Meaning Use and Determination: The Underdetermination of Meaning by Use

BORIS BABIC

Abstract
In section 189 of Philosophical Investigations, Wittgenstein's interlocutor asks: "But are the steps then not determined by the algebraic formula?" And Wittgenstein replies, "the question contains a mistake." In the first part of this essay, I will argue that this question is a consequence of Wittgenstein's attempt to elucidate the absurdity of the default idea of determination — Platonic determination — which suggests that an algebraic formula determines its infinite applications objectively for all time. Here I shall expose the problems with the Platonic conception of determination. Now if a question asked contains a mistake, then it should follow that at least one illicit assumption is necessary to asking it. In the second part of this essay I will try to make explicit this assumption. I will argue that Wittgenstein's response to the question is a product of his attempt to articulate a conception of determination — naturalistic determination — independent of Platonic associations, and lying somewhere between the extremes of Platonism and conventionalism.[1] In the main, I hope to show that for Wittgenstein applications of a word might indeed be determined by its meaning. But I hope to illustrate that for Wittgenstein words can only be naturalistically determined. Though they may not be determined in virtue of their objective essence or inherent meaning, words can nonetheless determine future application in virtue of use, learning, norms and human nature. Wittgenstein's position therefore hangs in the middle — between Platonism and conventionalism.

In section 146 of *Philosophical Investigations* (hereafter referred to as PI), Wittgenstein inquires into what is involved for a student to understand any given cardinal number series. He asks: "What is one really thinking of here? Isn't one thinking of the derivation of a

1. The idea that the rule supplied by the algebraic formula is a product of near arbitrary choice.

series from its algebraic formula?" For example, when we count 998, 1000, 1002, are we not simply deriving applications from the formula n+2? In what sense, Wittgenstein wants to know, can a word or formula determine future applications? If it does determine them in some way, then do all future applications logically *follow* from it? This is the default idea of determination, held by Russell and Frege: "the straight line which connects any two points is already there before we draw it and it is the same when we say that the transitions, say in the series +2, have really been made before we make them orally or in writing."[2] This sort of determination emerges from the phrase "*deriving* an application from a formula." It seems intuitive that the formula n^2+2-2n has a settled application at any step of the cardinal number series. For example, at 5 it is 17; at 1000 it is 998002, and so forth.

In PI 147, Wittgenstein asks: "Your idea, then, is that you know the application of the rule of the series quite apart from remembering actual applications to particular numbers?"; and the interlocutor replies: "Of course! For the series is infinite and the bit of it that I can have developed finite." This idea — that we *intuit* or derive the application of a formula at each step from the original rule — is the *only* idea of determination we have to this point. So the finite formula that I grasp or understand, by predetermining infinite future applications, goes beyond what I have actually done. Before I have even reached this or that step, the step is already predetermined by the meaning of the algebraic formula; it is already there — like the invisible line between two points.

Wittgenstein wants to show that this situation is problematic. Given this determination, we may be compelled to say that the correct step to take at any particular stage is the one that accords with the order as it was *meant* (PI 186), and that what is required at any particular stage is to intuit the Platonic essence — *mean*ing (PI 186) — of the algebraic formula. So your idea, Wittgenstein asks the interlocutor, is that that act of meaning the order had in its own way already traversed all those steps—"that when you meant it your mind as it were flew ahead and took all the steps before you physically arrived at this or that one" (PI 188). This argument sounds puzzling.

2. Ludwig Wittgenstein, *Remarks on the Foundations of Mathematics*, trans. G.E.M. Anscombe (Oxford: Blackwell, 1964), I 6. (Hereafter referred to as RFM.)

When I give the order +2, I cannot possibly have an infinite number of steps in mind at this same instant. Wittgenstein further asks: "So when you gave the order +2 you meant that he was to write 1002 after a 1000 — and did you also mean that he should write 1868 after 1866, and 100036 after 100034, and so on — an infinite number of such propositions?" The interlocutor responds: "No: what I meant was, that he should write the next but one number after *every* number that he wrote; and from this all the propositions follow in turn." But, Wittgenstein responds, "that is just what is in question: what at any stage does follow from that sentence?" (PI 186). What is it for something to be entailed by or derivable from either a sentence or an algebraic formula?

If x is derivable from a proposition then that proposition contains, or entails, x. Consider an example: From the proposition '$P \supset (Q \supset (R \supset Z))$,' I can derive $P\&Q > (R \supset Z)$, and I can further derive $(P\& (Q\&R)) \supset Z$. Call these propositions a, b and c, respectively. Now notice that c is contained in b and that b is contained in a. In this scenario we speak of c being entailed by a, that is a *entails* c. In *Remarks on the Foundations of Mathematics* I, 6, Wittgenstein maintains that when we say one proposition follows from another, we mean that the first is derivable from the second within a derivation. We surely do not mean that an infinite number of values of x for each value y are all contained in n^2+2-2n in the same way as discussed above.[3] Each successive step is not there for us to see or *intuit*.

Consider this situation from another angle: take our proposition c again. From c, we could return back to a: that is, '$P \supset (Q \supset (R \supset Z))$' is derivable from $(P\& (Q\&R)) \supset Z$. But we cannot return to the formula n^2+2-2n from 998002. There would be no way to determine whether the formula applied here had been n^2+2-2n, or $n^2+ (3-1)-2n$, or $n^2+2n+ (5-3)$ *ad infinitum*. It seems that Wittgenstein is right to deny that an infinite set of propositions *follow* from or are contained within the algebraic formula. Consider the scenario this way. In PI

3. This is not to say Wittgenstein would agree with my distinction in this context, but the above example is the closest I can come to the concept 'entailment.' Wittgenstein would probably say that entailment, too, is a learned concept. The only way for a child to see the truth of $[(P\&(Q\&R))>Z]=[P>(Q>(R>Z))]$ is though learning and practice.

193 Wittgenstein visualizes a machine as an analogue to the algebraic formula: “as if it were not enough for the [machine’s] movements to be empirically determined in advance, but they had to be really — in a mysterious sense — already *present*.” For Wittgenstein, this is the main problem with the Platonic conception of determination — each successive step of any given formula must not only be empirically determined but *already present*!

This is inconceivable because, for Wittgenstein, meaning is by and large determined through use: “For a *large* class of cases — though not for all — in which we employ the word ‘meaning’ it can be defined thus: the meaning of a word is its use in the language” (PI 43). But the idea that meaning must predetermine a future unforeseen application necessarily assumes that meaning is fixed before this or that use. But for Wittgenstein, it is through use that we come to know what words mean. If use determines meaning however, then it is not the case that an intuition is needed at every stage, but perhaps a decision is, “It would almost be more correct to say, not that an intuition was needed at every stage, but that a new decision was needed at every stage” (PI 186).

I agree with Fogelin that this is an exaggeration in the opposite direction: “I’m not supposed to make things up as I go along.”[4] So what, then, am I supposed to do? Is there any other way? This is what prompts the interlocutor’s question in PI 189: “But *are* the steps then *not* determined by the algebraic formula?” We can see that Platonic determination is problematic and that it is inconsistent with meaning as use; but we have no alternative conception of determination. And Wittgenstein replies: “The question contains a mistake.”

He answers the question in that manner because the interlocutor is referring to a specific *kind* of determination and Wittgenstein wants the interlocutor (the reader!) to shake this preconceived notion of determination. In 218 he asks, “Whence comes the idea that the beginning of a series is a visible section of rails invisibly laid to infinity?”; and in 219 he tells us “all the steps are already taken means: I no longer have any choice. The rule, once stamped with a particular meaning, traces the lines along which it is to be followed through the whole of space.” Wittgenstein does not want us to think

4. Robert J. Fogelin, *Wittgenstein,* (New York: Routledge, 1996), 159.

of determination in *this* way; therefore he answers the interlocutor's question by saying, "The question contains a mistake." The mistake is that the interlocutor has this rigid Platonic idea of determination which, once its absurd implications are spelled out, becomes problematic.

But if it is absurd to think that an intuition is needed for each application of a formula, and if it is an exaggeration to say that a decision is needed for each application of a formula, then what exactly is it is it that we do for each application of a formula? In answering this question we should be able to see how, for Wittgenstein, future applications of a given word or formula might be determined by its meaning. In PI 189 Wittgenstein asks how do we use the expression "the steps are determined by a formula?" We may refer to the fact that people are brought up by their training or education to use a formula such that each person arrives at the same answer; that is, each takes the same step at the same point. In PI 190 he tells us: "The way the formula is meant determines which steps are to be taken." But we must ask: "What is the criterion for the way the formula is meant? It is, for example, the kind of way we always use it, the way we are taught to use it" (PI 190). When we grasp the whole use of a word or formula in a flash, Wittgenstein says, there is nothing astonishing about what happens; it becomes so only when we are led to think that the future development must in some way be already present in the act of grasping the use (PI 197).

Think of the formula as expressing a rule and think of the rule as a sign-post. The connection between my actions and the sign-post, Wittgenstein wants to say, will express the way in which formulae determine applications: What sort of connection exists here? Perhaps this one: "I have been trained to react to this sign in a particular way, and now I do so react to it" (PI 198). But I can react to the sign-post in a particular way only if there exists a custom of regularly using sign-posts. Thus, future applications of a formula can be determined by learning to use the formula in such and such a way. For this, norms, customs and institutions for learning rules and using them as sign-posts are necessary. I call this conception of determination 'naturalistic' because it makes no appeal to anything beyond the natural world. What is required for naturalistic determination is learning how to use the formula, the customs regarding the use of the formula and a social community in which these customs are exercised.

For example, at present the formula $\Phi!x$ does not fix a meaning, because most of us do not learn how to use such a formula. But for Russell and his readers in 1908, it denoted a predicative function of an argument x.[5] In PI 190, Wittgenstein says this of a strange formula $x!2$: "if by $x!2$ you mean x^2, then you get *this* value for y, if you mean $2x$, *that* one." In other words, since we did not learn how to use $x!2$ and since there exists no custom of using it in such and such a way, this formula does not predetermine future applications. But if we take x^2, for example, we have learnt to use it in a specific way and we have norms regarding its use, so it *does* determine future applications.

One might now object and ask: But is *that* not a convention? This is a contingent custom, but it is not a product of convention. Convention is an arbitrary choice which could have been otherwise. Recall, for example, that at some colleges class ends ten minutes early to allow for travel time, while at others it begins ten minutes late. The rules we have for inference, calculation and so forth are contingent, but they are not arbitrary. They are a result of practices which have evolved in response to particular features of the human brain, which has in turn evolved through interaction with the natural environment.

Consider Fogelin's example:[6] It is a fact that we humans recognize the same shape through large-area variations — we easily recognize a triangle when we see one, regardless of its size. But we cannot easily recognize equal areas through large shape variations — we cannot immediately judge whether an octagon and a hexagon have the same area. Had this been the other way around, rules of geometry would have been much different than they are today.

We can agree with Wittgenstein that when someone says, "if you follow the rule it *must* be like this," that person has no concept of what it would be like for it to be otherwise (RFM III 29).[7] We cannot conceive of comparing immediately the area of two radically

5. Bertrand Russell, *Logic And Knowledge: Essays 1901-1950* ed. Robert Charles Marsh (New York: Routledge, 2001), 78.

6. Fogelin, *Wittgenstein*, 162.

7. I am indebted to Barry Stroud for this quote.

different polygons. But this is because of the contingent world we live in. The determining factor is not mysterious — we find it in our natural world.

There is therefore no inherent essence in x^2 from which future applications follow, nor does x^2 mysteriously contain future applications. It determines them because of our rules or customs regarding the application of the formula x^2. These rules do not exist out of logical necessity. They *could* change because they are ultimately a product of human evolution and our natural environment. It is because of the contingent world we live in that we cannot imagine people who measure length with elastic rulers or people who sell timber by cubic measure (RFM I 142, RFM I 5).

These rules do not impinge on us from outside, nor are they preordained by the divine across all space and time; nonetheless, they are quite stable within the community of rule users.[8] This is how future applications of a word are naturalistically determined for Wittgenstein. They are based on a consensus which is grounded in certain very general facts of nature (PI 230). So future applications of either the word 'chair' or the formula 'x^2' are determined in the sense that we know how to use chair and x^2; however, chair or x^2 in and of itself does not *contain* future applications. If, all of a sudden, x^2 yields unintelligible values or a chair starts to disappear (PI 80), then, through use, we readjust our understanding of either term. Chairs however, tend not to disappear, and x^2 generally yields intelligible results so we have stable rules in a contingent environment.

As we have seen throughout this essay, Wittgenstein approaches this matter cautiously and from many angles because he wants us to grasp somehow, to try and see, the problematic consequences of understanding determination of words or formulae in the way Frege or Russell understood it. He does not want to say, however, that we make things up as we go along. Wittgenstein's conception lies in between these two poles of conventionalism and Platonism.

---

8. If, for example, the many-worlds idea of quantum mechanics — modal realism — proves correct, we should have to reassess our understanding of physical laws and alter rules of modern physics. In the meantime, we get by with the consensus understanding of modern physics, which precludes modal realism and things of this sort. In the meantime, these rules *do* determine future applications.