and Thomas' non-political pedagogy, and just as important, a difference in belief about underlying theory.

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ANTONY FLEW. *Thinking Straight*. Buffalo, NY: Prometheus Books, 127pp. $3.95, pbk.

P. T. GEACH. *Reason and Argument*. Berkeley and Los Angeles: University of California Press, 110pp. $3.95, pbk.

Books such as these are difficult both to write and to review, difficult because it is hard, for both the writer and the reviewer, to get and remain clear about the intended purpose of and audience for such texts. I take it that the intended audience is composed of undergraduates, mostly freshmen and sophomores, whose primary interest is in neither philosophy nor logic. The purpose of such texts is a practical one: to motivate students to think clearly and act rationally, and to give them the tools needed to do so. The motivating must be accomplished, of course, by explaining the importance of clear thinking and rational action, not by psychological coercion or sophistry. Both authors seem to share these views. In his preface Geach writes,

> Logic as an everyday practice, the habit of logical thinking, is too serious a matter to be left to professional logicians...The notions of sound and unsound argument, of proof and logical consequence, of good grounds for thought and action, of consistency, are ones that any educated person ought to learn to handle, not just familiarly, but also with some degree of competence. (p. vii)

Flew does not include a preface to *Thinking Straight* but does become self-reflective in Chapter 1:

> The present book, which is intended to help people to improve their thinking, is not an essay in theoretical logic. It is instead an exercise in logical coaching. (p. 21)

Both works go a considerable way towards accomplishing their common goal. Each author discusses such standard but still obviously important topics as the distinction between valid and invalid arguments, the notion of logical consequence, kinds of definitions, the role of evidence, the distinction between reasons, motives, and causes, and the distinction between analytic and synthetic propositions. And very often these topics are handled with greater care and philosophical perspicuity than they are in earlier texts of the same sort. A case in point is the concept of definition. Both Flew and Geach are careful to explain that it is neither possible nor necessary to define every word. "To demand either a definition or any other kind of explanation where there is no relevant confusion or uncertainty to be removed is tiresome and obstructive" (Flew, p. 74). "I certainly could not define either 'oak-tree' or 'elephant'; but this does not destroy my right to assert that no oak-tree is an elephant..." (Geach, p. 39). Any student who masters the material in either of these texts will surely profit considerably from doing so.

Flew and Geach are both aware of the need to explain the importance of clear thinking. Each does so by pointing to the unacceptable consequences of accepting inconsistent beliefs. Geach is here rather eloquent:

> Whether we like it or not, if we tolerate inconsistency in the thoughts we harbour and pass on to others, some of those thoughts will be false—will be at odds with the way things are in the world. Whether we like it or not, if we tolerate inconsistency in our plans, some of our plans will be frustrated. Error and frustration are no doubt our lot as men, but that is no reason for incurring them gratuitously. (p. 6)

Flew is somewhat less eloquent but he explains in even fuller detail how and why holding contradictory beliefs is undesirable.

> Both every proposition and its negation...follows from any contradiction. Hence, if contradiction is tolerated, then, in a very literal sense, anything goes. This situation must itself be totally intolerable to anyone who has any concern at all to know what is in fact true, and to avoid either saying or implying what is in fact false. (p. 17)

Though both Geach and Flew are concerned with the task of teaching their readers to think clearly, they take rather different positions on the question of how this is best done. Flew is the more traditional and sticks to the view that techniques of formal logic are unnecessary. Hence his text is, as his remark about coaching suggests, largely a compendium of possible fallacies, errors, and confusions in reasoning, interspersed with explications of important concepts and distinctions. Many of the mistakes discussed are well worth discussing, and the illustrations are usually to the point. The explications of distinctions and concepts, though often verbose, are generally clear enough. But at the end one is left with the uneasy feeling that though the cases Flew deals with are indeed cases of fallacies, errors, and confusion, one does not yet know how to go on by oneself to spot fresh cases of bad reasoning. There are just too many diverse kinds of pitfalls to be exhausted by enumeration. Being able to spot and deal with the kinds Flew discusses is of course valuable, but it does not, again, necessarily enable one to spot the pitfalls not discussed. At the informal level there is at most a family resemblance, and a rather weak one at that, between all the possible kinds of mistakes one can make in reasoning. This, as is well known, is just the trouble with doing logic "informally," as well as with coaching any topic or skill without paying sufficient attention to the theory behind what is being coached.

Geach takes quite a different view:

> The practical applications of logical thought are quite different from the development of logical theory, but not independent of it...Logical thinking can be safe-guarded only for minds that will submit to some elementary disciplines of formal logic. (p. vii)

Accordingly, Geach includes in his text sections on both term logic and propositional logic, and on appropriate tests for validity and consistency in each of these areas. In theory at least Geach surely has the better side of this pedagogical dispute. To avoid mistakes one needs more than part of an open-ended list of possible fallacies, errors, and confusions. Generally applicable tests are required, and the explication and application of these does require a modicum of formal logic.

Turning specifically to Geach's text, in the first nine chapters he briefly discusses a wide variety of important topics in logic and epistemology. These include belief, knowledge, doubt, certainty, memory, testimony, truth, falsehood, inference, and definition. He here writes with clarity, conciseness, and often considerable eloquence. In chapters 10 through 14 and again in 16 and 18 Geach brings in the formal logic promised in the preface. Chapters 15, 17, and 19 contain little or no formal material.

Geach's admirable discussion of the alleged problem of truth provides a good example of his treatment of complicated philosophical issues:

> If we take any specific proposition, we see that ascribing truth to it hardly ever raises any problem about truth—still less about the alleged kinds of truth or senses of 'true'. If the proposition comes to us in a foreign tongue or unfamiliar jargon, then indeed we do not know what ascribing truth to it amounts to; but once this obstacle is overcome, the problem of truth as such vanishes. Let A be the proposition 'Our liege Lord and Sovereign is deceased'; once we know that A just means 'Our King is dead', ascribing truth to A raises all and only the problems of ascribing death to the King. Death is indeed a philosophical problem—but the truth of death-notices is not an extra problem. (pp. 36-7)

Also worthy of special note is Geach's treatment of the distinction between motives for belief, reasons for belief, and causes of belief. In the space of a page and a half Geach manages to make clear the need to keep motives, reasons, and causes conceptually distinct, and to expose the silliness of the view that reasons never determine beliefs.

In general Geach's non-formal chapters are very well done. Geach is here careful not to write at a level too advanced for his intended readers. Yet his discussions are neither oversimplified nor condescending in tone. However, his treatment of important topics is often too brief. The chapter on observation, memory, and testimony is

just a page and a half long. What Geach does say is clear and to the point, e.g., "...if we are to believe anything at all, then there must be uninferred beliefs to start with" (p. 23), but considerably more could and should be said, e.g., when uninferred belief is a reasonable belief, when it is not.

As indicated above, one of the attractive features of *Reason and Argument* is the inclusion of a modicum of formal material. Unfortunately Geach does not present this material nearly as well as he does the material in his non-formal chapters. First of all, the conventions Geach adopts are, despite the claim to the contrary on the text's back cover ("The author makes only modest use of notation and wholly avoids novelties"), often novel or at least unusual. In the case of Geach's preference for negation bars, inverted wedges, and arrows as signs for truth-functional connectives rather than the more common tilde, ampersand, and horseshoe, this is perhaps unobjectionable. But one wonders why Geach insists on constructing truth-tables with truth-values displayed to the right of rather than under wffs. This novelty may well confuse students who have previously encountered truth-tables or who will do so later in other courses. And Geach's use of the lower case letters p, q, r, s,...as both sentence variable (in presenting sentence forms) and as sentence letters (abbreviating real sentences of English) is surely confusing. This confusion is heightened when, in discussing truth-functional tautologies, Geach does switch and use capital roman letters ('A' and 'B') to represent sentences of English.

Geach's discussion of term logic is likely to strike the reader familiar only with standard syllogistic logic as novel in that Geach's notation allows for multiple predication through the juxtaposition of terms. Thus 'The wife of any husband who drinks too heavily will not have enough housekeeping money' comes out as,

Any AB is C′

where the prime is used for predicate negation. This feature does, of course, make term logic much more powerful than standard syllogistic logic. Another useful novelty is Geach's preference for Lewis Carroll's method of diagraming arguments over Venn diagrams (though two of the latter are included). These features, together with Geach's chapter on the logic of plurative propositions, might be defended on the grounds that they provide much more powerful and more widely applicable tools for analyzing arguments than are standardly found in elementary texts.

Unfortunately Geach's presentation of all of this formal material is so brief, so condensed, that no novice is likely to be able to master it. Propositional logic just cannot be adequately explained in eight pages, any more than can plurative logic in two and a half pages. The skill of constructing four termed Carroll diagrams cannot be mastered on the basis of one example. In the latter half of *Reason and Argument* it sometimes seems that Geach has forgotten that his audience is the wholly uninitiated and that the point of including formal material is to give them tools they can master and use. Indeed there are sections of this part of Geach's text that read more like an article on the history of pre-Fregean logic than an elementary text in practical reasoning.

As noted above, Flew's *Thinking Straight* contains virtually no formal material. The topics discussed overlap those discussed in the first half of Geach's book. Some of these topics are quite well handled. Pascal's wager is used to good advantage in illustrating the distinction between motives, causes, and grounds for belief (though Flew's insistence that 'reason' is ambiguous between all of these makes the passage read rather awkwardly): "Pascal is saying that though we have no good reason (grounds) for believing, we have the very best of reasons (motives) for trying to persuade ourselves" (p. 59). The following attack on the allegedly Freudian view that *all* our beliefs and convictions are produced by unconscious causes, and are thus groundless, is also effectively carried

through. And Flew does discuss some important topics not touched on in *Reason and Argument*. The most important example of this is his lengthy discussion of common misuses and misinterpretations of statistics (Chapter 6).

But generally Flew's discussions, though always longer and often more detailed than those in *Reason and Argument*, are not as clear and compelling as are the latter. All too often Flew uses the shotgun approach (listing without adequate explanation a great many examples of the fallacy being discussed) where he would do better to present and fully discuss one or two examples. This happens most often in the chapter on statistics. Flew notes that from "the statement that 70% of the people currently serving sentences in the prisons of Ruritania have served one or more previous terms" one cannot fairly conclude "that Ruritania is afflicted with a recidivism rate of 70% (p. 83). In explication of why this is a non-sequitur, Flew writes:

> If we want to know what proportion of first term convicts eventually graduate into second term convicts, then we shall have to investigate, not the term distribution in the present prison population, but the recidivism pattern revealed by past and future prison records. (p. 84)

Flew is right, but why he is right will not be apparent to beginning college students. The point could be better made by working out the example in detail, giving the figures Flew says we need and showing that the recidivism rate might well be substantially less than 70%. Similarly, in attacking various ill thought out arguments to the effect that the wealth in Great Britain is unfairly distributed Flew appeals to the neglected equalizing effects of progressive taxation (p. 87), British "Corporation Tax" (p. 89), and "the Estate Duty net" (p. 90) without explaining how any of these serve to equalize apparent discrepancies in wealth.

There are a lot of other flaws in *Thinking Straight*. Some of these are just problems of exposition, as when Flew introduces the topic of necessary and sufficient conditions as a way of "illuminating" which moves are allowable with the material conditional (*modus ponens* and *modus tollens*) and which are not (affirming the consequent and denying the antecedent). What follows is an account of logically necessary and logically sufficient conditions (p. 32). After a full page of this Flew writes "Putting a distinction between necessary and sufficient conditions immediately to work, we can say that the two fallacies [affirming the consequent and denying the antecedent] represent misunderstandings of what it is for one proposition to be any sort of sufficient condition of another" (p. 38). At least Flew does say "a distinction," not "the above distinction" and "any sort of sufficient condition," not "logically sufficient condition." But how an account of logically sufficient conditions is supposed to immediately, and without further explanation, help us understand materially sufficient conditions is a mystery. The net effect of these pages will be to produce total confusion in students' minds between logically and materially sufficient and/or necessary conditions.

Flew is frequently not careful enough in explaining technical concepts. 'Contradiction' makes its appearance on p. 12 and never is explicitly defined or explained. We are simply told, on p. 14, that "a valid deductive argument is, by definition, one in which to assert the premises while denying the conclusion is to contradict yourself..." At least Flew has the consolation here of being in good company, for Geach's explanation of 'contradiction' will not strike most readers as any clearer: "Any proposition can be regarded as one of the two possible answers to a yes-or-no question. The *contradictory* of a proposition is the other one of the two possible answers." (p. 33) One *can* make sense out of this but it takes a good bit of doing. Both Flew and Geach repeatedly use the term 'sound' without explaining it. It is clear that neither is using it in the sense of 'valid argument with true premises'. It may be that both are using it as a synonym for 'valid', though neither explicitly says so.

Most of the problems of *Thinking Straight* are those of style and exposition, but not all are. In a chapter entitled "Evasion and Falsification" Flew explains and advocates Popper's falsifiability criterion of meaningfulness:

> It is...an essential mark of a scientific hypothesis that it should be in principle falsifiable; that there should be describable phenomena which, if they were to happen, would, by their actual occurrence, show that that hypothesis was false. (pp. 54-5)

This is a very strong thesis. What is required is not just that it be possible to specify phenomena whose occurrence would count against the hypothesis in question. The specifiable phenomena must be such that their occurrence would "show that that hypothesis was false." No mention is made of all the problems such a strong thesis is subject to. As stated the thesis makes all existential claims meaningless, since no experience can conclusively falsify the hypothesis that there exist such and such things (e.g., unicorns). Here, as in several other places *Thinking Straight* reads like something written in the early '50s.

Also distressing are 1) a few references which although familiar enough to British readers will be opaque to most others, "scrum half," for example; 2) the very small type; and 3) the complete lack of exercises. In comparison, Geach's text avoids troublesome idioms, is in a readable, well-organized format, and offers at least a few discussion questions and exercises, although not nearly enough for the requirements of a logic text.

Thinking Straight and *Reason and Argument* both contain much of value, and both can be used to advantage in courses in practical reasoning. Of the two, the latter is perhaps to be preferred for reasons indicated. But both texts will have to be supplemented with exercises, and with much in-class explanation and discussion.

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VINCENT RYAN RUGGIERO. *Beyond Feelings: A Guide To Critical Thinking*. New York: Alfred Publishing, 191pp. $4.95, pbk.

Few philosophers today would maintain that the laws of logic (whatever they might be) are laws of thought, i.e., descriptions of psychological tendencies shared by all or most human beings. However, one can (as Ruggiero does) view them prescriptively. Hence, teaching the student "how to think," which is the expressed purpose of *Beyond Feelings*, means teaching the student how to think logically. Such an effort is needed, Ruggiero explains in the Introduction because "For roughly the past decade in American education, increasing emphasis has been placed on subjectivity, on *feelings*" (p. ix) at the expense of hard, critical (logical) thinking. Whether one agrees that American education has become all that soft-core or not, one can certainly agree with Ruggiero that "we live in an age of manipulation" and that "armies of hucksters and demagogues stand ready with the rich resources of psychology to play upon our emotions and subconscious needs to persuade us that superficial is profound, harmful is beneficial, evil is virtuous" (p. x). And I can imagine no one seriously involved in the process of education who would not agree that one of the most important goals of the educator is to get students to go "beyond feelings" and to address problems and issues "in a reflective analytic way." If Ruggiero's book can help the student develop this ability, it is a valuable book indeed.

The book is divided into three major sections dealing with "the intellectual CONTEXT in which critical thinking takes place, awareness of the PROBLEMS that impede sound thinking, and a STRATEGY for dealing with issues" (p. xi). In the first chapter of the section on Context, Ruggiero focuses on the relevance of the individual's social and cultural history to one's self-image and the relation of one's self-image to reality. With a nod to Transactional Analysis he sketchily presents a