6. The classic exchange in this regard involves Nozick's attack on Williams's celebrated idea of equality. A distribution of medical care on the strict ground of ill-health would be an ideal of quality, Williams claims. Anything else, e.g., discriminating on the basis of ability to pay, would be irrelevant, irrational. (See Williams, B., "The Idea of Equality" [1962] in P. Laslett and W.G. Runciman, eds., *Philosophy, Politics and Society*, 2nd Series, Oxford: Blackwell, 1964, 110-131.) "Need a gardener allocate his services to those lawns which need him most?" Nozick snaps. (See Nozick, R., *Anarchy, State and Utopia*, New York: Basic Books, 1974, 234.) One does not amputate a wealthy man's healthy leg. But even "General" hospitals discriminate (prioritize?) in terms of teaching/ research needs. These can be weighty (epidemics, terminal illnesses, personnel needs in disadvantaged areas). Sprucing up the Rose Garden (of the White House) may involve matters (national image, visting dignitaries) that may outweigh the needs of neglected lawns in Washington, D.C. ghettoes. Do parents act improperly when they spend time with their children, totally "neglecting" the orphan next door? Williams simply *assumes* a basic, relevant need not defeasible. Students need to understand conflicts between relevant factors as well as the significance of matters not immediately at stake.

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AN INTRODUCTION TO LOGIC, 2nd edition.
by Morris R. Cohen and Ernest Nagel

Review by Don S. Levi

I have my doubts about the value of teaching formal logic, but I don't have the same doubts about teaching this text, which first appeared in 1934. Even if it has limited value as a logic text, and even though it first appeared more than sixty years ago, it is worth teaching because of the philosophy in it, which is done by two of the most distinguished American philosophers of the twentieth century.

This text is not recommended for use in teaching logic. Some of its topics are of interest to philosophers, but not to many logic teachers: the ontological status

of fictional characters, the determinants of meaning, the liar paradox, different analyses of probability, and the principle of sufficient reason. It does include many familiar topics in logic: the square of opposition, the categorical syllogism, valid argument forms and equivalences in categorical and propositional logic, set theory and the logic of relations, and the mathematical theory of probability. But the authors have almost no interest in pedagogy; their interest is in getting things right, not in anticipating problems students might have with the lessons. There is a lengthy introduction by the editor, John Corcoran, which rehearses their lessons and offers corrections when needed, but it does not improve on their pedagogy, and neither do the exercises which he has added, many of which are multiple-choice.

Cohen and Nagel's approach is different from that of many writers of logic texts. For one thing, they have little interest in what Quine calls "algorithmic facility". Like *Methods of Logic*, this text is interested in implications between statements or propositions. But, unlike Quine's text, it does not introduce decision procedures even for Propositional Logic. Although I question whether algorithmic techniques have any practical value when it comes to argumentation, I suspect many teachers would find their absence disappointing.

For another thing, Cohen and Nagel have an overall argument. Especially interesting philosophically, even if not welcome when teaching logic, is the argument they give for why Mathematical Logic is the best means for providing, what ordinary language cannot provide, "accuracy and subtle insight into the nature of things" (p. 18).

Their overall argument is that since the experiences which language intends to express are unlimited, "while a language employs only a finite number of fundamental linguistic elements, ... it follows that every language, as we know it, must be based upon a far-reaching classification or categorization of experience ..." (p. 117). So, they say, everyday language is adequate only for certain purposes. However, mathematical methods are applicable "to any ordered realm whatsoever, and in particular to the relations between classes and between propositions" (p. 112). So, Mathematical Logic, because it is "the study of the most general, the most pervasive characters of whatever is and whatever may be" (pp. 185-6), can provide—what everyday language cannot provide—an accurate insight into the nature of things.

Their assumption that the more general or abstract a statement is the more likely it is to capture reality explains their emphasis on "laws of thought". They say that these laws cannot be proven, but "are confirmed and exhibited in every inference we draw, in every investigation which we draw to a close. They are discovered to hold in every analysis which we undertake" (p. 187). Their position on the epistemological status of laws of thought is also applied to the foundational problem of how the axioms or other claims upon which evidential relationships ultimately depend can be justified. Their resolution of this problem is to insist that these axioms, like the laws of thought, are somehow confirmed in the infer-

ences that we make from those axioms, although they do not really explain or illustrate how this confirmation is supposed to work.

Although there are problems with their argument, I prefer to focus on what I take to be a problem concerning their subject matter. That everyday language has a basis, that its basis is in the classification or categorization of experience, or that these everyday classifications are not adequate for getting at the nature of things, is highly questionable. So, too, is the assumption that there is a nature of things and that the more abstract and general a system of classification, i.e., the more mathematical it is, the more accurately it reflects that fundamental structure or order of things. These are problems that do not arise in connection with the lessons in other logic textbooks, most of which do not have an overall argument. However, there is an underlying problem with the propositions they discuss which also arises with the propositions discussed in other logic textbooks.

I am referring to the absence of any indication that the propositions being studied, which constitute the real subject matter of logic, are to be understood as actually being spoken or written by anyone. Cohen and Nagel actively discourage any interest in rhetorical considerations on the grounds that by contrast with the "science" of logic, rhetoric is concerned with "arguing so as to produce a feeling of certainty" (p. 19). Not only is it a misrepresentation of rhetoric to characterize it as concerned with "psychological matters", such as how feelings of certainty are produced, but by dismissing rhetoric they ignore such considerations as what prompted the argument, what is at issue, what is being emphasized or ignored, and much else that a critical reader relies on to interpret what is being argued.

Moreover, their conception of a (disembodied) proposition seems to cause them problems when they talk about examples (outside of mathematics or science). Consider their discussion of generalizations. They say of everyday generalizations, such as "walking or taking some conveyance will get us to our destination", that they are not "universally true" (p. 16). However, when they discuss universal categorical generalizations, they treat them as exceptionless as their mathematical counterparts, thereby seemingly ignoring or contradicting what they said earlier.

The resolution of this apparent inconsistency underscores how reliant they are on the concept of a body of knowledge as a set of disembodied propositions. The artificial examples of universal generalizations, such as "All citizens are patriots" and "No politicians are rancorous", have been devised by them to be understood as allowing for no exceptions, and should be understood accordingly. So, although there is no inconsistency, the reason for this is that the examples of generalizations that they are considering are artificial. No doubt formalization would not be possible without such generalizations, but they should be distinguished from everyday generalizations.

This problem of artificiality also arises in connection with the "laws of thought". For example, according to the law of excluded middle, either "She is

mature" or "She is not mature" must be true. Cohen and Nagel do not cite an example of when or how this law might actually be assumed. They seem unaware that they have made an artificial application of the law because that application seems so obviously true and because their conception of reasoning or argument as axiomatic requires the assumption of just such a truism.

When I think of actual talk, for example, of maturity, the law seems false. "Judy is mature. Judy is not mature." I am talking about my sixteen year old when explaining to my brother about how difficult it can be to relate to her. "She is so grownup and still so childish." I do not mean grownup in some respect or childish in others. I am not talking about respects at all. Nor am I saying one thing on one occasion, and another thing on another. I am saying on various occasions that she is both, and I do not seem to be equivocating. I would be equivocating, however, if my claim was intended to be an instance of the law of excluded middle, which is evidence of its artificiality.

Cohen and Nagel explain away such an apparent exception to the law as arising because 'mature' "may denote a vaguely defined character, so that it may be difficult to draw a line between maturity and the lack of it" (p. 185). They insist that we must draw the line, either by making clearer what is meant by 'maturity' or by agreeing on a standard. No doubt they are right when it comes to the truism that they are generating, but it is difficult to understand why it also must be done outside of the classroom or study when, for example, I express my frustration about dealing with Judy.

Let me conclude by indicating how I think their book might be of use as a text. I question the practical value of lessons in Mathematical Logic as far as the critical analysis of actual argumentation is concerned. However, their book is not really about argumentation, any more than Quine's text demonstrates any interest in it. What it is about is epistemology: a body of knowledge is conceived by them as consisting of a set of propositions that stand in evidentiary relationships to one another, and the problems with their conception of knowledge are worth discussing, especially since so many philosophers, including Quine, share that conception. That is why I think their book is worth teaching—because it is a work of philosophy.

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