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See table of contents

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LOGICAL ANALYSIS: A NEW APPROACH

Duane H. BERQUIST

EVERY teacher of logic on the undergraduate level faces a number of problems which the present book [1] goes far to resolve by a new approach. These problems converge on the need for a student *to begin* logical analysis, not merely as an exercise in a logic course, but as his ordinary way of approaching any argumentative essay, article, or book in whatever course or whereever else he may meet them. The author, Dr. Richard J. Connell, charts his new path in the light of both experience and logical principles. The experience should perhaps be emphasized here since it would seem to be the main cause of the author's new approach in the presentation and use of logical principles. Nevertheless, Dr. Connell frequently points to insufficient understanding of logical principles as a cause of defects in our teaching of logic. Before considering the surprises in the division and order of this logic book, it would, I think, be advisable to look at the experience which gave rise to it and also something of the general understanding of logical principles underlying it.

The experience behind this book is in four areas. One is an experience of the kind of logic which is actually used in the type of articles and essays the student is apt to meet in either his curricular or extra-curricular readings. The second area of experience is that of the irrelevance of symbolic and the insufficiency of traditional logic books for "an adequate consideration of inferences that systematic essays actually employ." [2] The irrelevance of the former can be stated in Connell's own words:

> A look at academic publications will indicate that despite the appeal modern logic has for many logicians, ordinary argumentative essays, no matter what their subject matter, make little use of the symbolic formulations of contemporary logic.[3]

Traditional logic books have given an "insufficient account of the syllogism" and "failed to illustrate in a satisfactory way either *that* syllogisms are commonly

1. *Logical Analysis: A New Approach*, Dr. Richard J. Connell with an Essay on Sophistry by Thomas D. Sullivan; Printed at St. Mary's College Press, Winona, Minnesota. For information address *The Print Shop of Edina*, 3926 West 49 1/2 Street, Edina, Minnesota 55424.
2. *Ibid.*, Preface to the Teacher, p. 3.
3. *Ibid.*, p. 1.

employed in systematic treatises or *how* they are employed. The manuals also left unconsidered the variations in syllogistic patterns for which argumentative content is responsible." [4] The third area of experience behind this book is that of the student who comes into college unaware "of his obligation to support his positions and of how this support is to be provided" and insensitive "to another man's failure to argue" [5] and who too often leaves a logic course unable to see the relevance of what he has learned there to what he reads elsewhere. The fourth area of experience is ten years of using the new approach of this book by Connell and his colleagues at the College of St. Thomas (Minnesota).

There are three general logical principles emphasized by the author as underlying his work and defending its departure from the "calculational approach" characteristic of contemporary mathematical or symbolic logic (whose usefulness in certain limited areas is not questioned by the author). One principle is the priority of knowledge expressed in words and sentences to that expressed in "mathematical-type symbols." The former can be without the latter, but not vice-versa. This is a point which has often been made by some of the leading physicists of the twentieth century such as Bohr, Heisenberg, Born and Einstein. Following this, the author emphasizes "the importance of 'semantic links' for logical procedures." [6] Finally, Connell makes a fundamental distinction between "relations founded upon properties that belong to things in the physical world" and those "caused by or founded upon the mind's cognitive activity, as are subject-predicate, premiss-conclusion relations and others of the same type" [7] and criticizes the confusion of these two kinds of relation in modern symbolic logic. The author thus sees logic as a tool for the analysis of thinking which is expressed in ordinary language, an analysis which can be fully made only by a consideration of certain relations founded upon the mind's cognitive activity. (Connell does not distinguish here between the various kinds of relations of reason, but indicates by examples the kind which is involved in logic.)

The book is divided into four parts. Part I emphasizes the distinction between facts and their interpretation in the context of the basic road in human knowledge, the road from sensation to understanding. It also considers before this some "subjective difficulties" due to faulty memory, imagination and emotions that can affect thinking after a beginning definition of logical analysis. The first part ends with a brief consideration of the need for logic. Part II "shows ...how to discover and extract arguments from an ordinary essay.". [8] This part emphasizes the fundamental role of the question or problem in human thinking, the foundations for solutions and how these things can help one to analyze an essay or article. It is difficult in a review to recount the extensive use of examples in the text to bring together an experience of such things in the student. Part III contains the usual topics of traditional logic text-books with a number of considerations on the problems arising from the diversity of

4. *Ibid.*, p. 3.
5. *Ibid.*, p. 7.
6. *Ibid.*, p. 2.
7. *Ibid.*, p. 4.
8. *Ibid.*, p. 5.

subjects to which they are applied. Part IV contains thirty four readings from all different fields (e.g., articles in the experimental sciences of nature, the social sciences, and literary criticism; a geometrical theorem; philosophical essays and theology; and speeches and persuasive articles ancient and modern) to be used in conjunction with especially Parts II and III. The readings are varied enough to show the relevance of logical analysis to almost all academic disciplines. The use of these readings with the other logical chapters shows that the logical tools learned actually are used in all the major academic disciplines and that it is impossible to analyze and evaluate articles and essays in them without a scientific knowledge of the logical tools. This should encourage the student to think of logical analysis, not as the specialty of some particular department, but as a foundation for his entire intellectual education.

From the above, the reader can begin to see how much this book differs from others available today. The author himself observes that "To my knowledge Parts I, II, and IV do not have parallels in other texts, and a number of considerations in Part III are unique too." [9] There are two general features of the book to which it is difficult to do justice in the space of a review: one is the very extensive use of "live or real" substantive examples from various academic disciplines and other more familiar sources to manifest logical principles, and the second is a consistent attempt by the author to use a vocabulary intelligible to contemporaries. Both of these help the student to carry over logical analysis as a tool to whatever area he enters.

Perhaps some general judgment on this book is in order here before descending to some particular judgments on the parts devoted to logical principles (Parts II and III). Underlying this book is the fundamental division of roads in the mind to knowledge. The first or basic road in human knowledge, the road from sensation to understanding, is considered in Part I; the second road in human knowledge, the common road of the sciences which is the proper concern of logic, is the main consideration in Parts II and III; and the last chapters in Part III, the extensive examples throughout the book and the readings in Part IV introduce the student to something of the diversity of the special roads of the sciences based on their respective subjects which is the third and last kind of road in human knowledge. The author insists that, unless we see logic in the context of this broader division of method and in some way consider what is presupposed to logic and what follows it, we shall neither approach logic correctly nor appreciate its universal use. Concerning what comes before logic in Part I of this book, Dr. Connell comments: "although Part I is not a logical consideration, it would seem to supply something that is needed, perhaps more today than a few years ago." [10] Concerning what comes after logic, the author observes:

> As to Part III, one reason for the multiplicity of topics included therein is to be found in the nature of logic itself, which is a general tool of the mind that must be employed in every subject matter. Logical instruments, however, cannot be applied in the same way to all of them... Consequently it seems to me that if a teacher is to represent the general character of logic adequately, together with its genuine utility, he must discuss and illustrate its use in different subject matters. A second reason for the variety of considerations in Part III is founded on the

9. *Ibid.*, p. 5.
10. *Ibid.*, p. 6.

> nature of liberal education. An educated man is one who understands the basic notions and characteristic procedures of the principal human disciplines.[11]

Critical thinking must move in the direction of an understanding of the fundamental division of roads or methods and their order which underlies this book if it is to avoid insufficiency, confusion and error in the understanding of the roads which the mind must follow to knowledge. It is indeed an encouraging sign that the author has seen this from his own experience and incorporated it into the plan of his book. Of course, the main attention in any logic book must be given to that which is the proper consideration of logic, as is done in this book. We can now turn to some particular judgments on Parts II and III.

The author does well in Part II to insist upon and exemplify the role of the problem or question in beginning an investigation and in analyzing the results of an investigation. There is a marvelous concreteness and wealth of example in this part to bring out that the investigator does not know where he is going until he has seen well his problem or question and that the reader cannot follow the investigator's report or judge its findings without first seeing the problem or question that motivated it. It would be difficult to find a better thing to emphasize than this to introduce a student to the practice of analyzing what he is reading. The thinking which is the object of logical analysis begins with a question or problem and ends with an answer or solution and has in the middle everything which is necessary to get from the beginning to the end. This would seem to be more proportioned to the student than to describe logic as concerned with the rules of thinking. The author points this out in the opening chapter of Part I, and Part II is the manifestation and introduction to this approach to logical analysis. The connection between what gives rise to a problem and what is the key to its solution is clearly shown. The effect of badly formulated questions (or no question at all) on the investigator and those who try to read his work is excellently and humorously brought out.

The number of logical principles considered in Part III is so great that philosophical modesty restrains one from making any rash judgment upon them in the course of a short review. However, a number of questions and objections come to mind in reading this part. But before raising some of these questions, we should divide Part III into its major parts so as to situate our remarks.

Part III could be divided into four major parts. In the first part, Chapters 25–30, are considered some of the basic principles underlying the whole of logic which are put in many traditional logic text-books under the logic of the first act of reason. Chapters 31–38 are about the proposition. Chapters 39–48 are about the formal syllogism mainly and also about induction (Ch. 48). Chapters 49–58 are for the most part about those things that pertain to the material logic of the third act of reason (such as the difference between demonstration, dialectical syllogisms, and the nature of rhetorical reasoning) and also about some differences arising from subject-matter. Our remarks will be confined to the first and fourth parts.

A number of questions arise in the mind about Chapters 25–30. Chapter 25 is a well written chapter on signs, relating their use to the basic road. But it is not clear to

11. *Ibid.*, p. 6.

the present reviewer why the chapter on *Words and Significations* (Ch. 29) is not put next to this chapter. Chapters 26, 27, and 28 are themselves in the usual order, considering respectively the universal or class relation as the author calls it, the predicables or kinds of class relation and the Categories. The distinction between saying a word univocally or equivocally of many things would seem to come before either the predicables or the Categories, but it is not made until after they have been considered (in Ch. 29). Again, one might wonder whether the consideration of definition (Ch. 50) and of division (Ch. 55) should be left entirely to a place after the consideration of syllogism and induction.

One also wonders whether the words *class* and *class relation* are well chosen to introduce the student to the universal despite the familiarity of the word *class* today. The author is, of course, well aware that "A universal is not the same as a class, for the first element in the definition of *class* is *collection*, whereas a universal is something *one* that is seen as common to the collection".[12] Hence, he will not in the chapter where he first considers the universal speak of it as a class, but as a class relation. But later he will speak as if the word *class* can also mean the universal whole and as if the division of a class into subclasses can be called in other words the division of a genus into species.[13] Does the author think the word *class* can mean first a collection and later something one able to be said of all members of that collection? The Greek word γένος and the Latin word *genus* did in fact have such an order of meanings. It seems worthwhile here to compare the word *class* with the words chosen by the fathers of logic and Porphyry whose nearest English equivalents are perhaps *kind* and *form*. The word *class* seems to have kept something of its original meaning which is that of a multitude summoned or called together by one man. *Kind* is derived from *kin* who are those generated by one man or his descendants. The unity of the former multitude is clearly less than that of the second. Moreover, the men called together by one man exist before that man calls them together, but the men generated from one man do not exist before that man generates them. When the author considers the "kinds of class relation", he regards the word *class* as said first of the lowest species which contains individuals and then as extended to fit the genus.[14] Porphyry considers genus before species. If we take the nearest English equivalents, *kind* and *form*, we can see that *kind* is apt to come before *form*; e.g., we do not speak of the *forms* of government (democracy, oligarchy etc.) until we have recognized the *kind* of thing called *government*. One wonders to what extent contemporary use of the word *class* is a result of the influence of those kinds of knowledge where our mind is not able to grasp *what it is* that it is talking about and where it must be content to find relations among things grouped or called together by something *external* to *what they are*.

We shall now turn to the Chapters dealing mainly with the material logic of the third act. Chapter 49, entitled *The Content of Arguments*, divides arguments into empirical and dialectical:

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12. *Ibid.*, Chapter 26, p. 150.
13. *Ibid.*, Chapter 55, pp. 331-332.
14. *Ibid.*, Chapter 27, pp. 156-157.

> Some arguments start from propositions that are accepted on the basis of evidence derived in one way or another from experience, while others start from propositions that are conceded or admitted by one's opponent.[15]

Arguments of the first kind (or should we say *class* since they do not have the unity of a genus or species) are called "empirical arguments" by the author and under them in the same chapter are enumerated arguments from causes, from effects and from signs. One could question the advisability of using "empirical" since that word would be said of demonstrations in mathematics which are arguments from causes. The use of the word *sign* to name and bring out an argument distinct from those proceeding from cause or effect is interesting, but raises a number of questions. The author maintains that "Properly speaking... signs are neither causes nor direct effects of what they signify." [16] Now given the classical definition of sign as a thing which strikes the senses and brings to mind something other than itself, which definition is given in substance in the author's chapter on signs [17], there is no reason why effects and even causes may not be considered in some cases as signs properly speaking. *If* there are signs which are neither causes nor effects, it would perhaps be better to say that the word *sign* can be kept for those signs that are not effects or causes while to the latter we give a special name. However, even such a use of the word *sign* is questionable since the word *sign* is intended to bring out the *sensible* character of what is called a sign, regardless of whether it is an effect or not. Yet the word *sign* is sometimes used in arguments that lack necessity in contrast with demonstrations.[18]

The chapter on the enthymeme (Ch. 52) must be approached with great caution. It is not clear from this chapter that the enthymeme is a weaker argument than the dialectical syllogism. After referring to the Oxford translation of Aristotle's definition of the enthymeme in the *Prior Analytics* [19] which states that the enthymeme proceeds from "probabilities" and "signs", the author substitutes for "probabilities" *contingent causal propositions*.[20] Neither the word *probability* nor the words *contingent causal proposition* seem to the present reviewer suitable to convey into English that part of the definition of enthymeme. The best English word is perhaps *likelihood*. The justification of this, however, would require a lengthy consideration of the Greek word used by Aristotle, the connection of rhetorical likelihood with poetic likelihood seen by Aristotle and the Roman writers on rhetoric (esp. Cicero and Quintilian), the differences between rhetoric and dialectic, and the English words *likely* and *probable*.

The use of the word *analogy* rather than *example* to name the argument from one singular to another by reason of their resemblance is also questionable. The author argues that the word *example* "means a sample or instance that shows the character of a collection or whole of some sort" [21] and thus does not fit this logical tool. Why must

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15. *Ibid.*, p. 279.
16. *Ibid.*, p. 284
17. *Ibid.*, p. 142.
18. See ST. THOMAS AQUINAS, *In I De Caelo et Mundo*, Lectio xvii, nn. 169, 173, ed. Marietti.
19. Bk. II, Ch. 27.
20. *Logical Analysis: A New Approach*, p. 304.
21. *Ibid.*, Chapter 53, p. 319.

the word *example* be used in only one sense? The Greek and Latin words for this tool have both senses (of part to whole and part to part or singular to singular). Moreover, the comparison of this tool to the syllogism does involve both part to whole and part to part, as is clear from Aristotle's analysis in the *Prior Analytics*.[22] This is why Aristotle will often assimilate example to induction rather than to syllogism[23] and consider it in the *Prior Analytics* after induction and before the enthymeme. It is interesting to note that the author will later classify the argument from singular to singular under deductive arguments "because it concludes to a singular."[24]

We may conclude by quoting and commenting on a passage in one of the last chapters of this part:

> As the reader was led through the various kinds of starting points for deductive arguments, namely, causes, effects, signs and singular instances, he saw that although the syllogistic patterns were retained in non-causal explanations, the illumination provided by the explaining attribute diminished gradually, the weaker evidence often entailing a weaker inferential pattern incapable of sustaining a necessary inference.[25]

We can see here the author's summary of his fulfillment of a main part of his original goal. He has made a *class* whose members are distinguished and ordered in a way that admits of immediate application to the logical analysis of the reading materials of the contemporary university. The originality of this classification and procedure can be seen if one compares it with those of Aristotle in his logical works. However, the latter may be more necessary for a scientific understanding of the tools of our reason.

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22. Bk. II, Ch. 24.
23. See ARISTOTE, *Posterior Analytics*, 71a 8–11; *Rhetoric* 135b.
24. *Logical Analysis: A New Approach*, Chapter 57, p. 340.
25. *Ibid.*, Chapter 57, p. 340.