On a Necessary Use of Truth in Epistemology*

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ABSTRACT

It is argued that theories of truth that are stronger than the disquotational theory are needed in order to validate Fitch's argument.

Deflationism about truth claims that the notion of truth does not play a central role in the resolution of metaphysical, epistemological, and semantic problems. Horwich expresses this sentiment as follows (Horwich, 1998, p. 52):

> A deflationist attitude toward truth is inconsistent with the usual view of it as a deep and vital element of philosophical theory. Consequently the many philosophers who are inclined to give the notion of truth a central role in their reflections in metaphysical, epistemological, and semantic problems must reject the minimalist account of its function. Conversely, those who sympathize with deflationary ideas about truth will not wish to place much theoretical weight on it. They will maintain that philosophy may employ the notion only in its minimalist capacity . . . and that theoretical problems must be resolved without it.

Let us take a closer look at the question whether truth is conservative over one particular philosophical discipline: epistemology. We shall adopt the attitude of Zermelo when he sought to defend the Axiom of Choice. He scrutinized the standard textbooks of mathematical analysis with an eye on

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essential uses of the Axiom of Choice. Likewise, we shall look at 'textbook epistemology' with an eye on essential uses of strong principles of truth.

Take, for instance, the "traditional analysis of knowledge." Its central commitment is that knowledge is true justified belief, which is most naturally expressed along the following lines:

$$\forall x \in \mathscr{L} : K(x) \leftrightarrow T(x) \wedge J(x) \wedge B(x),$$

where $\mathscr{L}$ is some language that we need not specify in detail, K is a knowledge predicate, J a justification predicate, and B a belief predicate. In what follows, I shall be somewhat sloppy in notation. In particular, in the interest of readability I shall omit some of the notational details of Gödel coding. If the reader so wishes, he or she can supply these details and verify that this abuse of notation does not affect any of the points that are made in this paper.

Clearly, if we want to use this principle to derive that some particular proposition is known, we need truth axioms. So, in this sense, truth is not conservative over epistemology.

Of course in a way this is cheating. For it is clear that for many applications, we do not need to express the central commitment of the traditional analysis of knowledge in one single sentence, using a truth predicate. For the ordinary applications of the traditional analysis of knowledge, the *schematic* version of the central commitment will do just as well. And this schematic version can be expressed without the truth predicate:

$$K(\phi) \leftrightarrow \phi \wedge J(\phi) \wedge B(\phi),$$

where ϕ ranges over all sentences of $\mathscr{L}$. To give a trite example, suppose our epistemological theory entails $0 = 0$, $J(0 = 0)$, and $B(0 = 0)$. Then the schematic version of our central commitment entails $K(0 = 0)$.

But the use of the truth predicate is not *always* so easily eliminated in epistemology. We shall demonstrate this on the basis of a variation on an epistemological argument that has been widely discussed recently. Fitch has constructed an argument to show that a certain version of verificationism is untenable (Fitch, 1963). Williamson has convincingly argued that Fitch's argument is sound—even if it should be left open whether the conclusion of Fitch's argument is a faithful rendering of a main tenet of verificationism (Williamson, 2000, Chap. 12).

Fitch's argument is usually not formulated in modal-epistemic first order logic, but in modal-epistemic propositional logic where quantification over propositions is allowed. We work in an intensional language $\mathscr{L}_P$ that contains a possibility operator $\Diamond$, a knowledge operator K ('it is known that'). The argument then runs roughly as follows.

In this language $\mathscr{L}_P$ we formulate two verificationist principles:

WV $\forall p[p \rightarrow \Diamond Kp]$

SV $\forall p[p \rightarrow Kp]$

The principle WV ('weak verificationism') has been taken by many philosophers to have some plausibility. The principle SV ('strong verificationism'), by contrast, has been taken by most philosophers to be false: it seems that we know that there are unknown truths. Fitch now shows how using plausible principles, SV can be derived from WV. This argument can then be taken as a refutation of weak verificationism.

Aside from the principles of the minimal modal logic **K**, the principles that are used in Fitch's argument are:

FACT $Kp \rightarrow p$

DIST $K(p \wedge q) \rightarrow [Kp \wedge Kq]$

Fitch's derivation of SV from VW goes as follows:

Proposition 1. $WV \vdash SV$

Proof.

1.	$\forall p[p \rightarrow \Diamond Kp]$	WV
2.	$\forall p[(p \wedge \neg Kp) \rightarrow \Diamond K(p \wedge \neg Kp)]$	Logic, 1
3.	$\forall p[(p \wedge \neg Kp) \rightarrow \Diamond (Kp \wedge K\neg Kp)]$	DIST, 2
4.	$\forall p[(p \wedge \neg Kp) \rightarrow \Diamond (Kp \wedge \neg Kp)]$	FACT, 3
5.	$\forall p[\neg(p \wedge \neg Kp)$	Logic, 4
6.	$\forall p[p \rightarrow Kp]$	Logic, 5 □

Our common understanding of quantification is in terms of objectual quantification. A formula of the form $\exists p : p$ simply appears to be ill-formed, because an object is not a candidate for having a truth value. The received view is that from the conventional objectual quantification point of view sense can be made of propositional quantification, using a truth predicate (Kripke, 1976). A sentence of the form $\exists p : p$ is then taken to be short for a sentence of the form $\exists x : x \in \mathscr{L} \wedge Tx$. If this line is adopted, then Fitch's argument is really an argument that involves a truth predicate. It is worth spelling out this argument in detail, for it will tell us something about the role of the concept of truth in epistemology.

We work in an intensional *first-order* language $\mathscr{L}$ that contains a possibility operator $\Diamond$, a knowledge operator K ('it is known that'), and a Tarskian truth predicate T for $\mathscr{L}^- = \mathscr{L}\backslash\{T\}$. It is assumed that the language $\mathscr{L}^-$ contains the required coding machinery.

Let **F** be the theory which consists of:

1. The axioms of first-order logic and of the minimal normal logic **K**
2. $\forall x[Sent_{\mathscr{L}^-}(x) \rightarrow \Box(T(Kx) \rightarrow Tx)]$
3. $\forall x \forall y[Sent_{\mathscr{L}^-}(x) \wedge Sent_{\mathscr{L}^-}(y) \rightarrow \Box(T(K(x \wedge y)) \rightarrow T(Kx) \wedge T(Ky)))]$
4. $\forall x[Sent_{\mathscr{L}^-}(x) \rightarrow (\neg T(x) \leftrightarrow T(\neg x))]$
5. $\forall x \forall y[Sent_{\mathscr{L}^-}(x) \wedge Sent_{\mathscr{L}^-}(y) \rightarrow (T(x \wedge y) \leftrightarrow T(x) \wedge T(y))]$

F has the axioms of Peano Arithmetic as its theory of syntax. **F** is the theory in which Fitch's argument can be formalized.

The first three of the principles of **F** (logic, FACT, DIST) are used in the derivation of the orthodox version of Fitch's argument. The next two principles are versions of the Tarskian compositional truth clauses for propositional logical connectives. Since T is intended to be a truth predicate for the language $\mathscr{L}^-$, they are unproblematic.

Weak and strong verificationism can be expressed as follows:

WV^* $\forall x[Sent_{\mathscr{L}^-}(x) \rightarrow (T(x) \rightarrow \Diamond T(Kx))]$

SV^* $\forall x[Sent_{\mathscr{L}^-}(x) \rightarrow (T(x) \rightarrow T(Kx))]$.

Now we can reformulate Fitch's argument without quantification over propositions:

Proposition 2. $WV^* \vdash_{\mathbf{F}} SV^*$

Proof.

1. $\forall x[Sent_{\mathscr{L}^-}(x) \rightarrow \Box[T(K(x \wedge \neg Kx)) \rightarrow (T(Kx) \wedge T(K \neg Kx))]]$ *DIST*
2. $\forall x[Sent_{\mathscr{L}^-}(x) \rightarrow \Box[T(K(x \wedge \neg Kx)) \rightarrow (T(Kx) \wedge T(\neg Kx))]]$ *FACT*, 1
3. $\forall x[Sent_{\mathscr{L}^-}(x) \rightarrow \Box[T(K(x \wedge \neg Kx)) \rightarrow (T(Kx) \wedge \neg T(Kx))]]$ Comp Ax for $\neg$, 2
4. $\forall x[Sent_{\mathscr{L}^-}(x) \rightarrow \Box \neg T(K(x \wedge \neg Kx))]$ **K**, 3
5. $\forall x[Sent_{\mathscr{L}^-}(x) \rightarrow (\neg \Diamond T(K(x \wedge \neg Kx)) \rightarrow \neg T(x \wedge \neg Kx))]$ WV^*
6. $\forall x[Sent_{\mathscr{L}}(x) \rightarrow (\neg \Diamond T(K(x \wedge \neg Kx)) \rightarrow \neg(T(x) \wedge T(\neg Kx)))]$ Comp Ax for $\wedge$, 5
7. $\forall x[Sent_{\mathscr{L}^-}(x) \rightarrow (\neg \Diamond T(K(x \wedge \neg Kx)) \rightarrow \neg(T(x) \wedge \neg T(Kx)))]$ Comp Ax for $\neg$, 6
8. $\forall x[Sent_{\mathscr{L}^-}(x) \rightarrow (\neg \Diamond T(K(x \wedge \neg Kx)) \rightarrow (T(x) \rightarrow T(Kx)))]$ Logic, 7
9. $\forall x[Sent_{\mathscr{L}^-}(x) \rightarrow (T(x) \rightarrow T(Kx))]$ Logic, 4,8 □

The principles concerning K and $\Diamond$ that play a role in this argument are those that are used in Fitch's original argument. The principles concerning truth (roughly) state that truth commutes with the propositional logical connectives.

There is absolutely no threat of paradox here: in the truth axioms objectlanguage and metalanguage are scrupulously kept apart. Indeed, a simple consistency proof goes as follows. Consider first the translation τ that erases all occurrences of $\Box$ in a given proof of **F**. τ translates proofs of **F** into proofs of a system $\mathbf{F}^*$ which has as its axioms all the sentences $\tau(\phi)$ such that ϕ is an axiom of **F**. Thus for a consistency proof for **F**, it suffices to show that $\mathbf{F}^*$ has a model. We construct a model $\mathfrak{M}$ for $\mathbf{F}^*$ as follows. The domain of $\mathfrak{M}$ consists of the natural numbers, and the arithmetical vocabulary is given its standard interpretation by $\mathfrak{M}$. A sentence ϕ is in the extension of the truth predicate according to $\mathfrak{M}$ if and only if the result of erasing all occurrences of $\Box$ and of K from ϕ results in an arithmetical truth. Then it is routine to verify that $\mathfrak{M}$ makes all axioms of $\mathbf{F}^*$ true.

In sum, the version of Fitch's argument where propositional quantification is dispensed with by using a Tarskian truth predicate, seems unobjectionable. This shows that Fitch's argument cannot be faulted on account of its use of supposedly ungrammatical quantification over propositions.

It is important to highlight that in this reconstruction of Fitch's argument we had to use more than restricted Tarski-biconditionals. If one believes (as Horwich does) that DT is truth-theoretically complete, and if one also believes that propositional quantification has to be interpreted using a truth predicate (as received opinion has it), then one simply cannot accept Fitch's argument as valid. On the other hand, it also deserves remark that for the reconstruction of Fitch's argument the full compositional truth theory TC is not needed. The principle stating that truth commutes with the quantifiers plays no role in the argument. (Also, it is immaterial for the argument whether the truth predicate is allowed in the induction scheme.)

Fitch's argument crucially involves the notion of knowledge. And it relies on basic epistemological principles. So it seems fair to characterize it as an epistemological argument. Weak and Strong Verificationism involve the notion of truth as well. So our argument for $\neg WV$ does not show that truth is in the technical sense of the word nonconservative over epistemology. But it does appear to show that the theory of truth plays a substantial role in epistemology.

An objection to this line of reasoning runs as follows.[1] Weak Verificationism is, so the objection goes, a verificationist and hence substantial

[1] Thanks to Igor Douven for formulating it.

theory of *truth*. The fact that the compositional theory of truth that is part of the theory **F** can be used to refute a substantial theory of truth shows that the former is itself substantial and thus non-deflationist. Indeed, Horwich might see the fact that Fitch's argument does not go through if only the truth principles of *DT* are used as an argument in favor of *DT*. If deflationism is correct, then our theory of truth should be neutral in substantial philosophical disputes. The compositional truth theory that is part of **F** is not neutral in the dispute about Weak Verificationism, so it cannot possibly be an acceptable truth theory. *DT* does remain neutral in this dispute, so it is a more likely candidate for being a satisfactory theory of truth.

But this line of reasoning is unacceptable. We have no independent reasons for thinking that the compositional theory of truth is unsound. To reiterate, it seems hard to imagine any consequence of *TC* that is untoward. The fact that it can be used to refute Weak Verificationism may be surprising. But it is not a sufficient reason for taking *TC* to be unsound.

The discussion whether Weak Verificationism is a chapter in epistemology or in the theory of truth strikes me as unprofitable. The thesis *WV* involves both the concept of knowledge and the concept of truth. And Fitch's argument against *WV* uses both laws of epistemology (such as *FACT*) and compositional truth laws (laws of *TC*). In any case, Weak Verificationism is a substantial philosophical thesis. And if one wants to appeal to Fitch's argument to argue that Weak Verificationism is false, then one had better accept more laws of truth than just the restricted Tarski-biconditionals.

References

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