Philosophy of Logic by Willard Van Orman Quine Review by Corcoran

Article *in* Philosophy of Science · January 1972

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machine be brought about by processes functioning in ways similar to the neurological structures of the organism. But (D) depends on there being adequate theories of behavior and neurological structure. In holding (T) Fodor is denying that there need be adequate neurological theories. However, an early contention of Fodor's that a constraint on psychological theories is that the neurological structures of an organism must be capable of being parsed in ways demanded by a psychological theory, is incompatible with (T).

At this point Fodor would reply that parsing of anatomical characterizations of neurological structures proceeds in light of psychological theories. Although this may be true for some neurological structures it does not appear to be so for all organic structures. Even so, Fodor is open to the objection that this collapses weak and strong equivalence with a vengeance.

In the Introduction, Fodor is aware of this point, and expresses his own difficulties over the concept of equivalence of functional structures: "But we cannot . . . require that every effect of the neuron should also be an effect of the relay: that would be to require that the relay be a neuron. What, then, is involved in requiring that the relay replicate precisely those of the effects of the neuron that involve its function and no others?" (p. xviii). The point to be urged against Fodor here is that these difficulties are just those that prevent acceptance of (T).   *T. C. Chabdack, University of Waterloo.*

WILLARD VAN ORMAN QUINE. *Philosophy of logic.* Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1970. xvi + 109 pp. $2.25.

This book is best regarded as a concise essay developing the personal views of a major philosopher of logic and as such it is to be welcomed by scholars in the field. It is not (and does not purport to be) a treatment of a significant portion of those philosophical problems generally thought to be germane to logic. It would be easy to list many popular topics in philosophy of logic which it does not mention. Even its "definition" of logic—"the systematic study of logical truth"—is peculiar to the author and would be regarded as inappropriately restrictive by many logicians. Although the book does contain much in the way of authoritative statement of what is generally regarded as objective factual material, it also contains many clear and forthright statements revealing the author's attitudes, feelings, and motivations. Another feature which lends an essay-like tone to the book is its scarcity of bibliographical references; especially to writers other than the author.

The global organization of the book is tight and significant. The central chapter, of the book's seven, deals with its central theme, logical truth. Here the author discusses several alternative but extensionally equivalent definitions of logical truth and opts for a variant of his own "substitution version." The two preceding chapters deal respectively with grammar and with the concept of truth in formalized languages—and quite appropriately so, especially in view of the author's contention that logical truth is not merely linguistic in nature but rather hinges on a combination of linguistic factors (grammar) and reality (via truth). The first chapter deals largely with two issues: the comparison of logical generalizations to those sought in other sciences and the reasons for regarding sentences rather than propositions as carriers of truth-values. The two chapters following the central chapter defend the class of logical truths against additions and against deletions and other changes, respectively. The final chapter treats of "the ground of logical truth." Thus in seven chapters there is a three chapter long preparation for defining logical truth, a central chapter on definitions of logical truth and a three chapter long treatment of various questions about logical truth.

Philosophers of logic will lament the brevity of the final chapter, "The Ground of Logical Truth," which spans less than eight pages. Here the author gives essentially three arguments for his own view and they are all directed against Carnap's "linguistic" theory which holds that logical truths are contentless (i.e. carry no information) and that they are grounded purely in language. The first argument is based on the author's own definition of logical truth in terms of grammar and truth. (Truth links language to nonlinguistic reality and, therefore, logical truth rests on other than purely linguistic ground.) Choice of definition of logical truth, even from among "extensionally equivalent" alternatives, is no inconsequential matter in philosophy of logic and it is to the author's credit that he admits (pp. 53 and 55) limitations of his own choice. In the reviewer's opinion, however, these limitations deserve a more extended discussion (cf. Hinman, Kim and Stitch, "Logical truth revisited," *Journal of Philosophy* 65 (1968), pp. 495–500). Although the author probably would not accept this formulation it could be said that the main issue here is whether logical truth is properly explicated in terms of grammar and truth *in this world* or whether a proper explication requires reference to "possible worlds." The second

argument rests on a reasoned claim that no clear concept of information is available for sub-stantiation of the view that logical truths carry no information. In the reviewer's opinion this argument is marred by omission of reference to Carnap's "content of a sentence." According to Carnap, the content of a sentence is the set of "possible worlds" which falsify the sentence. Thus, logical truths, having no countermodels, are contentless. The third argument comes directly from the author's familiar holistic view that every experiment tests the whole fabric of science from logic and mathematics on out to the most purely "empirical edges." On this account logic is supported by observation.

In regard to style one may note that the book is rich in metaphorical and sometimes even cryptic passages one of the more remarkable of which occurs in the Preface and seems to imply that deductive logic does *not* warrant distinctive philosophical treatment. Moreover, the author's sesquipedalian performances sometimes subvert perspicuity.

This book is published in the Foundations of Philosophy series. Preceding the Preface of each book in the series one finds an editorial preamble which seems to imply that the books are intended for college classroom use primarily at the introductory level. In the reviewer's opinion this book is not suitable for use at that level—it is too compactly written, too metaphorical, and too technical and it presupposes both a level of knowledge and a level of sophistication rarely found in undergraduates, let alone in freshmen or sophomores.

Below are several comments of a technical or mechanical nature included as an aid to those intending to read this book carefully. From the point of view of an experienced logician many (if not all) of them should be regarded as inconsequential oversights at worst. From the point of view of a college teacher using the book in an undergraduate course these and similar items seriously detract from the usefulness of the book.

(*a*) On p. 17 the distinction between lexical items and particles first appears. This distinction is somewhat like the distinction between nonlogical or content symbols and logical or gram-matical symbols except that in the author's first-order grammar (pp. 22–23) the lexicon contains the predicates (predicate letters) and the letters 'x', 'y', and 'z', while the list of particles includes the accent (for constructing additional variables) and the logical constants. A few pages later the distinction comes up for reconsideration in a section titled "Criterion of lexicon" the second and third paragraphs of which *seem* to offer the expected syntactical criterion. In the next paragraph the apparent criterion is seen to rule 'x', 'y', and 'z' into the lexicon as expected but then a *different* reason is given for counting the predicates as lexical items and, indeed, on the apparent criterion the predicates in the given grammar would seem to be counted as particles contrary to the author's stated classification. Moreover on p. 79 the question arises whether 'believes that' and 'wishes that' should be counted as lexical. Here one would expect a decision based on syntactical criteria but one finds instead that they are relegated to the lexicon on the grounds that they are "too colorful" to count either as "pure logical particles" or as "gramma-tical particles." Whether the author even intended to offer a "criterion of lexicon" is not clear from the text. In any case, the criterion of lexicon has importance within the framework of the book and it deserves more adequate treatment.

(*b*) Commonly encountered in semantics are two quite distinct but kindred relations between sentences and sequences of objects in the universe of discourse (cf. Hatcher, W., *The Foundation of Mathematics*, Philadelphia, 1968, pp. 27 and 66). The one holds or fails between m-adic open sentences and n-tuples only when $m = n$ and is not defined otherwise. The other is defined between any sentence whatever and any sequence whatever. Moreover, the two relations generally do not agree even where they are both defined. In the space of four pages (36–39) the author uses one phrase ('satisfied by') for both *and* uses two phrases ('true of' and 'satisfied by') for one.

(*c*) The first of the relations involves associating objects in the n-tuple with variables which occur free *in the sentence* whereas the second involves associating the n objects of the n-tuple with the alphabetically first n variables regardless of whether *any* of them occur *at all* in a given sentence. The author incorrectly uses the phrase "variable . . . in the sentence" twice on p. 37 in connection with the second relation.

(*d*) Again in connection with the second relation the author states, "This formulation allows the length of the sequence to exceed the number of variables in the sentence. The things in the sequence corresponding to missing variables simply have no effect" (p. 37). The first of these two sentences, though true strictly speaking, is not to the point. It is not the number of variables (having free occurrences) in the sentence which is at issue but rather the concern is with (the number of) the alphabetical order of the variable (if any) which is alphabetically last among those having free occurrences in the sentence.

(e) According to the author's stated principle (p. 80) for dividing material between chapters 5 and 6 the former considers possible additions to the class of logical truths and does not concern ". . . any possible inroads on the firm areas . . ." whereas the later concerns ". . . the possible abrogation of the orthodox logic . . . in favor of some deviant logic." "Branched quantification" (pp. 89–91) and one kind of "substitutional quantification" (pp. 93–94) are both treated in Chapter 6 although both provide only possible additions to the class of logical truths.

(f) Several terms used in technical senses are not explained. Among these are: 'weak' and 'strong' as applied to relations, 'equivalence relation', 'standard grammar', 'pure logical particle', 'grammatical particle', 'genuine identity', 'vacuously satisfies', 'rich enough for elementary number theory', 'identify . . . with . . .', 'logical calculus', 'infinite theory'.

(g) The reviewer noticed that in formula (4) on page 90 '$y(fx)$ (gy)' should read '$(fx)z(gz)$'.

(h) The author suggested the following emendations: page 38, line 11, read '(1, 1)' for '(l, y)' and delete the rest of the sentence. Page 52, line 29, read 'sentence' for 'closed sentence'. Page 59, line 27, read 'has' for 'had'. *John Corcoran, State University of New York at Buffalo.*

ERWIN STRAUS, MAURICE NATANSON, and HENRI EY. *Psychiatry and philosophy.* New York: Springer Verlag, 1969. xii + 161 pp. np.

These are English versions of three essays which formed part of a much larger German collection, titled *Psychiatrie der Gegenwart*, and two of them have here been translated from their German and French originals. The common concern of the three contributors is what may be called foundations of psychiatry, i.e. the conceptual framework within which mental illness is to be understood. All three make a characterization of the normally functioning mind their point of departure. Obviously, enquiries such as these are not only of theoretical interest but can have important implications for new approaches to treatment and cure. I shall deal with the essays one by one.

Erwin W. Straus is a Research Consultant and Professor of Psychiatry who at the same time is deeply committed to the philosophy of Edmund Husserl. He writes from a phenomenological viewpoint. After rejecting Heidegger's philosophy of being (as adopted for psychiatry by Binswanger and other "*Daseins*" analysts) because it pays insufficient attention to man's existence as a corporeal and natural creature, he draws the distinction between mental illness and mental health in terms of a failure in communication. Communication between two persons, he points out, is mediated by the sensible, particularly the visible world that is common to them, i.e. by a third thing which he terms *Allon* (the other). Community between minds is only possible in contraposition to the *Allon*; it therefore depends (logically, it would seem) on the relationship of each individual to the *Allon*, and that relationship, Straus adds, is in turn rooted in man's existence as a motile being. "As motile beings we enter into opposition to the *Allon* to which we nevertheless remain bound." The connection with the *Allon* from which we have sepraated is established by sensory experience. But why motility? Because the separation from the *Allon* is here identified with man's rising from the ground and his ensuing distantiation. "Only a creature capable of rising from the ground and thereby contraposing itself to things can establish sensory ties with them. . . . Consciousness is the natural privilege of motile creatures." But motility, it seems to the reviewer, is neither a necessary nor a sufficient condition of consciousness. Persons who lose motility do not thereby lose sensibility or consciousness nor are all motile beings credited with the possession of it (e.g. electrons, stars). It is of course possible that, as a matter of fact, only brain structures that allow for motility are brain structures that allow for sensation and consciousness, but for all we know, that conjunction would still be a contingent one.

On the other hand, Straus seems right in saying that interpersonal relations depend on the background of the relation of each of us with what he has termed the *Allon*, the object-world at large from which we have differentiated, and which remains constant through all the variations of our I-thou relationships. But the boundaries of the *Allon*, Straus explains, are displaceable: "In somatic pain we feel the pressure of the *Allon* overpowering us, in sickness our own body is alienated from us", and this is paralleled in mental pathology by the experience of intruding alien influences on the one hand, and depersonalization and derealization on the other. Accordingly, it is the shifting of the *Allon* boundaries either way, and the consequent loss of distantiation which upsets the primary orientation and tends to destroy the articulated structure of an objective order. Having linked sensible experience with the I-*Allon* relation, Straus is enabled to account for the various stages of the symptomatic psychoses in terms of its shifting boundaries, e.g. for sensory aphasias, for the failure to coordinate movement and gaze, the inability to