Levity

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In this article, the prospects of deflationism about the concept of truth are investigated. A new version of deflationism, called inferential deflationism, is articulated and defended. It is argued that it avoids the pitfalls of earlier deflationist views such as Horwich's minimalist theory of truth and Field's version of deflationism.

1. Introduction

In recent years, deflationism about truth has come under sustained attack from several corners. As a result, deflationism about truth has become a less popular view than it was a decade ago. In this article, I want to argue that despite the criticism of the past decade or so, deflationism about truth can still be upheld.

Horwich's views on the function and content of the concept of truth are taken as a starting point. The merits and demerits of certain objections that have been levelled against various aspects of Horwich's minimalist theory will be weighed. It will emerge that a crucial shortcoming of Horwich's theory is that it is based on taking Tarski-biconditionals as the principles of truth. As a formal theory of truth, the Tarski-biconditionals, suitably restricted so as to keep the paradoxes at bay, are just too weak. And this proof-theoretic weakness compromises the main philosophical claims that Horwich makes concerning the concept of truth.

So it is of critical importance for a philosophical discussion of truth to focus on the best formal truth theory that is currently available. It will be argued that some proof-theoretic variant of Kripke's theory fits this bill. A particular proof-theoretic version of Kripke's theory of truth is taken to be currently our best formal theory of truth. In particular, it is argued that this theory does not prove any propositions that are in any way objectionable.

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Deflationism about truth has been wedded to conservativeness claims. According to received forms of deflationism, a truth theory has to be conservative over its background theory. But proof-theoretic versions of Kripke's theory are proof-theoretically strong. They are non-conservative over their background arithmetical theory. Since at least some of them are sound, the non-conservativeness of truth is a phenomenon that has to be accommodated. In other words, if a version of deflationism is to be upheld, then it must be divorced from conservativeness commitments. Moreover, I will argue that the substantial role of truth is not confined to mathematics. Theories of truth play a more decisive role in certain philosophical debates than might at first sight be expected.

Nevertheless, there is a deep insight behind deflationism. Articulating this insight will be my main objective. It will be argued that sound proof-theoretic versions of Kripke's theory of truth do not contain truth axioms at all but consist entirely of inference rules governing the notion of truth. And this is essentially so. This suggests that truth is essentially an inferential notion. In this way, deflationism re-emerges in a new form. The position of *inferential deflationism* that will be developed and defended in this article claims that the insubstantiality of truth consists in the fact that there simply are no absolutely general laws or principles of truth. Truth is a property without a nature or essence. The content of this property is given by its inferential properties.

Before starting off, I want to make some preliminary remarks. Some familiarity will be assumed throughout the discussion with the most important formal theories of truth. And since the philosophical discussion shall take place against the background of formal theories of truth, it is natural to take sentences instead of propositions as truth-bearers. This is not in step with Horwich's minimalist theory: he takes propositions to be the basic truth-bearers. But sentences and propositions are structurally similar. Because of this, my discussion of other aspects of Horwich's minimalist theory of truth will not be affected by my policy to take sentences as truth-bearers.

2. From deflationism to conservativeness

Arguably, deflationism about truth can be traced back at least to Tarski (1944). Some decades later, Quine in some of his publications defended a deflationist conception of truth (Quine 1986). But it was Horwich who put deflationism firmly on the philosophical agenda with the publication of his book 'Truth' (Horwich 1998).

The core idea of deflationism is that truth is an insubstantial, light notion. It is a notion that does not carry a heavy philosophical burden or commitment of any kind (metaphysical, epistemological, moral, etc.). But that is very vague. There is no agreement amongst philosophers about how this core idea can be made more precise. Indeed, it seems to be increasingly recognized that deflationism is not really a *theory* about truth. Deflationism is a label for a loose collection of more precise views that share a family resemblance with each other. To begin with, I want to concentrate on one deflationist view that can be considered to be a philosophical theory, namely Horwich's *minimalist theory of truth.*

Horwich states that a theory of truth must answer two questions:

(i) What is the function of the concept of truth?

(ii) What is the meaning of the concept of truth?

Horwich's answer to the first question is twofold. As the earlier deflationists before him, Horwich stresses that truth is a device that allows us to quantify over sentences and open formulas. In short, truth is a quantification device. This has in the meantime become common wisdom. But it is not immediately clear how this is connected to the core of deflationism. The thesis that truth is a quantification device is a positive thesis, whereas the misty core of deflationism is a negative thesis. At first blush it appears that truth could serve as a tool to form new quantifiers even if it is somehow a philosophically weighty, substantial notion.

In Horwich's view, there indeed also is a negative aspect about the role of the concept of truth, namely the thesis that truth does not play a significant role in solving problems in philosophy or in the sciences. If truth is a 'light' notion, then it is not expected to contribute substantially to the solution of philosophical problems. Truth is just not a significant parameter in the solution space of substantial philosophical puzzles. Horwich's negative thesis concerning truth is in sharp conflict with traditional philosophical views. For instance, it was for a long time taken for granted that a theory of truth forms an integral part of realism in the philosophy of science. It was thought to be evident that a cogent defence of realism requires a correspondence theory of truth.

This tenet of deflationism is reflected in the fact that among the proponents of deflationism about truth, one indeed finds empiricists, realists, nominalists, and platonists. Horwich follows in Tarski's footsteps:

> 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. (Horwich 1998, p. 52)

In response to the second question, Horwich holds that the meaning of the concept of truth is given by the Tarski-biconditionals. Of course the Tarski-biconditionals do not hold unrestrictedly. Some restrictions have to be made to block the semantic paradoxes. Tarski himself formulated a proposal which still is very popular: restrict the Tarski-biconditionals to those sentences that do not themselves contain the concept of truth.[1] Let us call the resulting theory the disquotational theory of truth (*DT*). Then Horwich's thesis is that if a person knows the restricted Tarski-bicondionals, she knows all there is to know about the meaning of the concept of truth. In this sense, Horwich takes *DT* to be truth-theoretically complete. This should not be taken to imply that in order for a language user to possess the concept of truth, she should know every restricted Tarski-biconditional, for this would violate the finiteness of the human mind. Rather, the language user must know the scheme, which can be seen as the application condition of the concept of truth. In other words, the language user knows the restricted Tarski-biconditionals in a dispositional sense: for any sentence that she recognizes, he or she is willing to assert the corresponding Tarski-biconditional. This entails that when the language is extended, the language user will be prepared to accept more Tarski-biconditionals.

But it is not immediately clear why the meaning of truth has to be so intimately tied to the Tarski-biconditionals. A strong case can be made for the thesis that the disquotational theory is a philosophically

[1] McGee has convincingly argued that Horwich's preferred way of dealing with the paradoxes is unsatisfactory (McGee 1992). For this reason, Horwich's preferred version of the disquotational theory will be left aside here.

sound theory of truth. But it is just *one* theory of truth. Another axiomatic theory of truth is the compositional theory of truth (TC). Its axioms say, roughly, that the truth predicate commutes with the logical connectives for sentences that do not themselves contain the truth predicate (so as to stave off the semantic paradoxes).

To be precise, the theory TC is formulated in the language L_{PA} of arithmetic extended with a truth predicate (T). We shall call this language L_T. TC consists of the following axioms:[2]

(i) The axioms of Peano arithmetic, where the truth predicate is allowed to occur in instances of the induction scheme. (Via coding, this theory serves as the theory of syntax.)

(ii) $\forall$ atomic $\varphi \in L_{PA}$: $T(\varphi) \leftrightarrow \mathrm{val}^+(\varphi)$, where $\mathrm{val}^+(\ldots)$ is a truth definition, in L_{PA}, of the collection of true atomic arithmetical sentences.

(iii) $\forall\varphi \in L_{PA}$: $T(\neg\varphi) \leftrightarrow \neg T(\varphi)$

(iv) $\forall\varphi,\psi \in L_{PA}$: $T(\varphi \,\&\, \psi) \leftrightarrow (T(\varphi) \,\&\, T(\psi))$

(v) $\forall\varphi(x) \in L_{PA}$: $T(\forall x\varphi(x)) \leftrightarrow \forall x T(\varphi(x))$

TC appears to be just as philosophically sound as DT is. There is a caveat here. Some philosophers point out at this juncture that many expressions of natural language are vague. And they go on to claim that the meaning and logic of vague expressions should be described in terms of a supervaluationist theory. This forces us to give up compositionality of truth. And therefore the compositional truth theory TC is not sound after all. This story may or may not be correct. But, in this article, I set aside any complications that arise due to vagueness. The scope of the discussion may be taken to be restricted to a vagueness-free fragment of natural language.

Halbach has argued that Horwich has only highlighted half of the positive role of the concept of truth (Halbach 2001). The concept of truth does not only allow us to express things that we could not otherwise express. It also allows us to prove generalizations about truth that we could not otherwise prove. In this latter respect, the disquotational theory falls short of reasonable expectations. For instance, we expect a theory of truth to prove that truth commutes with conjunction. But it is a well-known fact that DT does not

[2] In the interest of readability, I suppress the details of the coding involved in the formulation of these axioms. For a more precise formulation, see Halbach 1996, Chapter 3.

prove this, whereas it is an *axiom* of *TC*. This constitutes a reason for preferring *TC* over *DT* as a theory of truth. Of course, this also affects Horwich's answer to the second question. If *TC* is a better truth theory than *DT*, then *DT* cannot be taken to be anywhere near truth-theoretically complete. At best, we can say that *DT* gives a *partial* explication of the meaning of the concept of truth.

A peculiar aspect of *TC* then entails that doubt is also cast upon the negative component of Horwich's answer to the first question. As we have seen, Horwich claims that the concept of truth does not play a substantial role in philosophical disputes and in science. This claim can be made more precise as a conservativeness claim. We say that the truth theory *Tr* is conservative over *Th* if and only if for every sentence φ of the language L_{Th} of *Th* in which the truth predicate does not occur, the following holds:

If $Th \cup Tr \vdash \varphi$, then $Th \vdash \varphi$

Then Horwich's thesis can be taken that entail our preferred theory of truth should be conservative over our preferred theories in metaphysics, epistemology, ethics, etc. In other words, Horwich seems committed to a series of conservativeness claims.

3. Mathematical conservativeness

The claim that our preferred truth theory should be conservative over mathematics has received much attention in the past two decades. We have seen that the truth theories *DT* and *TC* have the same underlying mathematical theory: Peano arithmetic. *DT* is indeed conservative over Peano arithmetic. But *TC* is not conservative over Peano arithmetic: it proves, *inter alia*, the Gödel sentence for Peano arithmetic. But, to reiterate, it seems that *TC* is philosophically sound. If that is so, then truth is not conservative over mathematics. The notion of truth has a real mathematical bite: if a sound theory of truth is added to a mathematical theory, then new mathematical statements become provable.

A deflationist who is hard-headed about the light-weight nature of the notion of truth might take mathematical strength as a measuring stick for insubstantiality: if a truth theory is arithmetically non-conservative, then the notion of truth that it formalizes cannot be light. At one time, this was Field's position. Field thought that deflationism is indeed wedded to the conservativeness of truth over mathematics (Field 1999b, p. 536). He takes issue with the contention that truth is arithmetically non-conservative.

Field's argument runs roughly as follows. Peano arithmetic contains the axiom scheme of mathematical induction. The non-conservativeness argument for *TC* turns crucially on the fact that the truth predicate can itself occur in instances of the principle of mathematical induction. But those instances, Field says, should not be taken to be 'genuine' truth principles. So the fact that *TC* is not conservative over Peano arithmetic does not entail that truth is not arithmetically conservative. If we want to find out whether truth is conservative, we must add the pure compositional truth axioms to Peano arithmetic. This yields a truth theory that is arithmetically conservative over Peano arithmetic.

This line of reasoning is unconvincing. It is not easy to see why the new induction instances count less as truth principles than the compositional axioms do. After all, is not the principle that truth commutes with conjunction as much about the logical connective of conjunction and about the natural numbers (which serve as names of sentences) as about truth?

An alternative option is to regard the truth-containing instances of the induction scheme as *mathematical* principles. Field seems to express sympathy with this view:

> [that the truth of the induction axioms containing the truth predicate depend only on the nature of truth] just seems false: the corresponding axioms would hold for any other predicate, and what they depend on is a fact about the natural numbers, namely, that they are linearly ordered with each element having only finitely many predecessors. (Field 1999b, p. 538)

But if the induction axioms containing the truth predicate are *mathematical* principles, then we might as well take Peano arithmetic with the truth predicate admitted in the induction scheme as our mathematical base theory. If we add the pure compositional truth axioms to this base theory, we of course obtain the non-conservative theory *TC* once more.

A third option consists in taking the new induction axioms to be interaction principles: bridge principles between truth and mathematics. On this view, what Field's argument brings out is the importance of these bridge principles. His argument highlights the difficulty of cleanly separating mathematical principles from truth principles.

At any rate, rather than treating it as an open question we should treat the mathematical power of truth as a *phenomenon* that we have uncovered. This phenomenon is to be explored rather than to be argued over. Perhaps one day we can somehow chart the boundaries of this non-conservativeness phenomenon. If this latter line is taken, then we should take a hard look at the deflationist motives for advancing conservativeness claims.

Deflationists sometimes say in this context that truth is a *logical notion*, or that truth expresses a *logical property* (Field 1992, p. 322; Field 1999b, p. 534). At least in part, truth indeed is a *logical* notion. We have seen that, like the first-order quantifiers, the truth predicate is a tool for expressing generality. Logic should not carry any substantial ontological or ideological commitments. Therefore — so the argument goes — theories of truth should be conservative over the theories to which they are added.

But this, too, proves on closer inspection to be unconvincing. The notion of truth is wrapped up with syntax, which finally reduces to arithmetic. So instead of being a purely logical notion, truth should at least be called a *logico-linguistic* notion (Halbach and Horsten 2002b). Indeed, the notion of truth clearly is in part a linguistic notion. After all, the bearers of the property of truth are linguistic entities. In particular, the bearers of truth are meaningful sentences, that is, interpreted syntactic objects.

Conservativeness is not a blanket requirement even for purely logical notions. It is well-known that there are tautologies in the negation-free fragment of classical propositional logic that can only be proved using sentences that contain the concept of negation. In short, negation is non-conservative over the other propositional logical connectives. But, *pace* Dummett, this does not show that classical negation is not a *bona fide* logical concept. Logical notions simply interact with each other in a non-conservative way. If truth is a logico-linguistic notion, then it is natural to expect that it will likewise interact with the other logical and linguistic notions in a non-conservative manner.

We have observed that the structural principles governing syntax are very much like the structural principles for the natural numbers. So if we are picturing the truth concept as a logico-linguistic notion, then we are also picturing it as a *logico-mathematical* notion. The concept of elementhood is highly infinitary in nature. It is a *very* powerful mathematical notion. The mathematical aspect of truth is connected to arithmetic. So at first blush it seems that, insofar as truth is a mathematical notion, it is a light mathematical notion. It may and indeed does carry mathematical commitments. The non-conservativeness of truth over mathematics should not come as much of a surprise. But at least at first sight, one should not expect the mathematical commitments of the concept of truth to be heavy. In sum, it is an undeniable and unproblematic fact that truth has genuine mathematical power.

Nevertheless, in defence of Horwich it could be said that this does not show that the concept of truth plays an *essential* role in mathematics. Indeed, the average mathematician is underwhelmed by the non-conservativeness of truth theories such as *TC* over arithmetic. She will point out that there are much more powerful purely mathematical methods (such as adding reflection principles) for going beyond what is already mathematically provable. So truth axioms are not really needed in mathematics; they do not play an *essential* role. And this suggests that it was a mistake in the first place to canvass Horwich's claim that truth does not play a substantial role in the sciences as a conservativeness claim.

4. Truth and epistemology

What of claims concerning the essential and substantial use of the concept of truth over philosophical theories, such as philosophy of language, metaphysics, epistemology, and so on? These questions seem closer to Horwich's original concerns than questions about the mathematical power of truth. Yet most of them have hardly been touched upon in the recent literature. To these conservativeness issues we now turn.

One of Horwich's claims is that truth does not play a substantial role in the theory of meaning. Davidson has vehemently opposed this claim and it is not hard to see why. Davidson has for decades elaborated and defended a truth-conditional theory of meaning. The compositional truth theory *TC* is the cornerstone of this account of meaning. Horwich predictably disagrees. In response to Davidson's challenge, he has developed a use theory of meaning in which the concept of truth does not play a substantial role (Horwich 1999). I shall not pursue this debate further here. Plenty has been written about it.

Instead, I shall concentrate on the role of truth in epistemology. Horwich will be prepared to concede that in some sense, the concept of truth does play a role in epistemology. 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:

$$\forall x \in L : K(x) \leftrightarrow [T(x) \,\&\, J(x) \,\&\, B(x)]$$

where L is some language that need not be specified in detail, K is a knowledge predicate, J a justification predicate, and B a belief predicate. Clearly, if we want to use this principle to derive that some particular proposition is known, we need truth axioms.

As Horwich is quick to point out, this is not as significant as it might seem. For it is clear that for many applications, we do not need to express the central epistemological 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:

$$K(\varphi) \leftrightarrow [\varphi \,\&\, J(\varphi) \,\&\, B(\varphi)],$$

where φ ranges over all sentences of 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 $K(0 = 0)$. Horwich would be willing to admit that it is more natural to adopt the axiom than the axiom scheme. But even if we do so, then it seems that the theory *DT* is all that is needed in epistemological arguments. In other words, the notion of truth is then only used as a disquotational device.

But the use of the truth predicate in epistemology is not *always* so easily eliminated or deflated. I 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 is left open whether the conclusion of Fitch's argument is a faithful rendering of a main tenet of verificationism (Williamson 2000, Chapter 12).

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

In this language L_P, we formulate two verificationist principles:

$(WV)\quad \forall p[p \rightarrow \Diamond Kp]$
$(SV)\quad \forall p[p \rightarrow Kp]$

The principle *WV* ('weak verificationism') has been taken by many philosophers to have some *prima facie* plausibility. The principle *SV* ('strong verificationism'), in contrast, has been taken by most philosophers to be false. It seems that we know that there are unknown truths — although of course we cannot give a concrete example. Fitch now shows how using plausible principles, *SV* can be derived from *WV*. This argument, in conjunction with $\neg SV$, can then be taken as a refutation of weak verificationism.

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

$(FACT)\quad Kp \rightarrow p$
$(DIST)\quad K(p \,\&\, q) \rightarrow (Kp \,\&\, Kq)$

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.	$\forall p[(p \,\&\, \neg Kp) \rightarrow \Diamond K(p \,\&\, \neg Kp)]$	*Logic*, 1
3.	$\forall p[(p \,\&\, \neg Kp) \rightarrow \Diamond(Kp \,\&\, K\neg Kp)]$	*DIST*, 2
4.	$\forall p[(p \,\&\, \neg Kp) \rightarrow \Diamond(Kp \,\&\, \neg Kp)]$	*FACT*, 3
5.	$\forall p[\neg(p \,\&\, \neg Kp)]$	*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 $\exists x : x \in L \,\&\, Tx$. 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 now work in an intensional *first-order* language L_F that contains a possibility operator $\Diamond$, a knowledge operator K ('it is known that'), and a Tarskian truth predicate T for $L^{-} = L_F \setminus \{T\}$. It is assumed that the language L^{-} contains the required coding machinery.[3]

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

(1) The axioms of first-order logic and of the minimal normal modal logic **K**

(2) $\forall x[\text{Sent}L^{-}(x) \rightarrow \neg\Diamond\neg(T(Kx) \rightarrow Tx)]$

(3) $\forall x \forall y[(\text{Sent}L^{-}(x) \,\&\, \text{Sent}L^{-}(y)) \rightarrow \neg\Diamond\neg(T(K(x \,\&\, y)) \rightarrow (T(Kx) \,\&\, T(Ky)))]$

(4) $\forall x[\text{Sent}L^{-}(x) \rightarrow (\neg T(x) \leftrightarrow T(\neg x))]$

(5) $\forall x \forall y[(\text{Sent}L^{-}(x) \,\&\, \text{Sent}L^{-}(y)) \rightarrow (T(x \,\&\, y) \rightarrow (Tx \,\&\, Ty))]$

Here $\text{Sent}L^{-}(x)$ expresses that x codes a sentence of the language L^{-}. **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, they are unproblematic.

Weak and strong verificationism can be expressed as follows:

(WV^*) $\forall x[\text{Sent}L^{-}(x) \rightarrow (Tx \rightarrow \Diamond T(Kx))]$
(SV^*) $\forall x[\text{Sent}L^{-}(x) \rightarrow (Tx \rightarrow T(Kx))]$

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

Proposition 2: $WV^* \vdash_F SV^*$

Proof

(1) $\forall x[\text{Sent}L^{-}(x) \rightarrow \neg\Diamond\neg(T(K(x \,\&\, \neg Kx)) \rightarrow (T(Kx) \,\&\, T(K\neg Kx)))]$ — *DIST*

(2) $\forall x[\text{Sent}L^{-}(x) \rightarrow \neg\Diamond\neg(T(K(x \,\&\, \neg Kx)) \rightarrow (T(Kx)) \,\&\, T(\neg Kx)))]$ — *FACT*, 1

(3) $\forall x[\text{Sent}L^{-}(x) \rightarrow \neg\Diamond\neg(T(K(x \,\&\, \neg Kx)) \rightarrow (T(Kx) \,\&\, \neg T(Kx)))]$ — *Comp Ax for* $\neg$, 2

(4) $\forall x[\text{Sent}L^{-}(x) \rightarrow \neg\Diamond T(K(x \,\&\, \neg Kx))]$ — *K*, 3

[3] I again suppress the details of coding in what follows.

(5) $\forall x[\mathrm{Sent}L^{-}(x) \rightarrow (\neg\Diamond T(K(x \,\&\, \neg Kx)) \rightarrow \neg T(x \,\&\, \neg Kx))]$ *WV**

(6) $\forall x[\mathrm{Sent}L^{-}(x) \rightarrow (\neg\Diamond T(K(x \,\&\, \neg Kx)) \rightarrow \neg(Tx \,\&\, T(\neg Kx)))]$ *Comp Ax for* &, 5

(7) $\forall x[\mathrm{Sent}L^{-}(x) \rightarrow (\neg\Diamond T(K(x \,\&\, \neg Kx)) \rightarrow (Tx \,\&\, \neg T(Kx)))]$ *Comp Ax for* ¬, 6

(8) $\forall x[\mathrm{Sent}L^{-}(x) \rightarrow (\neg\Diamond T(K(x \,\&\, \neg Kx)) \rightarrow (Tx \rightarrow T(Kx)))]$ *Logic*, 7

(9) $\forall x[\mathrm{Sent}L^{-}(x) \rightarrow (Tx \rightarrow T(Kx))]$ *Logic*, 4, 8

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

If it would be sufficient to derive each instance of *SV** from instances of *WV**, instances of the compositional truth principles would be all that is needed, and these can in turn be derived from Tarski-biconditionals. But clearly this will not do. The aim of the Fitch-Williamson argument is to derive ¬*WV**. We have to derive it from ¬*SV** even though we do not know any particular instance of *SV** to be false. This is why the schematic versions of the compositional truth axioms are simply not enough: we need the universally quantified versions.

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

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 refutation of weak anti-realism 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 non-conservative 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.[4] Weak verificationism is, so the objection goes, a verificationist, and hence substantial, theory of *truth*. The fact that the compositial 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. 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 favour 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

[4] Thanks to Igor Douven for raising this objection.

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.

We may conclude from all this that there is a precise sense in which truth plays a more substantial role in science and philosophy than Horwich conjectured. His failure to realize this is related to his preference for the truth theory *DT*. But *TC* is just as sound and natural as *DT*, and at the same time it is non-conservative over arithmetic. So truth *can* be put to work in mathematics — even if there perhaps is no need to do so. Davidson and his followers have argued that a theory of truth that goes beyond *DT* is indispensable for the theory of meaning. And now we have seen that even in epistemology, more than *DT* is required if one wants to side with the received view on propositional quantification and at the same time wants to recognize Fitch's argument as valid.

This evidently leaves many questions unanswered. One might wonder, for instance, if there are valid epistemological arguments that implicitly make use of the full compositional theory of truth. And one might wonder if there are other philosophical disciplines (such as metaphysics or philosophy of science) where more than *DT* is required. These matters will not be pursued here.

5. Inferential deflationism

5.1 Whence deflationism?

Many philosophers who concede some of the points made in the previous section take them to spell doom for deflationism. Shapiro and Ketland hold that the arithmetical non-conservativeness of truth entails that deflationism is an untenable doctrine (Shapiro 1998, 2002; Ketland 1999). Davidson believes that the centrality of the notion of truth in the theory of meaning is a sufficient reason for rejecting deflationism about truth wholesale (Davidson 1990). And we have seen that also in other philosophical disciplines, truth may have a more fundamental role to play than is commonly recognized.

But to think that this would be the end of the matter would betray an insensitivity to the chameleonic nature of deflationism. Halbach has observed that if deflationism about truth is to be given any chance at all, then it must be divorced from mathematical conservativity claims (Halbach 2001). If truth is a logico-grammatical or logico-linguistic concept, then a deflationist should perhaps also refrain from claiming that truth has no role of significance to play in philosophy of language. But we have seen that even some epistemological arguments may hinge on accepting a large part of the compositional theory of truth.

At this point it may appear that nothing remains of deflationism about truth but an empty shell. I think that this is not so. So it is incumbent on me to articulate a version of deflationism about truth that is compatible with our findings so far. Clearly, if it is going to be more than an empty shell, any new viable form of deflationism will have to carry positive commitments that have not figured prominently in the versions of deflationism that have been articulated to date. It should give as much substance as possible to the insubstantiality of truth.

Any concrete version of deflationism has to be articulated against the background of a formal theory of truth. But this formal theory had better be up to date. We have seen how many of Horwich's difficulties arose from the fact that he based his minimalist theory on the disquotational theory of truth, which was already superseded by the compositional theory of truth. So let us see what is the best formal theory of truth available today.

5.2 Kripke's theory

Horwich's strict form of deflationism holds that the (restricted) Tarski-biconditionals completely determine the meaning of the truth predicate. But we have already cast grave doubts on this thesis. The theory *TC* is sound, and stronger than *DT*, so *DT* can at best encapsulate a partial determination of the meaning of the truth predicate. But for well-known reasons even *TC* contains only a partial expression of the meaning of the truth predicate. Our truth predicate is self-reflexive. We can truthfully assert that it is true that it is true that snow is white. Yet, no formula of the form $TT\varphi$ is provable in *TC*. So, a more powerful truth theory seems to be called for. Which one should be preferred?

The most popular self-reflexive theory of truth available today is Kripke's theory of truth (Kripke 1975). And it seems to me that some variant of Kripke's theory of truth is indeed the best truth theory available today. Kripke formulated his truth theory in semantical terms: he defined an interesting class of models for languages that contain a truth predicate. His models make many sentences of the form $TT\varphi$ true. The price for this is that certain sentences, such as the liar sentence, come out truth-valueless in Kripke's models. In other words, the models that he constructs are *partial* models.

Kripke's theory has a well-known drawback, which it has in common with all semantical theories of truth. Kripke's theory is formulated in a classical metalanguage that is more expressive than the object language. In Kripke's case, the object language is the language L_T. For familiar Gödelian reasons, it is essentially so that the language in which Kripke's theory is formulated is more expressive than L_T. But this simply will not do. For in the end we want to formulate a theory of truth for English. And we do not have a metalanguage for English. Or, put differently, English will have to serve as its own metalanguage. The obvious way to remedy this shortcoming of Kripke's semantical theory is to axiomatize it. When this is done, the theory of truth for L_T is expressed in L_T.

Kripke's theory of truth was axiomatized in Halbach and Horsten 2006, where it is called *PKF* ('Partial Kripke–Feferman'). More precisely, *PKF* axiomatizes the class of Kripkean fixed-point models of the Strong Kleene valuation scheme for partial logic. *PKF* is a self-reflexive and compositional theory of truth. It is formulated in terms of rules of inference rather than in terms of axioms. A number of rules of inference of *PKF* express that truth commutes with the logical connectives. But *PKF* also contains rules of inference which state that any sentence of the form $T\varphi$ is assertible if and only if φ is assertible, and that $T\neg\varphi$ is assertible if and only if $\neg\varphi$ is assertible. These rules make the theory self-reflexive: they entail that (long) truth-iterations can be proved in *PKF*.

The principles of *PKF* can be expressed in natural deduction format in the following way.

Logic:
PKF contains the usual introduction and elimination rules for the logical connectives, except that the rule of *conditionalization* is restricted to truth-determinate sentences:

$$\frac{T\varphi \vee T\neg\varphi \quad \begin{matrix}\varphi\ (\mathrm{Hyp}) \\ \vdots \\ \psi\ (\mathrm{Hyp})\end{matrix}}{\varphi \rightarrow \psi}$$

Arithmetic:
PKF contains the usual axioms of Peano arithmetic except that the principle of mathematical induction is formulated as a rule:

$$\frac{\varphi(0) \quad \begin{matrix}\varphi(x)\ (\mathrm{Hyp}) \\ \vdots \\ \varphi(sx)\ (\mathrm{Hyp})\end{matrix}}{\forall x \varphi(x)}$$

Truth:[5]

$$\frac{\mathrm{val}^{+}(t_1 = t_2)}{T(t_1 = t_2)} \qquad \frac{T(t_1 = t_2)}{\mathrm{val}^{+}(t_1 = t_2)}$$

$$\frac{T(\varphi) \,\&\, T(\psi)}{T(\varphi \,\&\, \psi)} \qquad \frac{T(\varphi \,\&\, \psi)}{T(\varphi) \,\&\, T(\psi)}$$

$$\frac{T(\varphi) \vee T(\psi)}{T(\varphi \vee \psi)} \qquad \frac{T(\varphi \vee \psi)}{T(\varphi) \vee T(\psi)}$$

$$\frac{\forall x T(\varphi(x))}{T(\forall x \varphi(x))} \qquad \frac{T(\forall x \varphi(x))}{\forall x T(\varphi(x))}$$

$$\frac{\exists x T(\varphi(x))}{T(\exists x \varphi(x))} \qquad \frac{T(\exists x \varphi(x))}{\exists x T(\varphi(x))}$$

$$\frac{T(\varphi)}{TT(\varphi)} \qquad \frac{TT(\varphi)}{T(\varphi)}$$

$$\frac{\neg T(\varphi)}{T(\neg\varphi)} \qquad \frac{T(\neg\varphi)}{\neg T(\varphi)}$$

[5] My abuse of notation in the formulation of the truth rules makes for easy reading but may be slightly misleading. In the formulations of these rules, φ and ψ are really free variables, which serve as place-holders for codes of formulas. For the official version of the truth rules, the reader is referred to Halbach and Horsten 2006.

It is essential that *PKF* is formulated in terms of rules of inference rather than in terms of axioms. This is due to the fact that *PKF* is formulated in partial logic. Since the liar sentence λ is, according to Kripke's theory, just as truth-valueless as its negation, the instance $\lambda \vee \neg\lambda$ of the principle of excluded third is according to the Strong Kleene scheme likewise truth-valueless. Because of the fact that paradoxical sentences are deemed truth-valueless, *PKF* proves no unrestricted generalities about truth; for example, it does not provide a proof of any sentence of the form

$$\forall\varphi \in L_T\colon T(\ldots\varphi\ldots) \rightarrow T(\ldots\varphi\ldots)$$

Indeed, even the axiom scheme $\varphi \rightarrow \varphi$ will not be a theorem of *PKF*: if we instantiate it by λ, a sentence results which cannot be correctly asserted. Instead of unrestricted axioms concerning truth, *PKF* contains lots of unrestricted rules of inference concerning truth. To name but one example, *PKF* does not contain the axiom

$$\forall\varphi \in L_T\colon T\neg\varphi \rightarrow \neg T\varphi$$

But we have seen that *PKF* does contain the unrestricted rule of inference

$$T\neg\varphi \Rightarrow \neg T\varphi$$

This should not be taken to entail that *PKF* is proof-theoretically weak. On the contrary, the compositional theory *TC* is but a small fragment of *PKF*. It is crucial to note that *TC* only contains restricted generalizations about truth. For instance, *TC* proves the sentence

$$\forall\varphi \in L_{PA}\colon T\neg\varphi \rightarrow \neg T\varphi$$

which says that truth commutes with negation for sentences of the restricted language of arithmetic.

I (together with Volker Halbach) argue elsewhere that *PKF* is just as sound as *TC* (Halbach and Horsten 2006). It would be imprudent and rash to claim that *PKF* is truth-theoretically complete. The track record of claims of this kind should make one wary about such a thesis. Nevertheless, I maintain that *PKF* is one of the most satisfactory truth theories available today. It is against the background of *PKF* that the prospects of deflationism will now be investigated.

5.3 Truth and logical notions

Let us return to the misty core of deflationism, which says that truth is a light, insubstantial notion. We have seen that it is a mistake to try to cash this vague thought out in terms of conservativeness claims. I will now suggest an alternative way of making the deflationist *credo* more precise. This will give rise to a version of deflationism, which is immune to the objections that were discussed in earlier sections of this article.

One commitment of most forms of truth-theoretic deflationism that is reflected by *PKF* is the simplicity of truth. It is scarcely imaginable that the introduction and elimination rules for the truth predicate that are contained in *PKF* could be simplified further. If the concept of truth is correctly described by *PKF*, then truth is indeed not a complicated notion at all. But there is an another sense in which *PKF* harmonizes with the vague deflationist thesis that truth is an 'immaterial' notion. To uncover this sense, a deeper reflection on the concept of truth is required.

Carnap held that the meaning of the logical connectives is fixed by linguistic convention. So in a derivative way, logical truths are on his account true by convention (Carnap 1934). Quine showed that Carnap's position suffers from a vicious regress problem. If the meaning of the logical connectives were not already determined, the convention could never be applied (Quine 1936). Although he never developed his own positive view in detail, Quine held that the meaning of the logical connectives is determined by our inferential behaviour, not by convention.

In a Quinean spirit, it is a rather popular view nowadays that the meaning of the classical logical connectives is determined by their role in valid reasoning. More in particular, it is held by many that the meaning of the classical logical connectives is determined by the introduction and elimination rules of the natural deduction calculus (Prawitz 1978). It seems that the familiar introduction and elimination rules for first-order logic are semantically complete: they completely determine the meaning of the logical connectives.

According to *PKF* there are no unrestricted general principles of truth. This can be explained by the fact that there is no nature or essence of truth to be described by general principles. According to *PKF* there are, however, natural and fully general rules of inference governing the truth predicate. Even though blanket generalizations about the notion of truth scarcely exist, there are fully general ways of proceeding from one truth about truth to another. This, combined with the fact that the notion of truth has an important expressive function, suggests that truth should first and foremost be seen as an inferential tool.

In these respects, truth resembles the logical notions. There are contents that we could not express without logical connectives. The same holds for truth. Logical laws are the cogs in our reasoning processes. Likewise, truth assists us in our reasoning: it helps us to draw correct inferences. Like the logical connectives, the concept of truth is a handmaiden of reasoning. In this sense, there is after all something deeply right about Field's claim that truth is a logical notion — even if, as we have seen, strictly speaking we have to disagree with it.

At first sight it appears that the inferential view applies even better to the truth predicate than to the logical connectives. All that the arguments in Quine 1936 show are that at least one rule of inference is needed if logic is ever going to be applied. Moreover, in classical logic, the deduction theorem guarantees that each rule of inference corresponds to an axiom scheme. But for the reasons that were highlighted above, there can be no deduction theorem for *PKF*: *none* of the truth rules of *PKF* can be validly replaced by axioms. Truth is *essentially* an inferential notion. But on closer inspection, the inferential view applies just as well to the logical connectives. *Pace* what Kripke writes on this matter (Kripke 1975, p. 64–5, n. 17), the advocate of *PKF* is committed to a revisionist view of logic. She is committed to the view that there are no absolutely general laws of logic. As long as one is operating in fully truth-determinate context, the laws of classical logic do apply; but for many sentences that contain the truth predicate, only the inference rules of strong Kleene logic apply.

5.4 A concept without an essence

So this is what deflationism about truth in the end comes to. We should not aim at describing the nature of truth, because there is no such thing. Rather, we should aim at describing the inferential behaviour of truth. In Kripke 1980, a Wittgensteinian concern is voiced. Kripke expresses the hope that he is not presenting a *theory* of reference, for if he does, then it must certainly be wrong. It now seems that in the case of truth, the theory of truth should be articulated as a non-theory. That is what happens in *PKF*. Thus, it seems ironic that Kripke's seminal article on truth bears the title 'Outline of a Theory of Truth'. Indeed, the problem of the strengthened liar that has haunted Kripke's theory of truth ('the ghost of Tarski') is a consequence of Kripke's insistence to formulate his theory in a classical metalanguage. *PKF*, in contrast, is not vulnerable to a strengthened liar attack, for it makes no claim concerning the truth value of the liar sentence.

Brandom goes much further and claims that the content of *all* our concepts is given by inferential connections:

> …conceptual content is to be understood in terms of role in reasoning rather than exclusively in terms of representation.[6] (Brandom 2000, p. 61)

This goes well beyond the commitments of the theory that is advocated here. It is consistent with everything that was said so far that truth is quite an exceptional concept. It may be, for instance, that the meaning of the mathematical vocabulary is not determined by its inferential role.

At any rate, no claim is made to the effect that the inference rules of *PKF* exhaust the meaning of the concept of truth. It is only claimed that the inference rules of *PKF* give a *partial* articulation of the meaning of the concept of truth. Understanding the inference rules of *PKF* entails having a partial grasp of the meaning of the concept of truth. This is so for two reasons. First, as mentioned in the previous paragraph, the meaning of the concept of truth is inextricably intertwined with the meaning of the syntactical concepts, and their meaning may not be determined in a purely inferential manner. In addition, *PKF* (and Kripke's truth theory in general) only looks good until the better theory comes along. We should surely hold open the possibility that some future stronger inferential truth theory may determine the meaning of the concept of truth even further or may determine it in a slightly different way.

It seems to me that inferential deflationism, described in this way, is essentially correct. But this does not mean that all philosophical issues related to it have been completely resolved. Gupta has considered the version of inferential deflationism according to which the meaning of the truth predicate is completely determined by the (restricted) Tarski-biconditionals considered as rules of inference, and he has dismissed it (Gupta 1999, p. 303). It should be clear by now that this is not the inferential theory that is advocated here. But Gupta's misgivings, if they are correct, apply equally to the weaker version of inferential deflationism that we are presently considering.

According to inferential deflationism, the meaning of the concept of truth is explained in terms of rules of inference. Gupta observes that inferential deflationism requires that the concept of a rule can be

[6] Also, Brandom advocates the pro-sentential theory of truth (Brandom 1994). Since this theory does not deal with the paradoxes in a satisfactory way, I do not discuss it here.

explained in a way which does not involve the notion of truth (Gupta 1993, p. 303). And there is the related question whether a person can follow any rule at all if she does not already possess the concept of truth. So eventually we are led to the fundamental questions concerning rule-following, of which are paramount: what is involved in following a rule (what does it mean to follow a rule)? These are deep philosophical questions indeed. But I do not feel compelled to address these questions here: it seems to be a subject in itself. It is at least not obviously the case that the concept of truth is involved in explaining what it means to follow a rule. And at least at first sight it appears that one could well imagine someone correctly applying a rule of inference without even possessing the concept of truth. After all, we are even inclined to describe certain machines ('theorem provers') as deriving sentences using rules of inference, although we would be loath to ascribe to them a grasp of the concept of truth. Note that there is no reason to think that any of this is incompatible with the notion of truth being heavily involved in the notion of a *valid* inference rule.

The overall structure of my argument for inferential deflationism consists in an inference from the proposition that there are no general laws of truth to the thesis that there is no nature of truth. Now it may be suspected that the general inference pattern behind this move is invalid. That is, one might suspect that it is not always the case that if X has a nature, then X is governed by general principles.

One form that this challenge might take is the following.[7] Someone might argue that no general principles can be formulated about ordinary concepts, such as the concept of a chair. Then the general inference pattern would have us conclude from this that the concept of a chair is somehow insubstantial, and this would be an unpalatable result. But it is far from clear that such ordinary concepts are not governed by general principles. The concept of a chair may have vague boundaries. But even so, if, for sentences containing vague terms, truth amounts to super-truth, then 'Every chair is self-identical', for instance, would come out true. It would be a true and absolutely general principle about chairs.

A second objection along these lines runs as follows.[8] Some say that because it is impossible to quantify over all sets, no true

[7] I am indebted to Ofra Magidor for this formulation of the objection.

[8] Thanks to Gabriel Uzquianu for this objection.

absolutely general propositions about sets can even be expressed. Yet it would be folly to conclude from this that the notion of set is an insubstantial concept. This objection also does not convince me. First of all, it is a controversial thesis that it is impossible to quantify over all sets. For one thing, one wonders how by the lights of this position itself the thesis could possibly expressed: what does the universal quantifier in 'it is impossible to quantify over all sets' range over? Even if this problem can be overcome, the situation is relevantly different from the case of the notion of truth. In the case of the notion of truth there was no problem in *expressing* absolutely general laws of truth; it was just that none of them were true.

This takes us to a more principled response to the worry about the structure of the argument for inferential deflationism. The inference from the absence of general principles about truth to the absence of an essence of the concept of truth is to be seen as an instance of inference to the best explanation rather than as an instance of (elliptic) deductive reasoning. It seems that the absence of general laws of truth is best explained by the absence of an essence of truth. Considerations of best explanation are also what motivate me to conclude that truth does not have an essence rather than that truth does have a nature, but one which will forever remain elusive.

Thus, there is a deep and important sense in which truth is a light notion. This sense is captured by the thesis that truth is a property that cannot be described in terms of unrestricted general laws: there exist only restricted laws of truth. In this sense, truth differs from mathematical and scientific properties and relations (such as 'prime', 'force', and 'mass'). Thereby, truth is a property that lacks a fixed nature or essence. Of course, in a loose sense one may say that even if one inferentially articulates the workings of truth, one thereby describes aspects of the nature of truth. But this statement is palatable even for the deflationist, for a sufficiently light notion of nature is operative here.

PKF is not the only contemporary formal truth theory which meshes well with the present articulation of the doctrine of deflationism. The truth theories that are advocated in Soames 1999 and Field 2008 are in the same (partial) spirit as the truth theory that is advocated here. But by insisting that there is a sense in which the liar sentence has no truth value (Soames) or that there is a sense in which all the Tarski-biconditonals are correctly assertible (Field), they do not, in my opinion, embrace the Wittgensteinian picture that is defended here as fully as they should.

Tarski is often regarded as the grandfather of deflationism. Passages such as the following could be interpreted as betraying a sensibility to the lightness of truth:

> [W]e may accept [Tarski's] conception of truth without giving up any epistemological attitude we may have had; we may remain naive realists, critical realists or idealists, empiricists or metaphysicians—whatever we were before. [Tarski's] conception is completely neutral toward all these issues. (Tarski 1944, p. 362)

But Robert Musil, a contemporary of Tarski, sees more clearly when he explains how a similar difficulty and ambiguity arises when attempts are made to explicate 'Geist':

> …diesen fast stündlich wachsenden Leib von Tatsachen und Entdeckungen, aus dem der Geist heute herausblicken muß, wenn er irgendeine Frage genau betrachten will. Dieser Körper wächst dem Inneren davon. Unzählige Auffassungen, Meinungen, ordnende Gedanken aller Zonen und Zeiten, aller Formen gesunder und kranker, wacher und träumender Hirne durchziehen ihn zwar wie Tausende kleiner empfindlicher Nervenstränge, aber der Strahlpunkt, wo sie sich vereinen, fehlt.[9] (Musil 1978, Sect. 40)

It is no coincidence that Musil's great novel and Tarski's groundbreaking work on truth was created around the same time and in the same intellectual climate.[10]

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[9] '… this almost continuously growing body of facts and discoveries, from within which the Spirit must look outwards, when it wants to consider any question carefully. This body outgrows the interior. Innumerable conceptions, opinions, regulating thoughts from all places and times, all sorts of awake and dreaming brains pass through it like thousands of small sensitive nerve fibers, but the point of focus, where they join, is missing' (*my translation*).

[10] Thanks to Igor Douven, Martin Fischer, Ofra Magidor, Gabriel Uzquianu, and the members of the Luxemburger Zirkel for comments on versions of this article.

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