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Horwich and the Generalization Problem

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1. Two Kinds of Linguistic Environments

Frege has pointed out that there are two kinds of linguistic environments in which the truth predicate occurs. (cf. Frege 1918, 328) Unlike Frege, Paul Horwich takes propositions to be the primary bearers of truth. (cf. Horwich 1998, 135) Given Frege's distinction and Horwich's choice we can discern linguistic environments of type 1 in which the truth predicate is concatenated with a singular term that stands for a proposition. Sentences belonging to this type of environment are single sentences of the logical form 'a is F' expressing propositions that share the same logical form. In linguistic environments of type 2 the truth predicate is nested into a quantificational phrase (containing another predicate) and concatenated with a variable. Sentences belonging to this type of environment are general sentences, either existential or universal ones. They have the logical form '$(\exists x)(Fx \ \& \ Gx)$' and '$(\forall x)(Fx \rightarrow Gx)$' respectively. Scott Soames remarks with respect to Frege's distinction:

> Although Frege does not elaborate on the theoretical significance of this contrast, it turns out to be very significant. We can sum it up this way: Environments of type 2 are important because they provide the only reason we need a truth predicate of thoughts or propositions; environments of type 1 are important because they play a privileged role in explaining what truth consists in. (Soames 1999, 23)

In environments of type 1 the truth predicate is supposedly redundant and eliminable from any sentence without any loss of content. In environments of type 2 it is not. It is exactly in these environments that we need the truth predicate and in which it has utility. Here the truth predicate enables us to say something that we would not be in a position to say without it while employing the usual means of referential quantification. Environments of type 1 are important because they are involved in biconditionals that result from the equivalence schema (P):

(P) <p> is true iff p

by replacing the schematic letter 'p' by any declarative English sentence. However, it lies so to speak in the nature of the beast that a schematic letter is not open to referential quantification. These (P)-biconditionals are crucial for explaining what propositional truth consists in. They are (in some sense) definitional of propositional truth. What is it for the proposition that I smell the scent of violets to be true? Well, one can hardly do better than to point out that the proposition is true if and only if I smell the scent of violets. Now, let us ask: What is it for an arbitrary proposition to be true? It seems to be enough to answer that the same sort of explanation could be given in any individual case. Soames expresses the idea as follows:

> Thus in order to know what truth is, it seems to be enough to know that the proposition that snow is white is true iff snow is white, that the proposition that the earth is round is true iff the earth is round, *and so on for any arbitrary proposition whatsoever*. (Soames 1999, p.23)

But is it really enough? Given this proposal, what do we say, for instance, about the following sentence?

All propositions of the form '<p> is true iff p' are true.

The schema (P) does not describe any procedure that allows us to deal with this universal generalization expressing that all propositions of the form (P) are true. Since there are a vast number of highly interesting generalizations about propositions containing the truth predicate, the account presented above appears to be incomplete. There seems to be an insurmountable gulf between single sentences and generalizations. Thus even if the schema (P) plays a crucial role in explaining what the truth of a single proposition consists in, it is not able to explain what the truth of a generalization consists in. The following pages are dedicated to an investigation of this problem.

2. The Logical Side

The generalization problem has a *logical* level and a level that I would like to call *epistemic-explanatory*. Regarding the logical level of the problem the question is: Is a generalization implied or entailed by the collection of all its instances? Paul Horwich says:

> Clearly, a set of premises attributing some property to each object of a certain kind does not entail that everything of that kind has the property. We would need a further premise specifying that we have a premise for every object of that kind – and this would be tantamount to our conclusion. (Horwich 1998, Postscript, 137)

So Horwich rejects that there is a positive answer to the logical side of the generalization problem. Interesting general facts about truth cannot be derived just from the collection of their instances. An additional premise is needed; but the required premise is, in absence of a suitable alternative, equivalent to the conclusion. We cannot assume the premise because it is exactly what we want to derive.

3. The Epistemic-Explanatory Side

The problem is now formulated in terms of an explanation of our acceptance of propositions. Let us first consider how Horwich presents the difficulty for his minimalist theory about truth – a problem that was first pointed out by Anil Gupta and Scott Soames.

> Our reliance on the equivalence schema will not suffice to explain our knowledge of *general* facts about truth. Consider, for example, "All propositions of the form, $(p \rightarrow p)$, are true". No doubt our particular logical convictions together with our commitment to the equivalence schema can explain, *for any single proposition*, why we take it to be true that this proposition implies itself. Thus we can explain, given our logical commitment to "dogs bark $\rightarrow$ dogs bark", why we also accept "The proposition *that dogs bark $\rightarrow$ dogs bark* is true". But we have not thereby explained how the above *generalization* is reached. Thus our allegiance to the equivalence schema does not really suffice to account for *all* uses of the truth predicate. Therefore, that practice does not fix the meaning of "true", contrary to what the minimalist maintains. (Gupta, Soames) (Horwich 2001, 156f.)

Paul Horwich flatly grants this point and claims that an additional explanatory premise is needed. But he also claims that the introduction of the additional premise creates no problem as long as the premise does not concern properties of the truth predicate. (cf. Horwich 2001, 157)

Let us ask now: What explains our acceptance of a general fact or principle about truth, for instance, of the general principle that every proposition of the form 'p → p' is true? Horwich's answer is fairly complex. First, our inclination to accept all propositions of this form entitles us to accept the corresponding schema. So, our inclination to accept all single propositions such as:

If Florence is smiling, then Florence is smiling.
If snow is white, then snow is white. ...

licenses us to accept the schema:

p → p.

Since we also have the underived inclination to accept all single (P)-biconditionals, this licenses us to accept the schema (P) and to convert the schema above into:

<p → p> is true.

In the next step we introduce the following rule:

<p> is K
All propositions are K.

This rule allows us, in general, to go from any schematic theorem '<p> is K' to the conclusion 'All propositions are K'.(cf. Horwich 2001, 164) The rule takes as input our inclination to accept that each proposition (of a certain form) has a certain property. It yields as output our inclination to accept that all propositions (of this form) have this property. In the Postscript to his book "Truth" Paul Horwich remarks that

> ... it is plausible to suppose that there is a truth-preserving rule of inference that will take us from a set of premises attributing to each proposition some property, *F*, to the conclusion that all propositions have *F*. No doubt this rule is not *logically* valid, for its reliability hinges not merely on the meanings of the logical constants, but also on the nature of propositions. But it is a principle we do find plausible. We commit ourselves to it, implicitly, in moving from the disposition to accept any proposition of the form '*x* is *F*' (where *x* is a proposition) to the conclusion 'All propositions are *F*'. So we can suppose that this rule is what sustains the explanations of the generalizations about truth with which we are concerned. Thus we can, after all, defend the thesis that the basic theory of truth consists in some subset of the instances of the equivalence schema. (Horwich 1998, 137f.)

What are the conditions under which we can apply this truth-preserving, but not logically valid rule that licenses us to go from the acceptance of any schema to the acceptance of the corresponding universal generalization? In the following extra explanatory premise Horwich specifies two conditions that are jointly sufficient for the application of the rule:

> Whenever someone can establish, for any *F*, that it is *G*, *and recognizes that he can do this*, then he will conclude that every *F* is *G*. (Horwich 2001, 157).

If these two conditions are satisfied, our acceptance of a schema will explain our acceptance of the corresponding generalization. As Horwich points out by way of counter-example, the satisfaction of the first condition alone is not sufficient to explain the acceptance of the generalization. (cf. Horwich 2001, 157)

4. Polemical Remarks

One minor worry arises from the suspicion that the rule in question is ad hoc. It appears to be introduced solely for the purpose of solving the generalization problem, i.e. to bridge the gap between singular sentences and generalizations containing the truth predicate. What other purpose does the rule have?

Second, the question arises whether the inclination to accept all instances of a schema is explanatorily basic for the acceptance of the corresponding generalization, as Horwich claims. Could it not be the other way round? Is a generalization accepted because there is an inclination to accept all of its instances? Or does the inclination to accept all instances result from the acceptance of the generalization? It might well be claimed that our acceptance of the corresponding generalizations is explanatorily basic for our acceptance of the single instances. Our acceptance of the instances should then be explained on the basis of the acceptance of the generalization and not the other way round.

Third, there is a problem for the minimalist theory that comes to light in the discussion of the redundancy theory. In this context Horwich says:

> Our problem is to find a single, finite proposition that has the intuitive logical power of the infinite conjunction of all these instances; and the concept of truth provides a solution. (Horwich 1998, 3)

For Horwich the truth predicate has a mere logical, but very important function. It enables us to assert generalizations in a finite way employing referential quantification, thereby not having to resort to infinitary means or to substitutional quantification. For instance, we can assert the generalization that all propositions of the form 'p → p' are true without having to assert an infinitely long conjunction containing the truth predicate which, after repeated application of the schema (P), boils down to the infinitely long truth-free conjunction:

(Florence is smiling → Florence is smiling), and (snow is white → snow is white), and ...

The alternative is to introduce a universal substitutional quantification as abbreviation for this infinitely long truth-free conjunction:

(Πp)(p → p).

To allow either for infinitary devices or for substitutional quantification is to allow for a way to do away with the truth predicate. Horwich does not allow for either. Therefore, he rejects the claim that the truth predicate can be eliminated from referential generalizations. But he also holds that the infinitely many instances of the schema 'p → p' do not entail the corresponding generalization without further premise. The problem of eliminability might thus be seen as the flipside of the generalization problem. More importantly, Horwich is opposed to the introduction of infinitely long con-/disjunctions of instances of generalizations on grounds that they are not finitely statable. And he is also opposed to substitutional quantifiers -- which might be taken as finite abbreviations of such con-/disjunctions – on grounds that their introduction requires an extra battery of syntactic and semantic rules. But, on the other hand, Horwich sees no problem in the fact that the minimal theory consists in the set of infinitely many biconditionals of the form (P) that cannot all be stated in a finite way either. Horwich is also not opposed to the rule introduced above for the application of which it is sufficient to be able to establish that each of the infinitely many instances of a particular schema has a certain property. So what is Horwich's justification for rejecting infinitary devices on one occasion but to adopt them on another occasion?

Fourth, consider the following special case of the application of the rule:

<<p> is true iff p> is true
All propositions of the form '<p> is true iff p' are true.

It is a pressing question how we can exclude Liar-like sentences as replacements for 'p' in the schema (P). We need a criterion to single out the paradoxical instances, for otherwise we are in danger of ending up in contradictions. (cf. Tarski 1935, 260) But it is far from clear that there is such a criterion.

Without adoption of the rule of infinite induction minimalism is incomplete since it cannot deal with generalizations. But if the rule and the application conditions associated with it are adopted, the theory gets inflated in a certain sense. This gives rise to new questions. Where do the rule and the explanatory premise fit into the theory? What is their logical space? And finally, what is then left of the deflationist spirit of minimalism about truth?

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