proposition and the relations which obtain between these forms. [...] the study of propositional structures. (1927, pp. 122–3)

Langer refers to the introduction to the second edition of PM as a whole, and we can see her point by considering a particular claim there: ‘[c]onstants do not occur in logic, that is to say, the a, b, c which we have been supposing constant are to be regarded as obtained by an extra-logical assignment of values to variables.’ (1927, p. xxx) Langer is claiming that if constants are extra-logical, so is truth. So for Langer while PM aim at correctly distinguishing, first, the logical import of p and q as they occur in isolation or in a proposition of the form If p then q and, second, cases in which the verb occurs as a verb, as in ‘Caesar died’ occurring in isolation, and cases such as ‘It is true that Caesar died’, PM cannot genuinely fulfil its aim as the distinction cannot be accounted for in terms of forms and it cannot be accounted for in terms of truth, either, as truth is extraneous to logical forms and propositional structures.

The central question for Langer is then what can be done to obtain a truly logical characterization of logical assertion. Of course, one could simply reject that logic is concerned exclusively with the general forms of propositions, and accept instead, for example, that logic is also about the relationship between propositions and reality and then accept the notion of truth as a logical notion. But this is not what Langer suggests. For Langer

thinks that the notion of truth is a metaphysical notion and hence an unwelcome stranger in the realm of logic:

Bertrand Russell in *The Principles of Mathematics* maintains that there is “assertion in a logical as opposed to a psychological sense”; but his definition of it is in terms of truth, which is a metaphysical and not a logical notion. [...] to characterize a certain type of proposition—which we may call the “genuine proposition”—by its possession of truth-value is, of course, to drag in a metaphysical notion which must be an unwelcome stranger in the logical field. [...] Truth and falsity are, after all, metaphysical gods, not to be worshipped openly in the realm of logic. (1927, pp. 120–7)

Sheffer, her teacher, to whom she explicitly acknowledged her debt in her dissertation (1926, p. iii), maintained:

We must keep the study of formal structures [...] entirely distinct from the investigation of the “loci” or interpretations of a structure-complex. For, in the one case, given certain configurations of printers’ ink on paper, or of chalk-marks on the board, we ask how certain “forms” are related to other “forms”; in the other case, we ask what there is in “Reality” that may function as a “locus” for these “forms” (1926, p. 228).

Langer similarly thinks that we should keep the two separated. One might surely disagree on this, but there is another way of phrasing Langer’s point that seems less disputable. Langer seems to think that if we characterize the notion of logical assertion as applicable only to true propositions, we need to know what propositions are true. This might be taken as a non-metaphysical affair if we are in the 1910s and only concerned with the principles of *mathematics*. But, as stated also in PM, logic ‘*applies* to [...] any proposition’ (PM, p. 93f.*) and considering which propositions beyond those of mathematics are true surely renders logic hostage to metaphysics. Hence, in order for us to be able to ‘dispense with’ (1927, p. 127) the metaphysical gods, Langer suggests, we should tackle in another way the PM claim, which Langer maintains is endorsed also by Wittgenstein (1927, p. 124), that logic is *the study of propositional structures*. We should not reject that logic is the study of *structures*. Rather, Langer suggests: ‘[t]he whole difficulty seems to me to lie in this limitation of logic to the study of *propositional* structures.’ (1927, p. 123), that is, we should reject that logic is exclusively concerned with *propositional* structures. So, what is logic if it is not the study of *propositional* structures? The way in which Langer addresses this question shows, as Floyd (2009, p. 199) maintains, how her work forms a bridge between the American idealist tradition and the Russellian tradition, among others. For Langer suggests here to follow Royce:

Josiah Royce defined logic as *the study of types of order*. This is essentially the point of view I wish to advocate, that *logic is the study of forms as such*, regardless of content (“forms” is a somewhat less restricted term than “order”).

“Orderliness and system,” says Royce in his *Principles of Logic*, “are much the same in their general characters, whether they appear in a Platonic dialogue, or in a modern textbook of botany, or in the commercial conduct of a business

firm, or in the arrangement and discipline of an army, or in a legal code, or in a work of art, or even in a dance or in the planning of a dinner. Order is order. System is system. Amidst all the variations of systems and of orders, certain general types and characteristic relations can be traced.” (1927, p. 123)

This is not an idea that Langer only puts forward in her 1927 paper. Already in her PhD dissertation, exactly in chapter 5, the one where assertion is discussed, she aims at combatting the then ‘well-established view that the study of propositions and of the relations which obtain between propositions is the only legitimate claimant to the title of “logistic,” and is, in fact, formal logic itself. Prof. Lewis has called this the “orthodox” view of logic’ (1926, p. 57).⁴ But it is only with the 1927 paper that these considerations are explicitly taken to bear on the notion of assertion. By following Royce, Langer maintains in the 1927 paper, we can recognise that ‘[e]very thing, situation, idea, or what not, has a logical pattern; propositions follow such a pattern, and, as Royce has pointed out [...], all other things, from dialogues to dinners, have patterns of their own.’ (1927, p. 124) If ‘we allow our logical interest to cover forms of every sort, merely as forms’ (1927, p. 123), instead of confining ourselves to the propositional forms, we can then detect relations among these structures:

we shall find that there are innumerable systems, or patterns, in the world, of which the propositional system is merely a special one; that these patterns may be compared, and the systems which exemplify them may be brought into relation with one another, and the traditional “alogical” notions may be brought into the scope of logic as we include not only the relations of elements within one system, but the relations of certain systems to each other (relations such as similarity, analogy, etc.). (1927, p. 123)

Langer is then maintaining that ‘logical problems as [...] assertion [...] remain perfectly insoluble as long as we confine ourselves to the system of propositional forms’ (1927, p. 123). If we abandon this, we can obtain a completely different characterization of logical assertion, one that does not rely on the notion of truth, and one for which it is then clear ‘just in what respect it is logical’ (1927, p. 120). If we keep the point ‘stated by Mr. Wittgenstein and elucidated for us by Mr. Russell’ (1927, p. 124) that logic is about the ‘common element of formal structure’ (1927, p. 124), but we allow our logical interest to cover forms *of every sort*, we then allow our logic to detect relations among these structures,

⁴ As McDaniel stresses, ‘during Langer’s early period, the focus is on the analysis of meaning that can be expressed in language’ (2017, p. 287) and only later on in her career did she focus on forms ‘expressible only non-linguistically’ (2017, p. 287), for example via the medium of art. Still, this does not mean that Langer only wrote about language in her early period. An appendix to her dissertation in logic is titled ““Meaning” in art’ (1926, pp. 164–71). The idea moreover remained long after the 1927 paper. For example, in *An Introduction to Symbolic Logic*, published in 1937, logic is still ‘the tracing of types and relations among abstracted forms’ (1937, p. 39), the study of ‘order, internal connection [...] *structure*’ (1937, p. 24), where again the forms are not only propositional forms but ‘all the various meanings of form—from geometric form to the form of ritual or etiquette’ (1937, pp. 23–4).

and we can then obtain a truly logical notion of logical assertion, which is for Langer to be defined exactly in terms of relations between structures:

I think we shall have no need of any particular doctrines about truth, or resort to the psychological phenomenon of belief, to find perfectly definite relations between propositional structures and other structures, which are present whenever we deal with a genuine proposition and absent whenever we have a propositional concept. [...] take a.R.b to stand for a propositional concept, such as "Socrates' loving Plato"; if we would signify that a.R.b is to be related to some other complex, e.g., a complex of fact, we must add a symbol for this relation, such as the "assertion-sign," and write: $\vdash$ a.R.b. [...] It relates a.R.b to a complex whose existence is understood when we use the sign $\vdash$. (1927, pp. 123–6)

So, in confining ourselves to propositional structures, as in PM and in Wittgenstein's *Tractatus Logico-Philosophicus* [TLP], logical assertion can only be defined by going beyond the scope of logic, in terms of 'correspondence' (1927, p. 123), in terms of 'something in common' (1927, p. 124, quoting Russell's Introduction to TLP) with reality, 'a relation to' (1927, p. 125, again quoting Russell's Introduction to TLP) reality, which is not material of such a restricted notion of logic. In confining ourselves to propositional structures, assertion 'live[s] in the underworld (or superworld?) of Mysticism.' (1927, p. 124) But Wittgenstein's mysticism, Langer continues, 'has ever been the graveyard for logical doctrines' (1927, p. 124). While Langer thinks that Wittgenstein and Russell are right in thinking that logic is about the 'common element of formal structure' (1927, p. 124), they did not realize that such a thought 'really presupposes the less restricted view of logic' (1927, p. 124), in which logical assertion can be defined within logic, in terms of relations between structures. So, Langer maintains,

[t]he alogical factors of meaning, truth, assertion, etc., which early beset Mr. Russell and recently drove Mr. Wittgenstein to Mysticism, appear to me to have sprung from the error of treating logic as essentially a study of propositional forms. But the logic which concerns itself with all sorts of forms allows for an analysis of structures including propositional forms, and promises to save some important logical relations from their present metaphysical limbo (1927, p. 129)

and we can then avoid mysticism and Russell's 'metaphysical hoodoos' (1927, p. 127).

So, what can we logically assert for Langer, if not only true propositions? Langer maintains that we can logically assert that Socrates loves Plato if the unasserted proposition 'Socrates' loving Plato' is 'related to some other complex, e.g., a complex of fact' (1927, p. 126). The key in this passage, given our purposes, is the 'e.g.'. We can logically assert truths, as the structure of reality is one of the structures propositional concepts can be taken to be related to. But while reality will be one of the structures, when considered merely in terms of its pattern, this does not mean that logic needs to traffic with metaphysics. From the logical point of view, the structure of reality is just one of the structures, on a par with any other, and logic does not need to detect which of the structures is the real one. So truths are not all that could be asserted logically:

that the structure referred to by true propositions happens to be the order of existence, is interesting for metaphysics, but irrelevant in logic. Propositions do usually refer to matters of fact, but not necessarily so—and even if this reference were universal, all that need concern us as logicians is that they refer to some structure other than themselves. This may be the structure of reality, as in assertions of fact, or of an imagined world as in the case of “poetic truth,” or of carefully constructed beliefs as in hypothesis. [...] when I say “Hamlet loved Ophelia,” the symbol refers [...] to a structure which exists in a definite consistent order, and this order is Shakespeare’s Hamlet. This further reference to a whole order of constructs is what is implied by [...] logical assertion of a proposition. We can certainly assert in a logical as well as a psychological sense that Hamlet loved Ophelia. (1927, pp. 127–8)

Langer’s account is arguably a bit sketchy. For example, she does not tell us what she means by ‘to refer’ or how, in relating to a particular complex, an unasserted proposition manages to refer to such a particular complex, as part of a definite consistent order. But we can nonetheless see her main points. For Langer, logical assertion is indeed a matter of the unasserted proposition somehow corresponding to a particular structure. But this cannot always be reality. Only if we are more generous when it comes to what structures logic deals with, are we able to have a genuinely logical notion of assertion. That is, a notion of logical assertion that allows reality to be part of logic, so to say, thanks to its structure being one of the structures logic is about, without having logic depend on metaphysics, as reality’s structure is only one among the many structures logic is about. Moreover, remarkably, in Langer’s account, sketchy as it might be, we have a notion of assertion for fiction. As logic does not traffic with metaphysics, fiction and reality are for logic on a par and this allows us to assert logically, as well as psychologically, that Hamlet loved Ophelia, by relating ‘Hamlet’s loving Ophelia’ to Shakespeare’s Hamlet. Moreover, and this is even more remarkable, one might see in this idea of Langer of having all structures within the remit of logic, within which we can then relate them to each other, the very idea that led to model theory. Both in Langer and in model theory, logic is indeed concerned with the relationship between two structures, and not just with the structure of our language. The usual narrative about the history of model theory is that it started with Tarski. This is arguably too fast a reconstruction. Be it as it may, Langer might well need to be included in that history, and most definitely as an early figure in it.

V

Langer’s proposal through the lenses of Wittgenstein’s objections. The most famous critic of Frege’s and Russell’s notions of assertion and Frege’s and PM’s ‘ $\vdash$ ’ is Wittgenstein. While some of his objections appear in TLP and Langer explicitly refers to the TLP in her 1927 paper, as well as in other publications, she does not refer explicitly to the relevant portions of TLP. Still, we can see better what Langer’s 1927 proposal amounts to by looking at how she replies and would reply to a way of understanding those of Wittgenstein’s objections that aim at hitting aspects of the notion of logical assertion and of the assertion-sign that Langer explicitly deals with or endorses in her 1927 paper.⁵

⁵ For thorough discussions of Wittgenstein’s objections to logical assertion and the assertion-sign, see Johnston 2011; Potter 2009, §10; Proops 1997 and references there.

The first of Wittgenstein's points relevant to our discussion is already present in the *Notes* (1957, p. 234) and goes as follows in TLP: "' $\vdash$ ' belongs [...] to propositions no more than does the number of the proposition.'" (4.442) As Proops maintains, a way to understand the point within the context of Wittgenstein's objections is the following:

we should read Wittgenstein as denying a precondition of any view that would try to make sense of a notion of distinctively logical assertion. The thought is that any such notion must combine two fundamentally incompatible ideas. On the one hand, in order to be a feature of propositions, logical assertion would need to govern the entire proposition. On the other, in order to be more than merely psychological, the feature of being asserted would have to be an intrinsic part of the proposition. The first thought steers us toward regarding "logical assertion" as something lying outside the proposition, for example, some merely psychological attitude one may hold toward it; while the second makes us think of it as an element of the proposition and, as such, capable of governing only its remaining parts. (1997, p. 139)

If we read the objection in this way, we can see that Langer directly addresses it. Langer rejects the view of assertion as an intrinsic part of the proposition. For her logical assertion is not an *element* of the asserted proposition, we do not obtain an asserted proposition by adding an element to the unasserted proposition: '[h]ere we have not altered the internal structure of the system. Now the sign $\vdash$ stands in no relation whatever to *a*, to *R*, or to *b*—nor even to *a.R.b*. It does not belong to the structure of the proposition.' (1927, p. 126) Also Russell maintained that 'assertion does not seem to be a constituent of an asserted proposition [...] assertion is not a constituent in *p* asserted' (1903, §478). But in this context Langer does not refer to him, but to Frege, whose work, 'because she was fluent in German, Langer was able to access' (Floyd 2009, p. 199) directly. Langer urges that the fact '[t]hat the assertion sign is not one of the symbols of the proposition was noted by Frege' (1927, p. 126f.10) and quotes the passage of Frege's *Grundgesetze* where he claimed: 'I reckon the judgement-stroke to belong neither with the *names* nor with the *markers*; it is a sign of its own kind' (1893–1903/2013, p. 44). But even though Langer rejects the view of assertion as an intrinsic part of the proposition, this for her does not lead to assertion being merely psychological. For if we follow Royce concerning what the material of logic is, and then abandon the idea that logic only deals with propositional forms, we can have as logical the relation that relates the entire unasserted proposition to a whole order of constructs, and 'this is the meaning of the "purely logical sense of assertion" [...] This sort of assertion has, indeed, nothing to do with psychology, being a purely formal relation' (1927, p. 126).

The second point by Wittgenstein that allows us to see Langer's proposal better appears in the *Notes* soon after the one we just saw, and it is: 'Assertion is merely psychological. There are only unasserted propositions. Judgment, command, and question all stand on the same level; but all have in common the propositional form, and that alone interests us. What interests logic are only the unasserted propositions.' (1957, p. 234). Langer did not see this, but it is clear what she would reply. She would urge that asserted propositions are of interest to logic, because logic should not be interested in propositional form alone. For Langer, '[a]s long as we limit our logic to the study of propositional structures, this relation [of logical assertion] will, of course, never appear' (1927, p. 126). Hence Langer agrees with Wittgenstein on the following conditional: if propositional forms

alone are the material of logic, then there will be in logic only unasserted propositions. But the antecedent, asserted by Wittgenstein in the quotation above, is instead false for Langer, as for her logic should go beyond propositional forms.

VI

Conclusion. As Verhaegh maintains, Langer's dissertation 'is generally viewed as one of the best Harvard theses in logic from that period' (2022, f.13). Moreover, her 1927 paper appeared in the *Journal of Philosophy*, not an 'obscure venue either then or now', as Ostertag stresses (2019, p. 569). Still, while some of Langer's reflections did receive and still do receive attention, Langer's discussion of logical assertion did not. In this paper, we have seen some reasons as to why this is unfortunate. Besides being historically of interest, both of Langer's neglected discussions concerning the notion of logical assertion are interesting also because they allow us to account for the logical differences we started from in this paper, while truly keeping logic independent from both psychology and metaphysics.

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