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Procedural semantics and its relevance to paradox. (English. English summary)

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The author's main thesis in this paper is that the only way to make sense of semantic paradoxes like the liar and Curry's paradox is to adopt, at least for properties like truth, a newly developed conception of procedural semantics.

The type of procedural semantics he has in mind treats the truth of propositions as being determined algorithmically by the outcome of a procedure: a test, often (but not always) performed on certain physical objects.

If procedures are what eventually determines predication, then the principle of bivalence is false in a special way: the certainty that some object be either P or not P is taken away by the possibility that the procedure, for a variety of reasons (e.g., the algorithm is caught in a loop), fails to return an outcome. This third possibility is the reason why procedural semantics is, in the author's opinion, in a better position to deal with liar sentences and the like.

To see where a procedural approach to semantics leads, in particular in relation to the options for dealing with the liar and Curry's paradox, the author first discusses in Section 2 what he calls *closed procedural semantics*. Here the presumption is that procedures always terminate. With the help of preliminaries developed in Section 3, it is verified that closed procedural semantics yields classical logic, but the truth-predicate cannot be made to fit in any straightforward way into this scheme.

In classical logic, one can use seemingly legitimate deductions to derive blatant falsehoods. As the author points out, having to choose between truth and classical logic is for many a logician quite a conflict of loyalties. It has, however, long been appreciated that the conflict must be faced. Some choose bending truth, whereas others bend classical logic. In Section 5, it is shown that *open procedural semantics*—a version of procedural semantics in which the presumption that every (semantic) procedure will always return an outcome is dropped—can accommodate truth in its naive form without thereby inviting either of these two paradoxes. But in this system deductive reasoning is gravely impoverished.

In the final section, the author argues that “despite its positive ring, ‘open’ semantics is a barren land, where no logician should want to stay longer than necessary. It is its existence which is interesting, not its content” (p. 23). He then advocates a more natural and pragmatic solution consisting of simply purging the language of problematic utterances, which are problematic in the way that the liar and Curry sentences are. And so, in the dilemma mentioned above—bending truth or bending classical logic—he leans towards the first horn after all.

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