problem of universals, a criterion for synonymy, and the freewill vs. determinism debate.

Where these discussions do occur, they are interesting, informative and admittedly abbreviated. It is difficult to estimate whether the discussions are so brief as to generate confusion or are indeed adequate to encourage some students to pursue the topic in detail.

(iv) The presentation of normal and canonical form is the most rigorous of K. and K.'s chapters. The justification for using this procedure, and not a method of natural deduction, is essentially that it is an easier, less burdensome routine for students. The claim must be one which K. and K. can defend from their own experiences, but their case remains unconvincing. My general impression of their presentation of normal and canonical form is that it is too manipulative, a type of shuffle without an exactly prescribed format. Nor am I convinced that it is an easier method for the student. For example, on pages 222-225 K. and K. need over three pages of text to use their routine for determining the validity of their sample problem; using a reductio technique with standard natural deduction procedures, the problem is a modest one—perhaps 16 lines. An additional item dissuades me from K. and K.'s use of the canonical form procedures; the text introduces and uses a method of natural deduction when discussing sentential logic—would it not have been preferable to continue it?

(v) There are some more specific but easily alterable difficulties with the text:

a) There is no discussion of why an existential quantifier ranges over a sign of conjunction and not an implication sign (when translating existential categorical sentences).

b) K. and K. translate proper names with predicate letters so that "Harry is smart" is rendered as "(x) (Hx⊃Sx)" rather than the typical method of ascribing the property to a proper name sign without quantification (*e.g.,* "Sh"). As a result, K. and K. provide no explanation of why "Harry is smart" would not be properly translated with an existential rather than universal quantifier. (*e.g.,* "(∃x) (Hx . Sx)")

c) The supplementary readings are very uneven. If a student's interest were raised by K. and K.'s discussion of some problem or other, it is not clear that a novice in philosophy could use the cited supplemental materials with any benefit. In most cases the readings far outdistance where the students would be. For instance after the chapter on predicates, students are sent to Frege, Hempel, Loux, and Russell. A heavily annotated bibliography of readings or even recommendations to read selected essays in the *Encyclopedia of Philosophy* would have been more useful.

If a proof of a logic text is in the pudding of aiding readers to analyze arguments, then using K. and K. with its atypical rigor and canonical method may well serve as an interesting experiment. But the virtue of the book is that it takes seriously the student's curiosity in exploring problems relating logic to other areas of conceptual geography.

Corrigenda

p.90 (lines 8 & 9) ⊃ not "⊂"
p.116 (line 1) ⊃ not "⊂"
p.203 (line 15) note, not "not"
p.204 (line 11) A negation sign in front of the entire remark plus appropriate punctuation is needed.
p.232 (last line) sentential not "sentimental"

— *Donald W. Harward*

HENRY C. BYERLY. *A Primer of Logic.* New York: Harper & Row, 1973, pp. 560. $11.95 hardbound.

Here we have yet another hopeful competitor to Copi's *Introduction to Logic.* Its contents range over more or less similar topics to those of Copi, with three notable and interesting additions: (i) A fractional method for testing validity of syllogisms similar to that of Fred Sommers ("On a Fregean Dogma," I. Lakatos, ed., *Problems in the Philosophy of Mathematics*, Vol. 1, Amsterdam, North-Holland, 1967), is offered; (ii) a chapter on effective argumentation and rhetoric is included; and (iii) there is a chapter on logic and grammar including some discussion of generative grammar. This book possesses some not-to-be-overlooked pedagogical advantages—it has a straightforward, honest style, sticks to points of fundamental importance in any first logic course in philosophy, and explains them directly, clearly, and patiently in a fashion that has outstanding pedagogical value. It also contains a wealth of illustrative and entertaining exercises, examples, and excerpts, and is, I suggest, an attractive alternative to Copi's text, Rescher's *Introduction to Logic*, or other texts in this league.

The introductory chapter includes Max Shulman's short story "Love is a Fallacy," and a later chapter has as an appendix Lewis Carroll's "What the Tortoise Said to Achilles" (*Mind*, April 1895, 278-280). Both of these fables are entertaining and instructive, though the latter might generate more perplexity than enlightenment among introductory students. Not that *aporia* is without pedagogical value, but some exegesis or a reference, say, to John Woods' "Was Achilles' 'Achilles' Heel' Achilles' Heel?", *Analysis*, 25, 142-146, might have been useful here. Chapter 2 is devoted to fallacies, 3 and 4 to syllogisms, and 5 through 8 develop the elements of sentence and predicate logic. Chapter 9 is concerned with effective argumentation and covers Aristotelian rhetoric, Toulminian warrants and backings, and analogy. Chapter 10 deals with definitions, meaning, and the use-mention distinction. This chapter includes an elementary introduction to generative grammar, and some interesting comparisons and contrasts of logical and grammatical structures. Chapter 12 is a short explanation of some elements of scientific method, explanation, and confirmation. Chapter 13 is on causal inference and includes a presentation of Mill's Methods. The last chapter, 14, is a brief but clear-minded introduction to some elements of probability and statistics. Many very helpful exercises are included throughout the entire book, and answers for the odd-numbered exercise questions are provided.

A serious indiscretion is committed on p. 196f., where it is asserted that the set of eighteen inference rules and replacement rules (namely the ten replacement rules of Copi's *Symbolic Logic*, 3rd ed., plus eight of Copi's nine rules of inference, excluding only Destructive Dilemma) for sentence logic is complete. Byerly asserts that the set of eight rules is not complete: "There are valid argument forms in the statement calculus that cannot be proved using only our eight inference rules." It is, however, he continues, sufficient to add a few equivalent schemata as replacement rules to complete this system of natural deduction for the statement calculus (p. 197). Readers of Copi's *Symbolic Logic* (Sec. 3.3), 3rd ed., will know that it has been proved by Leo Simons that this set of nineteen rules is incomplete. More surprising still, on p. 216 we find Byerly, in a *volte-face*, acknowledging the incompleteness of his eighteen rules and stating that the addition of a rule of Conditional Proof is needed to yield completeness. It is known that completeness is accomplished by the addition of rules of Conditional Proof, or Indirect Proof, or Absorption. Copi's 19 Rules in *Introduction to Logic*, 4th ed., with Absorption in place of Destructive Dilemma of *Symbolic Logic*, 3rd ed., is complete: see John A. Winnie, "The Completeness of Copi's System of Natural Deduction," *Notre Dame Journal of Formal Logic*, Vol. XI, No. 3, July 1970, 379-382. Indeed, Simons has recently shown that the addition of *any* rule independent of the 19 Rules of *Symbolic Logic* results in a system that is complete: see Leo Simons, "Logic Without Tautologies," *Notre Dame Journal of Formal Logic*, Vol. XV, No. 3, July 1974, 411-431, esp. 426ff. Given the acknowledgement of incompleteness on p. 216, it seems reasonable to infer that Byerly's statement of completeness of 196f. is simply an oversight that could be remedied by the inclusion there of some mention of the need of an additional rule of inference.

A most important, yet sadly derelict area in the teaching of logic is that of informal fallacies. Byerly here continues in the ancient tradition of proffering hoary, stock examples with the usual labels and classifications, while ignoring basic, underlying theoretical questions: see C. L. Hamblin, *Fallacies* (London, Methuen, 1970), ch. 1, "The Standard Treatment." One need not have done very much teaching of introductory logic to appreciate that this lack of clear and adequate characterization of the fallacies makes it virtually impossible to commend to students fallacy-theoretic notions as a really effective strategy in the analysis of argumentation. Many logic instructors I have queried admit that they are simply embarrassed to teach an area where so many fundamental and genuinely interesting questions are simply bereft of any respectable theoretical resources that might provide a framework for coherent answers. Yet the continued appearance of The Standard Treatment in introductory logic texts attests to the pedagogical value and basic importance of the topics treated therein. It is a double pity that Byerly acquiesces in this stale tradition when later, in parts IV and V, he addresses many fallacy-related topics that could have been helpful in giving better explanations of some of the informal fallacies. There is a brief (four pages) but very suggestive treatment of statistical fallacies at the very end of the book, however. Perhaps it is only fair to stress that The Standard Treatment is not uniquely a fault of Byerly's text. Rather it is what one has come to expect. A text that is a cut above the average here is Wesley Salmon's *Logic* (Englewood Cliffs, Prentice-Hall, 1963).

A pair of indiscretions occur on p. 46. Here we are told " . . . if we can point out a logical inconsistency between a person's present claims and his previous statements, we undermine the credibility of his testimony." A reader might interpret this statement to mean that *tu quoque* is either logically correct or rhetorically efficacious. Both claims are dubious, but especially the former. A thoughtful student might, quite justifiably, be considerably perplexed by p. 46. But then perhaps bafflement is generally an appropriate reaction to The Standard Treatment of informal fallacies. Further down the page, we are informed "[t]he Latin phrase for this fallacy, *argumentum ad verecundiam*, means, literally, appeal to tradition or reverence." Without wishing to be accused of this fallacy myself, I cite Hamblin's remark that *verecundia* means "shame," "shyness," or "modesty" (*op. cit.*, p. 42).

It should be stressed that the critical remarks above do not indicate a general dissatisfaction with all parts of the book—rather these difficulties are occasional. Generally, the treatment of topics manages to be judicious and philosophically sensitive, even while maintaining a characteristic clear and direct style of exposition throughout.

— *Douglas Walton*

KAREL LAMBERT and BAS C. VAN FRAASSEN, *Derivation and Counterexample: An Introduction to Philosophical Logic*. Dickenson Publishing Co., Inc.: Encino, California, 1972. Pp. xi + 227.

The features which set this textbook apart from its competitors are its non-standard treatments of the empty domain and of the logic of singular terms (that is, individual constants and definite descriptions). Ordinarily, quantificational logic is so formulated as to provide as theorems (or derivable logical truths) all and only such