believe. More citation of other writers could have helped to clarify the nature of pluralism, and enabled Kekes to take advantage of their arguments in support. But a more important worry concerns one of Kekes' most significant contentions: that pluralists cannot hold that a person behaves unreasonably if he rejects moral values where the "cost of decency" to him is the sacrifice of other values which make his life worth living (cf. p. 165). On a more radical version of pluralism, "reason requires that the nonmoral value should override the moral one"; yet even on a more moderate version, "reason allows that the nonmoral value should override the moral one, but reason does not require it" (p. 170). Kekes opts for the more moderate position, yet some readers may find even this disturbing. (Can we in fact speak of a *morality* of pluralism at all, if moral values are just one set of values among others, with no special claim to precedence?) Clearly, to suppose that moral values have overriding force would be to retreat to a form of monism, which a committed pluralist will reject. But the question which the reader may want to ask is whether the denial of the overriding force of moral values is too high a price to pay for pluralism's other undoubted attractions.

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Truth, Vagueness and Paradox: An Essay on the Logic of Truth. By Vann McGee. Indianapolis: Hackett Publishing Company, 1990. Pp. x + 236. $30.00.

Until the early 1970s there was really only one fully articulated technical solution to the semantic paradoxes: Tarski's. Most logicians—and philosophers who were interested—subscribed to it, *faute de mieux*. Since the seventies, however, satisfaction with this solution has waned and, starting with the work of Martin, Woodruff and Kripke, we have seen numerous articulated technical solutions. These have been accompanied by various degrees of philosophical sophistication. McGee's book provides the most recent work of this kind. It is, perhaps, the most sophisticated technically, drawing on the theory of inductive definitions, various results in recursion theory, and techniques involving possible world semantics. Only specialist logicians will be able to understand all that is going on and appreciate the ingenuity of many of the details. (The non-specialist may also be thrown by some of the typos. For example, formulae of the form Π^1_j are pretty uniformly printed simply as ^1_j.) But the book also shows a high degree of philosophical sophistication: McGee is sensitive to the philosophical problems that beset technical solutions to the paradoxes, and which many others tend to sweep under the carpet.

The task that McGee sets himself is to show how to construct an adequate theory of truth for a formal language, the specification of which does not require the

essential use of a more expressive metalanguage. This constraint is important, since the ultimate aim of his project is to show how, by using these techniques, a natural language can formulate its own theory of truth; and the theorist of truth for a natural language has no other language in which to work. The early chapters of the book lay the ground for the material. Chapters three to six explain and give a critique of the solutions of Tarski, Kripke, Gupta and Herzberger. In the process the basic formal techniques and results on which McGee's own solution draws are developed. The next three chapters give McGee's own solution, with the longish chapter eight being the heart of the matter. In the final chapter McGee reviews what has been achieved, discusses how he envisages the techniques being applied to a natural language, and points out problems, some highly non-trivial, that need to be tackled before this can be done.

McGee's central idea is that truth is a vague notion, like baldness, and that a suitable account of vagueness will solve the semantic paradoxes. According to McGee, sentences with vague predicates fall into three classes: "sentences that the rules of our language, together with the empirical facts, determine to be definitely true; sentences that the rules of our language, together with the empirical facts, determine to be definitely not true; and sentences that are left unsettled" (p. 6). Formally, he cashes out this view as follows. We suppose that we are given a language all of whose terms are precise, with its intended interpretation, $\mathfrak{A}$. Consider some vague predicate, P, and a set of axioms concerning P, C, to be thought of as meaning postulates. The notion of definiteness can now be specified in a number of ways. McGee's preferred way is that a sentence is definitely true (false) iff it (its negation) is provable from C and the atomic facts of $\mathfrak{A}$ in a certain infinitary (classical) logic. The set of meaning postulates that McGee envisages for the truth predicate, T, are essentially such as to determine as true/false those sentences that are true/false at a certain Kripke fixed-point. Showing this to be a recursive set (and so a set that can be specified without reference to any stronger metalanguage) that will do the job is the formal heart of the book.

There is much more to the book than this, however; its content is exceptionally rich, and there is much that anyone can learn from it whether or not they accept its main contentions; there are clear expositions and sharp appraisals of others' views, elegant theorems of quite general interest, and shrewd philosophical observations on numerous issues. The book won the Johnsonian Prize in Philosophy in 1988; and deservedly so. It is required reading for anyone with a serious interest in the area.

In the rest of this review I want to concentrate on the question of whether or not McGee's solution to the semantic paradoxes is correct. First, there are important questions concerning how adequate McGee's account of vagueness is in general. For example, it makes the set of definite truths non-vague, which seems problematic. (See, e.g., M. Sainsbury, "Concepts without Boundaries", Inaugural Lecture, King's College London, 1990.) There is also the question of what justifies the use of classical logic when, it is agreed, there are statements without definite ontological truth value. (See, e.g., S. Haack, *Deviant Logic*, Cambridge

University Press, 1974, p. 58.) But let us pass these over and focus on the semantic paradoxes themselves.

Take the liar as an example, as the book does (whilst very carefully arguing that similar considerations will apply to other semantic paradoxes). By a fixed-point construction we obtain a liar sentence, λ, such that $\lambda \leftrightarrow \neg T\langle\lambda\rangle$ is (determinately) true (angle brackets indicate a suitable naming device). The T-schema assures us that for any ϕ, $\phi \leftrightarrow T\langle\phi\rangle$, and these plus classical logic are sufficient to establish a contradiction. McGee's approach faults the argument by rejecting the T-schema. The schema is guaranteed to hold only for those ϕ that have definite truth value, and λ does not.

How adequate a solution is this? To be an adequate solution, any proposal must give a rationale for blocking the paradox argument where it does (otherwise we could choose any step arbitrarily and deny it). I do not think that McGee's account does this, for two reasons. As far as I can see, it does not provide an explanation as to why the T-schema fails in general. Even according to McGee, there is flexibility in what one might reasonably take to be a meaning postulate for T (see p. 179). Why, then, is the T-schema not itself what it appears to be, namely, a meaning postulate for truth? Secondly, even if it is not, what grounds are there for supposing that the liar sentence itself is indefinite in truth value? McGee points out that $T\langle\phi\rangle$ inherits any vagueness in ϕ. But this does not help us in the case of λ. It might be pointed out that if λ has a determinate truth value, or the T-schema holds for all sentences, contradiction would arise. But obviously this is hardly the required independent argument.

The next question is to what extent McGee's theory is acceptable, even by his own lights. McGee argues at several points in the book (e.g., p. viii, pp. 174 ff) that one thing we want a truth predicate for is to allow us to endorse the assertions of others when we cannot do so explicitly (for example, because we do not yet know what they are). He also claims (pp. 174 ff) that his account of truth satisfies this condition on the ground that the rule of inference, ϕ iff $T\langle\phi\rangle$, is definite-truth preserving. However, this argument just confuses definite truth with assertion. Someone may assert a sentence, ϕ, which has no definite truth value. In this case I do not say something with the same logical force if I assert $T\langle\phi\rangle$. I would do this only if ϕ were logically equivalent to $T\langle\phi\rangle$, which, according to McGee, it is not.

Solutions to the paradoxes have a habit of avoiding contradiction at one place whilst generating it at another, usually by way of the very notions that are introduced to solve the first contradiction. Prima facie, McGee's solution suffers the same fate. Let D be the predicate "is definitely true", and consider the sentence "this sentence is not definitely true", i.e., δ, where $\delta \leftrightarrow \neg D\langle\delta\rangle$. Suppose $\neg\delta$; then $D\langle\delta\rangle$, and hence δ (by *Def*, see below). By reductio, δ, and so $\neg D\langle\delta\rangle$. But we have just deduced δ from what appear to be no more than meaning postulates for definite truth. Hence we have $D\langle\delta\rangle$. Contradiction.

McGee is well aware of the problem, and his discussion of it provides some of the most interesting philosophy of the book. A lesser theorist might attempt to

avoid the problem by relegating the offending notion, definite truth, to a metalanguage. McGee does not do this, nor can he, given his stated aim of showing how a single theory can (consistently) give an account of its own semantic notions. Using the same techniques that he used for T, he takes D to be a vague term, specifies a recursive set of meaning postulates for it and gives a theory of definite truth for the language of the theory itself. Contradiction is avoided by rejecting the claim that *Def*: $D\langle\phi\rangle \rightarrow \phi$ is a meaning postulate for D. To motivate this, McGee points out that D is a notion of provability, and that, surprising as it is, analogous principles (though they may be true) are not provable. Consider, for example, the principle *Prov*: $Prov\langle\phi\rangle \rightarrow \phi$ in a consistent axiomatic arithmetic, where "Prov" is the provability predicate for that theory.

McGee's formal account of definite truth is a priori somewhat suspect. After all, D is treated as a vague term, whereas provability in a certain system is anything but vague. But the situation is worse than this. The extension of D is the set of things that are provable from facts which are true and meaning postulates constituting a theory of truth, by a logic which is supposedly sound. If the meaning postulates are not true, then McGee's theory of truth is incorrect. If they are true then all their consequences must be true. Hence, anything in the extension of D must be true, i.e., $D\langle\phi\rangle \rightarrow \phi$ is true. So at least that part of the argument above establishing δ is correct. Now, we cannot establish δ in McGee's system (at least if it is consistent, since otherwise we would be able to prove both $D\langle\delta\rangle$ and $\neg D\langle\delta\rangle$). Hence we see that we have conceptual resources concerning definite truth that outrun McGee's formal system. As the analogy with *Prov* suggests, the situation here is very similar to that concerning Gödel's Theorem: if we insist on consistency, then we are forced to recognise that our ability to establish formulae outstrips any given axiomatic system. The notion of definite truth is not, therefore, captured by a recursive set of meaning postulates as McGee requires.

The incompleteness of McGee's system can be seen another way. It is impossible to give an adequate formal account of definiteness, at least if one wants to remain consistent. There can be no theory which entails $D\langle\phi\rangle$ for precisely those ϕ that are provable and $\neg D\langle\phi\rangle$ for those that are not; or, since δ is not provable, we would then have a proof of $\neg D\langle\phi\rangle$, i.e., a proof of δ. McGee is well aware of this (p. 196). He even points out (p. 207) the stronger fact that there can be no theorems of the form $\neg D\langle\phi\rangle$ at all. He defends his position as follows: we would not want a formal theory of definite truth to entail things of the form $\neg D\langle\phi\rangle$. For vague terms being what they are, it is always possible to make them more precise by adding further meaning postulates, in which case things will become definitely true that were not so before. We would not want a theory of definite truth which rendered such precisification inconsistent. This argument strikes me as simply equivocating between what is, as a matter of fact, a definite truth, and what would be definitely true however we were to precisify. We might not want theorems of the form $\neg D\langle\phi\rangle$ if D is to represent the latter notion. But the objection was to the effect that it is the former that is not consistently expressible in the theory. Defi-

nite truth is, after all, definite truth with respect to the meaning postulates, C; and it is D(C) that cannot be adequately represented.

What we have seen is that McGee ultimately maintains consistency only because there are notions crucial to his solution that cannot be represented adequately in the theory. Exactly the same is true of other formal solutions to the paradoxes (see G. Priest, *In Contradiction*, Dordrecht: Nijhoff 1987, Ch. 1). McGee's solution ultimately falls, therefore, to the same kind of objection that felled previous accounts.

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Warrant and Proper Function, by Alvin Plantinga. Oxford: Oxford University Press, 1993. Pp. xii + 243. H/b £32.50, P/b £15.95.

Alvin Plantinga has long been recognised as one of the pre-eminent metaphysicians and philosophical theologians of our time. This book is the second volume of a trilogy: the first, *Warrant: The Current Debate*, surveys the major contemporary Anglo-American schools of epistemological thought (and finds them all wanting); the third, *Warranted Christian Belief*, has yet to appear. Plantinga has previously secured a place in the epistemological firmament as a pre-eminent exponent of Reformed Epistemology. The present volume and its two companions raise larger issues and promise to significantly broaden the scope and influence of this epistemological project.

For Plantinga, "warrant" denotes that which must be added (in sufficient measure) to true belief to yield knowledge. The more traditional terms, "justification" and "evidence", are, in his view, too closely associated with classical foundationalism and its allegedly deontological conception of epistemic status.

The keystone in Plantinga's epistemology is the notion that warrant accrues to beliefs insofar as they are produced by cognitive mechanisms, aimed at truth, which are functioning properly in an environment for which they were designed. This conception of warrant calls for the idea that knowers function (more or less) in accord with some design plan—a plan which assures that, in a suitable environment, they will function so that, among their various, sometimes competing interests, that of acquiring true beliefs and avoiding false ones will with sufficient reliability be served. That is, the design plan must be (with respect to cognitive functioning) a good one, if the beliefs it generates are to have sufficient warrant to count as knowledge.

Given Plantinga's reliabilism, one might expect that degree of warrant will be pegged to degree of proper functioning, but here there is a bit of a surprise. Beliefs come with associated degrees of confidence, which Plantinga—in radical contrast to the classical foundationalist—characterises as merely a subjective