

Deviant Logic, Fuzzy Logic: Beyond The Formalism. By SUSAN HAACK. Chicago, Ill.: University of Chicago Press, 1996. Pp. xxvi, 291.

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This book has three main parts. The first, longer, part is a reprint of the author's *Deviant Logic*, which initially appeared as a book by itself in 1974 (Cambridge University Press). The second and third parts include reprints of five papers originally published between 1973 and 1980. Three of them focus on the nature and justification of deductive reasoning, which are also a major concern of *Deviant Logic*. The other two are on fuzzy logic, and make up for a major omission of *Deviant Logic*.

Concerning the first part, I have nothing new to say, except that I do not quite see the point of a re-edition in this format. *Deviant Logic* was well received when it first came out, and justly so. It included a good (and overdue) survey of its subject. And it defended a substantive philosophical thesis, namely, that classical logic is revisable, but that none of the popular non-classical systems is so well motivated as actually to force revision. Unfortunately, it seems to me that neither of these merits has survived well through the years. As a survey, *Deviant Logic* is admittedly out of date, and the supplementary bibliography at the end of this 1996 edition is not enough to make up for the extraordinary proliferation of nonclassical logics in the past two decades—paraconsistent logics, linear logics, substructural logics, nonmonotonic logics, innumerable other logics for AI and computer science. Even among those forms of deviance that were extensively discussed in the 1974 edition, there are some—such as vagueness—whose account is now seriously defective. On the other hand, as a defense of a philosophical position, *Deviant Logic* retains its significance. But to the extent that Haack's position combines a commitment (in principle) to the revisability of classical logic with a reluctance (in practice) to endorse any deviant system available on the market, to that extent the thesis itself calls for an update. The 1996 introduction goes a few steps in this direction. There is a brief dismissal of such new forms of

“Logical Extremism” as dialethic logic and “feminist logic”. And there is, by contrast, a suggestion that some revision of classical logic might eventually come from “the efforts to achieve a better understanding of the propositional attitudes and modality, on the one hand, and explorations and re-interpretations prompted by the desire to overcome the restriction of quantification to individual variables, on the other” (xvii). But such remarks are dropped without elaboration, and the light they shed on Haack’s views is barely enough to make one wish she had gone on and said more.

I have the same complaint about the two essays on fuzzy logic, which are included in the volume precisely to fill in at least one of the gaps of *Deviant Logic*. In ‘Do We Need “Fuzzy Logic”?’ (1979) Haack argues that fuzzy logic is “methodologically extravagant and linguistically incorrect”. The argument for methodological extravagance (237ff.) is that fuzzy logic produces no net gain in simplicity compared to classical logic: it introduces complexities of its own, and it still requires the imposition of artificial precision. I find that this argument continues to apply, in spite of the work of an entire generation of modern fuzzy logicians. One may also agree that the commercial success of fuzzy technology does nothing to substantiate the philosophical bona fides of fuzzy logic. But the crucial argument here is the one for the linguistic incorrectness of fuzzy logic (240f.), and this argument is disappointing. Haack’s line is that although some adverbial modifiers suggest that ‘true’ is a predicate of degree, they can be better explained by “attending more carefully to the subject of which ‘true’ is predicated.” Thus, the locution “‘*p*’ is partly true” should be interpreted as “part of ‘*p*’ is true”; “‘*p*’ is approximately true” as “‘approximately *p*’ is true”; and so on. Now, this sounds all right—but where is the evidence? The 1979 article says that “this is only a conjecture, and needs more detailed work” (242). Seventeen years later it is legitimate to ask whether any such detailed work has been done, and with what results. The same conjecture is put forward almost verbatim in the other fuzzy logic paper reprinted in the volume (‘Is Truth Flat or Bumpy?’, 1980); but there too it is stated without argument. Why doesn’t Haack address this crucial point in the new brief introductory note to these essays?

With all this, it seems to me that the most interesting part of the book—as it stands today—is to be found in the essays on the nature of deductive reasoning. Especially ‘The Justification of Deduction’ (1976) is very much worth a reprint (even if it has already been reprinted twice elsewhere). This essay contains an original argument to the effect that deduction cannot be jus-

tified anymore than induction can. An inductive “justification” of a deductive argument (from intuition of the validity of some of its instances) would be too weak, just as attempted deductive justifications of inductive arguments would be too strong. And, more significant, a deductive “justification” of deduction would be no better than an inductive “justification” of induction. One cannot justify the induction rule

IR From: m/n of all observed F s have been G s
to infer: m/n of all F s are G s

by saying that it is self-supporting:

IR' IR has usually been successful in observed instances.
IR is usually successful.

Likewise, one cannot justify, say, the deductive rule of *modus ponens*

MP From: A and $A \supset B$
to infer: B

by arguing that it is truth-preserving. For such an argument would have the form:

MP' Suppose that ‘ A ’ and ‘ $A \supset B$ ’ are true.
By the truth table for ‘ \supset ’, if ‘ A ’ and ‘ $A \supset B$ ’ are true, then ‘ B ’ is true too.
‘ B ’ is true.

And this is itself an instance of *modus ponens*. The problem is not that such “justifications” are straightforwardly question-begging, for they are not. Rather, Haack’s point is that they are indiscriminating. If MP' were a legitimate justification of *modus ponens*, one could with equal justice vindicate an invalid pattern such as *modus morons*

MM From: B and $A \supset B$
to infer: A

by the following argument:

MM' Suppose that ‘ B ’ and ‘ $A \supset B$ ’ are true.
A fortiori, if ‘ B ’ is true, ‘ $A \supset B$ ’ is true too.
By the truth table for ‘ \supset ’, if ‘ A ’ is true, then if ‘ B ’ is true, ‘ $A \supset B$ ’ is true too.
‘ A ’ is true.

Of course the last step of MM' is deductively invalid (being itself an instance of *modus morons* from lines 2 and 3). But this cannot be the reason why this

argument is worse than MP', for the deductive status of *modus morons* and *modus ponens* is precisely what is at stake.

This issue is taken up in 'Dummett's Justification of Deduction' (1982), which is a discussion of a 1973 paper by Dummett. For Dummett, the deduction and induction justification problems are not truly symmetric: the justification of induction requires a "suasive" argument (which IR' is not), whereas deduction only needs an "explanatory" argument (and MP' is such). If Haack is right, this distinction collapses. For although we may already believe deduction to be justified, we still need to be persuaded; otherwise any universally accepted belief would equally be justified. And if we need to be persuaded, then a circular explanatory argument is not sufficient; otherwise *modus ponens* and *modus morons* would equally be justified. Indeed, to go back to the main concern of *Deviant Logic*, an explanatory justification would work for the deductive principles of classic logic as well as for its deviant challengers—and that would not do.

In my view the truly interesting ingredient of this book lies precisely in the interplay between these two leitmotifs—the justification of deduction and the revisability of logic. From this perspective, Haack's arguments enjoy a degree of abstractness that makes them as engaging and worthy of serious consideration today as when they first appeared. Here *Deviant Logic*, *Fuzzy Logic* will be of relevance to the continuing debate on the philosophy of logic. The timeliness suggested in the title, by contrast, may be seductive, but I find it misleading.