INFORMAL LOGIC
XIV.2&3, Spring & Fall 1992

Defining Deduction*

MARK VOROBEJ *McMaster University*

Key Words: Deductive argument, necessitation, embryonic argument, the personal point of view.

Abstract: This paper defends the view that the classification of an argument as being deductive ought to rest exclusively upon psychological considerations; specifically, upon whether the argument's author holds certain beliefs. This account is justified on theoretical and pedagogical grounds, and situated within a general taxonomy of competing proposals. Epistemological difficulties involved in the application of psychological definitions are recognized but claimed to be ineliminable from the practice of argumentation. The paper concludes by discussing embryonic arguments where the author's relevant beliefs are not sufficiently fine-grained so as to accord the argument deductive or inductive status.

The aim of this paper is to defend the adequacy of a certain psychologically based definition of deduction—a definition, that is, that classifies arguments as deductive or non-deductive by appealing directly to the psychological states of those persons who are the authors of such arguments. I speak interchangeably of defining deduction and defining deductive arguments. The definition I offer is a variant on a number of familiar existing proposals, many of which have been subject to a surprising barrage of often misguided criticisms. In this paper I attempt to answer the most important of these criticisms and to develop a number of general theoretical points about the nature of argumentation which motivate my own preferred psychological account. In particular, I believe that psychological definitions of deduction have distinctive pedagogical virtues and that they ought to be utilized more widely in introductory logic and critical thinking texts.

There is at present considerable disagreement amongst philosophers as to how many different types of arguments exist, and how each particular type of argument ought to be characterized. For the most part my discussion will remain neutral with respect to these highly contentious and complex issues. Though I believe that the definition of deduction I offer can and should serve as a model for defining other types of arguments, I will discuss such issues as the nature of induction and the status of conductive arguments only in so far as they bear upon the question of the adequacy of a definition of deduction. Hopefully this will simplify matters and help to separate distinct issues that are often confusedly run together.

I

My proposal, as suggested above, is a simple and familiar one.

> (D) An argument is deductive if, and only if, the author of the argument believes that the truth of the premises necessitates (guarantees) the truth of the conclusion.

In other words, in a deductive argument the author of the argument believes that it is not logically possible for all the premises to be true and the conclusion to be false.[1] An argument is *non-deductive* if, and only if, it is not deductive, i.e. if, and only if, the author lacks the requisite belief referred to in (D).[2] The word 'author' in (D), which I prefer on stylistic grounds to such terms as 'arguer', 'speaker' or 'interlocutor', should be interpreted liberally so

as to mean anyone who supports, advocates, or is committed to an argument, even if they are not the person originally responsible for that argument.

Throughout this paper, and especially in the footnotes, I will compare (D) to other existing proposals. I want to begin, however, by arguing that this definition has five distinct virtues which collectively set it apart from its principal competitors. First, a minimal adequacy condition that is reasonable to impose on any definition of an argument type is that the definition should allow for the possibility that there may be both acceptable and unacceptable (good and bad) instances of arguments of that type.[3] (D) satisfies this *bifurcation condition* in so far as the relevant belief of the author of a deductive argument may be either true or false. A deductive argument is *valid* if the relevant belief of the arguer is true, i.e. if the truth of the premises does in fact necessitate the truth of the conclusion. Valid deductive arguments are (at least conditionally) acceptable.[4] Otherwise, if the arguer's belief is false, then the deductive argument is *invalid*. Invalid deductive arguments are unacceptable in so far as the logical link holding between the premises and the conclusion is weaker than the link claimed to hold by the author of the argument. Textbook accounts of deduction which fail to satisfy even this minimal adequacy condition still occur with a depressingly high frequency. Usually the problem lies in defining deductive arguments in such a way that they are all valid.[5]

The second (and to my mind principal theoretical) virtue of (D) is that it highlights an integral aspect of argumentation that is often simply ignored. When someone presents an argument there are typically three basic questions that must be asked about the identity of that argument which are logically prior to any further questions of appraisal or evaluation: (1) What are the premises of the argument? (2) What is the conclusion of the argument? (3) How does the conclusion follow from the premises? It is more or less standard practice to assume that the author of an argument is the best authority when it comes to identifying the premises and conclusion of his argument. Yet curiously, time and time again, accounts of critical thinking (including textbook accounts) fail to address the third question of the strength of the logical link between the premises and the conclusion from the author's perspective.[6] This is curious because the very *identity* of the argument being presented will often rest on just this issue. Even granting that someone's argument takes the form 'S therefore C', a very different argument is being presented if C is alleged to follow from S with necessity rather than with, say, only probability.[7] One such argument may be persuasive, for example, and the other blatantly fallacious.

(D) gives prominence to an arguer's beliefs about her own argument. This can be justified within a general theory of argumentation (snippets of which I will only briefly sketch here). Argumentation is typically an interpersonal, communitarian exercise in which persons subject their convictions to critical public scrutiny. At the outset of an argument, each arguer has a distinctive set of convictions and commitments—a personal point of view, if you will. Through the process of sharing and scrutinizing one another's arguments, personal points of view come into contact with one another, and are shaped by this very process as beliefs are tested, revised, discarded or further justified. Though arguments are typically offered by individuals, argumentation itself is a collective enterprise one result of which is that individuals come to adopt points of view that they would never have adopted without having come into contact with other minds. Each arguer has the power (in principle) to affect others in this way and to make a distinctive contribution to this developmental process.

To overlook the personal point of view of an arguer is to fail to take seriously a principal tenet of both rationality and ethics to the effect that others have a personal point of view that first of all deserves a hearing, and second is something from which we as a community of persons could possibly benefit. Taking account of, in the sense of at least acknowledging the existence of someone's convictions is part of what it means to treat that person with dignity, fairness and respect. Theoreticians must therefore find a way to represent (to acknowledge) the personal point of view of an arguer at each stage in the process of argumentation at which that point of view plays a role. (D) is therefore one step in the right direction. If an author has a certain belief about the strength of the logical link within his argument, that matters. That is something from which we could possibly learn. Of course, the author's conviction may be mistaken and may not withstand critical public scrutiny. But this may never come to light (either to the author or anyone else) if the author's personal conviction is not first recognized at face value.

Of course, someone might concede that all of this matters while denying that it matters so much that we should actually define a type of argument in terms of the presence or absence of this particular belief. My reply to this worry is that we have to take seriously the project of classifying arguments as they are conceived by their authors, that the word 'deduction' and others like it are ideally suited to this purpose, and that this method of classification does not preclude us from making any other claims that ought to be made about the arguments in question. It is no part of my proposal to challenge the truism that the *principal* goal of argumentation is the discovery of truth or rational belief. However, highlighting the personal point of view in the manner suggested may be one of the best ways of promoting this goal.

Many other philosophers and logicians have used 'deduction' and 'deductive argument' to serve a variety of other purposes. In fact, sometimes these words are used ambiguously to serve a number of quite different functions at one and the same time. A third virtue of my definition of deduction is that it allows one (in so far as this is possible) to carefully separate the two principal stages of argument analysis: description and evaluation. On my account, to call an argument deductive is simply to describe it with reference to how it is conceived by its author. To call an argument deductive is not even to begin to evaluate it, though it does carry some implications as to what sorts of evaluative questions eventually ought to be raised about the argument. But all of these evaluative issues can be adequately addressed by employing an entirely distinct set of concepts which, of course, includes the concepts of validity and invalidity. Therefore, it makes sense to disambiguate the concept of deduction and employ it in a univocal, purely descriptive sense.

It should therefore be obvious that (D) is not put forward as a definition reporting established linguistic usage. Any argument within the class of classically recognized inductive arguments (generalizations, analogies, causal arguments, etc.) could be deductive according to (D) if the beliefs of the argument's author are sufficiently eccentric or confused. Likewise, any classically recognized deductive argument (modus ponens, hypothetical syllogism, etc.) could be non-deductive for the same reason. These implications are certainly unorthodox and not widely discussed by proponents of psychological definitions. However, as George Bowles has effectively argued, all intuitions about the propriety of the application of the terms 'deductive' and 'inductive' are 'theoretically informed'.[8] That is, no such intuitions have privileged pretheoretical status. Therefore, even very firmly held, pervasive intuitions informed by orthodox practice and (sometimes long forgotten)

conventions have no independent probative force within any debate over the relative merits of competing classificatory systems. To insist that every instance of modus ponens, say, must be a deductive argument is simply to *beg the question* against (D) and to fail to impartially consider its merits as a genuine competitor. That (D) deviates from some current practice of classifying arguments is no argument against (D) (except in the obvious utilitarian sense that there may be psychological costs associated with relinquishing cherished, familiar intuitions while acquiring new ones).

The fourth selling feature of (D) is simplicity. According to this definition, whether or not an argument is deductive depends on only one thing. (D) is monistic in the sense that it offers a single criterion and anyone, including beginning logic students, attempting to ascertain whether or not a given argument is deductive will know exactly what to look for—either the author of the argument has the relevant belief or he does not. Now, knowing what to look for and being able to find it are of course two different things and I will soon turn to some of the difficulties involved in applying (D) to actual arguments. But on the score of simplicity, though this may not be a singularly overriding consideration, it is undeniable that (D) fares better than numerous other definitions of deduction.

Finally, (D)'s fifth virtue is that it satisfies a certain *non-triviality* condition. Neither the very status of an argument nor our ability to ascertain whether it has this status should rest on such blatantly superficial considerations as, say, whether the argument happens to contain certain classically recognized so-called indicator words. A distinction which rests on what are often trivial considerations is a distinction not worth making. But the presence or absence of an author's beliefs about the character of his own argument is, I take it, significant enough to play a major role in the analysis of argumentation.

II

So much by way of my initial positive defense of (D). No defense would be complete, however, without addressing some of the serious criticisms that have been laid against certain proposals closely related to (D). By far and away the most challenging objection that I am familiar with is an epistemological worry that (D), and other definitions like it, are so difficult to apply to real arguments that there is little point in employing these definitions in the first place. In most cases it will either be impossible to tell whether a given argument is deductive or else any number of conflicting positions on this matter will be rationally defensible. So, why bother to employ a definition that yields little mileage?

This criticism has been directed against Irving Copi's account, iterated within several editions of his *Introduction to Logic*, which some writers take to be the most popular definition of deduction around.[9] Copi's position is that an argument is deductive if, and only if, that argument 'involves the claim' that its premises necessitate its conclusion.[10] Some philosophers in this tradition prefer to speak explicitly of persons as being responsible for the making of these claims.[11] What appears problematic about definitions of either sort is their use of the ambiguous word 'claim'. How does one discern whether an argument involves, or a person makes a claim to the effect that certain premises necessitate a certain conclusion? Traditionally, these accounts of deduction have been interpreted in such a way that the answer to this question is presumed to rest exclusively on a consideration of the linguistic or logical features of the argument in question. On this view, one is able to appeal to such various factors as the actual wording of the premises and the conclusion, the presence or absence of so-called indicator words or modalities linking the premises to the conclusion, the context in which the argumentative

passage appears, the actual logical relationship obtaining between the premises and the conclusion, the logical form of the argument, etc. I refer to all accounts of deduction which rest exclusively on considerations of this sort, and which in particular make no appeal to psychological factors, as *claim* accounts of deduction.

Claim accounts, which are unquestionably very popular, may be either monistic or *pluralistic*. On a pluralistic account, a number of distinct linguistic or logical criteria may be appealed to at any one time as being relevant to determining whether a given argument is deductive. A pluralistic account is also *intuitionistic* if these various criteria do not receive any kind of priority ranking, and no definite decision procedure is offered for determining how to categorize an argument when a number of these criteria conflict (e.g., when a characteristically deductive indicator word appears in a characteristically inductive context). Usually on these intuitionistic accounts critical thinkers are asked to weigh these various factors in some unspecified manner and ultimately judge for themselves whether the argument in question is 'best' or 'most appropriately' interpreted as deductive. At least one philosopher has suggested that these judgments are formed in a way analogous to the manner in which individuals weigh *prima facie* moral obligations in the process of deciding what they morally ought to do, all things considered.[12]

Intuitionistic accounts are problematic in two respects. First, they are (by definition) not monistic and, from a pedagogical point of view, monistic definitions are preferable, when they are available. Second, these accounts allow for too much indeterminacy. An account of deduction is uninteresting and, indeed, hardly qualifies as an account if frequently any answer to the question 'Is this argument deductive?' counts as a correct answer. These accounts are ideally suited to generate that all too familiar bleak scenario in which persons are led to conflicting positions on some issue with no clear sense of what could, even in principle, resolve their disagreement.

Monistic claim accounts of deduction which hold that only one sort of linguistic or logical consideration could ever be relevant to determining the deductive status of an argument are so implausible as to be virtually non-existent. Yet some pluralistic accounts have a marked affinity with monistic ones. What I call a *lexical* pluralistic claim account is an account which, while recognizing that a number of criteria are relevant, grants conceptual priority to one particular linguistic or logical criterion. Provided this criterion applies in a specific case, it overrides all other potentially conflicting criteria and decides the case at hand. Patrick Hurley, for example, offers a lexical account according to which an argument is classified as deductive if it is valid.[13]

Lexical accounts are also beset by two problems. First, they implicitly presuppose some further method for classifying those arguments in which the criterion to which they grant priority does not apply. I call arguments in this class *anomalous* arguments.[14] In Hurley's case, for example, all invalid arguments are anomalous. Lexical accounts can handle anomalous arguments in any of three ways. (A) The account can collapse at this point into a form of intuitionism. (B) Some other linguistic or logical criterion could be given priority in all anomalous cases. (C) A lexical account could claim either that anomalous arguments are non-deductive or that, though they could be deductive, we are simply not in a position to be able to tell whether this is so.

The first alternative is unacceptable for reasons outlined earlier. The second method only postpones the same problem since it will generate subsidiary anomalous cases of its own, and any account which posits a *series* of contextually relativized overriding criteria will likely appear highly artificial.[15] The third alternative raises the

question, to which I will return later, of how much (epistemological) indeterminacy is tolerable within an account of deduction. Though this is a difficult question, some lexical accounts would surely be unacceptable were they to follow the third route. As noted earlier, classifying an argument as non-deductive simply because it lacks a characteristically deductive indicator word violates the non-triviality condition.

Lexical accounts face a further, even more serious problem having to do with the issue of justifying the choice of one particular criterion, whatever it is, which serves in the first instance as being definitive of an argument's status as deductive or non-deductive. To focus on the actual wording of the argument, for example, seems inappropriate. Language, taken in isolation, is too imprecise a guide for understanding argumentation since for a multitude of reasons we often say what we don't mean and leave unsaid what we do mean. Contextual matters are just as obviously too unreliable to be given much credence on their own. Imagine, for example, that you are studying an argument taken from a sermon. This fact won't likely help you much in classifying the argument given that different individuals have different conceptions of theology, religion, what is and what is not appropriate discourse within a sermon, etc. Turning to yet another possible criterion, appealing to the actual logical relationship between the premises and the conclusion altogether ignores the author's point of view on the argument, as does an appeal to the argument's logical form. Arguments about probability, for example, often have a deductive form and are valid, but many people offer these arguments in the mistaken conviction that the conclusions of these arguments are only likely to be true given the truth of the premises. Alternatively, one can imagine a very sophisticated quantificational argument which commits a very subtle fallacy which can be exposed only within advanced model theory. Surely something is lost if this argument is classified as non-deductive simply because it is invalid.

Now, (D), which is not a claim account, paradoxically avoids many of these epistemological problems by focusing exclusively on beliefs. The granting of priority to beliefs is not difficult to justify if one takes seriously the suggestion that there ought to be room within a theoretical account of argumentation for describing how authors conceive their own arguments. Further, on this view there is always some fact of the matter which at least in principle unequivocally determines whether or not an argument is deductive, and this fact of the matter can always be appealed to in an attempt to resolve disagreements over classification. At least there should never be any confusion over what the disagreement is about. Finally, the presence or absence of a belief about the logical link within an argument is not so trivial or superficial a matter as to lead one to conclude that it could not reasonably play a significant role in the analysis of argumentation.

None of these points, however, get around the epistemological worry that (D) may nonetheless be difficult to apply to real arguments because of the inscrutability of beliefs—a problem which is compounded in the case of critical thinking where we are usually dealing with texts in the absence of their authors, who are either dead or inaccessible for other reasons. This objection can only be met head on. There is no denying that beliefs are less tangible than, say, the printed word. It must be admitted that it will often be difficult, and sometimes impossible to ascertain what an author's relevant beliefs are. Therefore, it will not always be possible to form rational beliefs as to whether or not a particular argument is deductive. But to grant the existence of these epistemological obstacles is not to grant the force of the original objection that these matters are *so*

problematic as to render a definition such as (D) worthless.

Three replies are available to mitigate the force of this criticism. First, (D) is in this regard in no worse a position than its principal competitors, many of which also allow some epistemological indeterminacy. Second, (D) is arguably in a better position than claim accounts which are restricted to an appeal to linguistic or logical criteria. In applying (D) we are of course permitted to appeal to this sort of evidence, but may in addition appeal to virtually anything else that would be relevant to understanding an author's personal point of view. (D) therefore has a broader evidential base to work from and, in particular, the principle of charity will play a major role here. For example, provided that one is analyzing an argument whose author one considers to be a reasonable person, one can ask oneself what a reasonable person would believe about the strength of the logical link within the argument and conclude, if there is no evidence to the contrary, that the author of the argument shares this belief. This very powerful technique will resolve many cases of epistemological indeterminacy.

Finally, and perhaps most importantly, the epistemological objection to (D) cannot really involve the inscrutability of beliefs *per se* since within the enterprise of critical thinking the appeal to an arguer's beliefs and personal point of view is simply *ineliminable*. At many stages of argument analysis, critical thinkers, again including beginning logic students, are called upon to form beliefs about an author's beliefs. Often these tasks are no less difficult than that of ascertaining what an author believes about the logical link within his argument. Often these tasks are no less important. I will limit myself to three examples. First, in deciding whether a passage contains an argument, a critical thinker has to determine whether the author of the passage believes that some particular claim is a reason for believing or doing something else. Second, in deciding whether a passage contains an argument as opposed to, say, an explanation, a critical thinker has to form certain judgments about which beliefs the author of the passage likely shares with his intended audience and considers to be uncontroversial. And perhaps most challenging of all, criteria for filling in enthymematic arguments often appeal to an author's beliefs. For example, it is inappropriate to add any premise to an argument if there is reason to believe that the author of the argument would not accept that premise.

This list could be extended. The difficulty in making these judgments about an author's epistemic state is not in itself a good reason for saying we ought not to bother attempting to make them, given the important role they play within the enterprise of critical thinking. Not only, then, is an appeal to the author's point of view unavoidable, but I think this concept of a point of view could serve a very useful pedagogical purpose as well. Too often students in critical thinking courses acquire what appears to them to be a set of disparate, disjointed analytical skills. They leave the course with no clear sense of what the overall project is, or how it all hangs together. One way of improving their perception that this set of skills in fact forms a unified package is to stress that many of these skills revolve around an attempt to simply understand, at a descriptive level, what another person is saying to us. Critical thinking, at this level, is part of a general endeavour to improve a person's ability to gain fair and unbiased access to the minds, or points of view of other people. It should be obvious how (D) contributes to this undertaking.

Deciding whether or not an argument is deductive will often be difficult. And just as persons are often strange and inscrutable, so too are their arguments. In deciding whether an argument is deductive we may have to take into account the author's psychological temperament, his

idiosyncratic beliefs, and possibly his prejudices, nationality, occupation, sex, age, etc. Some have considered this to be a defect of psychological accounts of deduction.[16] I, of course, do not. Why shouldn't these factors be relevant if our goal is, at least initially, to describe an argument as it is conceived by its author? The more parameters we allow to enter as relevant to the question of deciding whether an argument is deductive, the greater the possibility of rational disagreement of course. But an interesting corollary follows. We will be able to make more reliable judgments about the deductive status of another person's argument, the better we understand that person's point of view, i.e. the better we understand that person. Some people therefore will be in a better position to classify, say, some of Wittgenstein's arguments than others, simply because they have a better understanding of what that philosopher was up to. This too strikes me as a natural and welcome result.

III

The second major objection to (D) that I want to discuss arises out of the fact that arguers often put arguments forward for consideration believing only that their premises provide some unspecified manner of rational support for their conclusion. In so far as an author's belief about the logical link within his argument is no more fine-grained than this, these arguments could not count as deductive according to (D). This has proven to be a very popular argument against other psychological accounts which define deductive arguments as those arguments whose authors *intend* their premises to necessitate their conclusions.[17] As the relevant beliefs referred to in (D) are often absent, so too are the relevant intentions.[18]

Sometimes this objection is raised within the context of a debate as to whether the deductive-inductive distinction is exhaustive of all types of arguments, as has traditionally been supposed. If inductive arguments are defined as, say, those arguments whose authors believe that the truth of their premises non-conclusively establish the truth of their conclusion with some degree of probability, then of course some arguments will be neither deductive nor inductive since the author's beliefs will not be fine-grained enough to satisfy either criterion.[19]

However, unless one is strongly committed to the thesis that the deductive-inductive distinction is exhaustive of all argument types, it is difficult to see why any of these points should add up to a *criticism* of a psychological definition of deduction. It seems, then, that this criticism could be deflected just by admitting that the deductive-inductive distinction is not exhaustive. But this reply, as adequate as it may be, fails to say anything interesting about the general phenomenon that arguers often do put arguments forward with only very inchoate beliefs about their internal structure. Surely this relatively unexplored topic deserves further comment.

For this I think we need to introduce yet another type of argument. I call an argument *embryonic* if it is an argument whose author's maximal (or most fine-grained) belief about the logical link within the argument is that the premises provide some rational support for the conclusion. In order for someone to actually advocate an argument they must presumably believe at least this much, they must have some sense that premises are the sorts of things that at least purport to provide logical support for other claims. But the author of an embryonic argument has no beliefs of a more refined or sophisticated nature about the logical link within that argument. Clearly, no deductive or inductive arguments (as defined earlier) are embryonic.

Now, if one places an independent value on the existence of exhaustive

categorizations, one might think that talk of embryonic arguments would be of help here. Simply add embryonic arguments, so the suggestion goes, to any otherwise standard list of psychologically defined types of arguments (say, deductive, inductive and conductive) and an exhaustive list will be secured. Unfortunately, this view is mistaken. Often arguments are put forward hypothetically, experimentally, in the spirit of free play or free association, or by someone playing the devil's advocate.[20] In these contexts, arguments are being considered (usually with an eye to discovering the truth of some matter) while the persons putting forward these arguments have *no* firm convictions, however coarse-grained, as to whether, or how, the premises support the conclusion. The whole point of this sort of exercise is very often just to discover whether anyone can concoct an argument that 'works' and sheds light on the matter at hand. Arguments of this sort are not embryonic and, though they are still presented by persons, they do not have authors in the strict sense of the word defined earlier. The author of an embryonic argument supports, advocates or is committed to the argument in question, where these terms have a connotation stronger than merely putting the argument forward for perusal or critical examination.[21]

There is a tendency on the part of some philosophers, I think, to exaggerate the incidence of what I am calling embryonic arguments. Arguments are often presented in a hurried, incomplete or absent-minded fashion. Very often an author will present an argument without consciously attending to the nature of the logical link within his argument. But since beliefs are not always occurrent mental states, one cannot safely conclude that in these cases the author has no beliefs about this matter. Beliefs are often tacit or dispositional and may be inferred from considering other things the author explicitly says (either within the argument in question or elsewhere) or by speculating about how the author would respond to various objections to, or hypothetical questions about his argument.

One example that has been discussed in the literature on this topic concerns the case of someone who informs his wife that she ought to help him paint the kitchen because she had promised to do so.[22] The husband, it is claimed, may merely have intended to convince his wife to help him, and nothing more. Of course, such a case is possible. However, if it could be established that this person would insist that his wife ought to help him no matter what else happened (say, she breaks her leg or is called away to the bedside of a dying relative), it might be fair to say that this person *has* presented a deductive argument. For him, promising seems to logically guarantee the existence of some sort of an obligation even if, upon presenting the argument, he had not consciously attended to any such matters or articulated them (to himself or others) in this way. Possibly this belief is something that can be inferred from what the husband says or does, or would say or do in certain relevant counterfactual situations. After all, even the minimal alleged intention just to convince one's wife of something may not be occurrently present at the time the argument is given, but may also have to be inferred on the basis of linguistic or behavioural criteria.

Still, it is important to stress that there is nothing inherently objectionable about embryonic arguments. The term 'embryonic' is chosen to suggest the potential for further internal structural development and has, I hope, no pejorative connotation.[23] In order to appreciate this, one has only to reflect on the variety of situations that could prompt arguments of this type. One possibility is that the author of an argument is such a poor, unsophisticated reasoner that he hasn't yet fully grasped the idea that premises may provide radically different kinds of logical support for conclusions.

The most this person could ever offer is an embryonic argument, and there is no question that he is operating with a deficient set of cognitive skills. But now imagine a case at the opposite end of the spectrum, so to speak, of a reasoner who is so reflective and conceptually astute and who is pondering arguments so rarefied that even after long deliberation she cannot form a settled conviction as to the nature of a particular argument's logical link. She may not, for example, be able to decide whether the existence of a fetal right to life logically guarantees the immorality of a certain class of abortions, makes it more probable that these abortions are wrong, or provides one with good but defeasible reasons for believing they are wrong. She may, for example, be convinced by the ontological argument for God's existence, but not be sure whether the argument is so strong that it would be contradictory to believe its premises while rejecting its conclusion.

And then there are of course a multitude of intermediate cases of genuine embryonic arguments where the author doesn't have time to form a defensible sufficiently fine-grained belief, where he couldn't be bothered to either because the argument concerns a trivial issue or because he thinks he can persuade his audience without addressing this matter, etc. The general point is that there is not necessarily anything objectionable about either an embryonic argument or its author, and it would be a mistake to claim, as some have, that arguers ought always to present their arguments with some firm fine-grained conviction as to exactly how their premises support their conclusion.[24] A safer, more modest conclusion to draw would be that this is context dependent. It would, for example, be a mistake to present an embryonic argument on a very important topic to a logically astute but emotionally charged audience who have exhibited a tendency in the past to misunderstand virtually everything you say.

Though there is nothing inherently objectionable about embryonic arguments, non-embryonic arguments are certainly very often more appropriate, more powerful and more persuasive. Being able to present a non-embryonic argument is more of an accomplishment requiring greater conceptual sophistication. To be able to present a deductive argument, for example, requires understanding the concept of logical necessitation. Some philosophers have worried that logical necessitation is a 'philosophical construct' and that therefore, on this reading, since ordinary reasoners are not familiar with this construct, few people will be able to proffer deductive arguments. After all, this concept is difficult enough to teach even to university students. And this in turn is supposed to call into question the utility or worth of drawing this distinction in the first place.

There are two replies to this worry. First, even if it is true that few people are capable of presenting or perceiving deductive arguments, these arguments are still important and a critical thinker is better off being able to appreciate their existence and distinctive attributes. Most people can neither create nor recognize (nor possibly even appreciate the beauty of) high realism, yet that is no reason for banishing this category from the art critic's lexicon. Second, though I realize that the phrase 'logical necessitation' is not frequently used in common parlance, I have serious reservations about the claim that few 'ordinary' reasoners will be able to, or will only very infrequently present deductive arguments. Though this is really a sociological issue that I cannot properly explore here, ordinary reasoners (whoever they are?) do argue about the meanings of words, they can appreciate entailments and conceptual connections, and they can distinguish between certain cases of valid and invalid reasoning—albeit without employing any of this technical terminology. The argument that people who do not understand the *phrase* 'logical necessitation' cannot

present deductive arguments bears an uncomfortable resemblance to the claim that people who do not understand the words 'androcentric' or 'misogynist' cannot exhibit gender biased behaviour or utter sexist remarks.[25]

There is one final worry that ought to be laid to rest about employing philosophical constructs in the analysis of ordinary reasoning. It has been claimed that logical necessitation depends for its very intelligibility on the viability of the analytic-synthetic distinction, that this is a matter on which philosophers have by no means reached unanimous agreement, and that it is therefore in some sense unwise, disingenuous or irresponsible for any philosopher to promulgate the view that ordinary reasoners would benefit by acquiring or ought to master these and related distinctions. In this vein Trudy Govier has written that 'philosophers do not have a sufficient consensus on this matter to launch an education programme for the general public'.[26]

Now, the thrust of my paper has been that it is worthwhile to continue to speak of deductive arguments, and that one way of doing so is preferable to others. I have no illusions that everyone will be convinced by this, but I think my argument is important precisely because there is so much confusion and disagreement over this issue; enough in fact that a growing number of philosophers are becoming so frustrated with this topic that they are actually giving up talk of deduction and induction altogether.[27] I can assure my readers that my argument for the adequacy of (D) is not deductive in (D)'s sense. I know many will disagree with me and I know that in so doing they will not necessarily be either contradicting themselves or arguing from blatantly false or irrationally held premises. But that's just the stuff of philosophy. To argue that philosophers ought to keep quiet, or perhaps only speak amongst themselves, until that day comes when they've arrived at a state of consensus would not only stifle the social conscience of the philosophical community and eventually harm that very public which this proposal is presumably designed to protect. That advice, if followed, would, I'm afraid, sound the death knell of our discipline.[28]

Notes

*A draft of this paper was read at the Third International Symposium on Informal Logic held at the University of Windsor in June, 1989. I thank the participants at that conference for their critical comments and encouragement. I also thank Robert Paul Churchill in particular for many pages of engaging correspondence.

1 This follows from (D) by the following definition. The truth of a set of premises S necessitates (guarantees) the truth of a conclusion C if, and only if, it is not logically possible for all the members of S to be true and C to be false. The concept of logical possibility employed above is primitive on my account.

2 Complications arise in the case of contradictory beliefs. On the above account, an author will be presenting a deductive argument if he believes both that his premises necessitate his conclusion and that his premises do not necessitate his conclusion. This result, if felt to be objectionable, could be eliminated by adding a further clause to (D) to the effect that the author does not also simultaneously possess the relevant contradictory belief.

3 See Fohr (1980a:5) and Machina (1985: 572).

4 They may be unacceptable for other reasons as, for example, if they beg the question or contain false premises.

5 For some recent accounts which fail to satisfy the bifurcation condition see Damer (1987: 4-5), Engel (1986:27), Kelley (1988: 167, 198), Salmon (1984: 32), Waller (1988: 12-14) and Weston (1987: 46-47). Damer, Engel, Kelley and Waller are the worst offenders in so far

as they actually offer separate definitions of deductive arguments and valid arguments without either realizing or making their readers aware of the fact that their definitions are equivalent. Weston defines 'properly formed deductive arguments' in such a way that they are all valid, but offers no account of either improperly formed deductive arguments or deductive arguments simpliciter. Salmon explicitly acknowledges that on her account all deductive arguments are valid. The primary advantage of this, she says, is that 'it does not suggest that all inductive arguments are invalid deductive arguments solely because their premises do not provide conclusive support for their conclusions' (39). There are, however, other ways of blocking this result. Simply define the concepts of validity and invalidity in such a way that they can apply only to deductive arguments, as is found, for example, in Churchill (1986:48). Then inductive arguments are neither valid nor invalid, but are appraised by a set of independent criteria. It is also interesting to note that later in her book Salmon still feels the need to speak about arguments that purport to be deductive (somewhat along the lines of (D)) and admits that knowing whether an argument purports to be deductive 'is an important consideration' (162).

[6] These accounts are so pervasive as to hardly require documentation. Of course, many formal logic textbooks, including Bonevac (1987) and Kalish, Montague and Mar (1980), employ the concepts of deductive validity and deductive invalidity without ever mentioning deductive arguments simpliciter. In a similar vein, Skyrms (1986) argues that it is preferable to speak of different standards for appraising arguments rather than to attempt the difficult task of classifying arguments themselves into different types. Informal logicians such as Hitchcock (1980, 1981), Thomas (1986), Weddle (1980) and Yanal (1988) appear to concur on this point. The net result of all of these proposals is that the arguer's perspective on her own argument is lost. As proof I offer, as fairly representative of this school of thought, Hitchcock's remark that 'the main question to be asked in this connection about any argument is how strong the link is between the arguer's premises and his conclusion, not whether the arguer's claim about their link is correct' (1980:10). Also indicative of the spirit of this approach is Weddle's comment that usually in argumentation we are so much more interested in the argument itself and the question of the truth of its conclusion that 'the presenter of the argument...drops out as incidental' (1980:12)

[7] It is necessary on my account to incorporate beliefs about the strength of the evidentiary relation between premises and conclusions into the identity conditions of arguments. Otherwise, one and the same argument 'S therefore C' could be both deductive and non-deductive, if different relevant beliefs occur within different authors (or the same author at different times).

[8] Bowles (1991:2)

[9] Govier (1987:39).

[10] Copi (1978:32).

[11] Barker (1989:12).

[12] 'Just as different persons may weigh differently the same set of prima facie obligations and so come to different views as to what is the overriding obligation in a given situation, so different persons may weigh differently the various marks an argument presents and so judge differently whether an argument is deductive or inductive' (Freeman 1983:10). Out of fairness it must be noted that Freeman also discusses, without clearly endorsing, a 'supplementary principle' which resolves certain criteriological conflicts (1983:9). To this extent his account is not entirely intuitionistic.

[13] Hurley (1985:25). See also Beardsley's related claim account according to which 'a deductive argument is an argument that either is or claims to be valid' (1975:23).

[14] It should be obvious that the class of anomalous arguments varies from one lexical definition to another.

[15] Something like a serial account may be found in Freeman who offers a disjunctive criterion according to which 'a deductive argument either explicitly claims that its premises necessitate its conclusion or should be evaluated as if it made that claim' (1988:229). The latter disjunct refers to the possibility that an argument may belong to a classically recognized 'deductive family', but Freeman's text, both here and elsewhere (1983:9), suggests that explicit claims take priority. An argument's membership in a family carries weight only if no explicit claim can be identified.

[16] Hitchcock (1980:10).

[17] See Fohr (1980a:7), Guttenplan (1986:8) and Moore and Parker (1989: 209) for definitions which appeal to the existence of intentions. I believe it is relatively insignificant whether deduction is defined in terms of beliefs or intentions. Either account is acceptable.

[18] This criticism appears in Hitchcock (1980:10), Govier (1987:42, 46), Walton (1987:206), and Yanal (1988:87).

[19] On this definition, which I think we also ought to accept, a modus ponens argument, say, could be inductive (if the beliefs of the author of the argument are sufficiently eccentric) and therefore an inductive argument could be valid. I find this result unobjectionable, once we carefully distinguish between descriptive and evaluative terminology. However, if felt necessary, the result that an inductive argument could be valid can be blocked by following the proposal outlined in footnote five above according to which the concepts of validity and invalidity apply only to deductive arguments. This strategy, of course, would not prevent one from making the further important claim that were the modus ponens argument presented as a deductive argument, then it would be valid. Recognition of this fact should compel a rational arguer to alter his or her eccentric beliefs about the strength of the logical link within a modus ponens argument.

[20] Weddle (1980:12).

[21] 'Possible' arguments that have yet to be even conceived by anyone fall outside of any of the classifications that I develop in this paper.

[22] See Hitchcock (1980:10).

[23] As the words 'primitive', 'rudimentary' or 'abnormal' might.

[24] Fohr (1980a:8). In (1980b:6) Fohr goes so far as to make the implausible suggestion that someone hasn't 'really' presented an argument unless they have such fine-grained beliefs or intentions.

[25] This whole issue is further complicated by the fact that there are many quite different defensible philosophical accounts of logical possibility and, accordingly, logical necessitation. A psychological account of deduction is conservative if it insists on one specific reading of these concepts in ascertaining whether authors possess the requisite beliefs. An account of deduction is liberal if it accepts that different authors of different deductive arguments may be operating with quite different modal conceptions. A liberal account is more plausible if one of the aims of speaking of deductive arguments is to describe arguments as they are conceived by their authors. Yet even a liberal account, presumably, must place some constraints on what could conceivably count as a belief about logical necessitation.

[26] Govier (1980:8). See also Govier (1987:46-47).

[27] It is perhaps indicative of this trend that Copi has relegated the deductive-inductive distinction to an appendix in his seventh edition of *Introduction to Logic*. It should also be noted that it is easier to say that one is giving up this distinction than to actually do so. In a recent text, Little, Groarke and Tindale state that 'we chose not to give the deductive-inductive distinction a pivotal role in the structure of our text' (1989:xvii). Yet in fact parts two and three of their text are structured around what is essentially the traditional deductive-inductive distinction (102).

[28] It has been suggested to me in conversation that it was not Govier's intention to defend the thesis that philosophers should never advance norms or educational programmes for the general public unless they are arguing from a position of professional unanimity. Rather, her claim ought to be construed as the weaker thesis that if ordinary persons do not consciously use a certain concept, then it is problematic or objectionable for philosophers to use that concept, if it is a philosophically controversial one, to describe the behaviour and thought processes of those individuals. Unfortunately, this argument is also unpersuasive as it would discredit, for example, in an all too perfunctory manner the whole enterprise of psychoanalysis and all supporting philosophical accounts of the mind.

References

Barker, Stephen F.: 1989, *The Elements of Logic*, McGraw-Hill, New York.

Beardsley, Monroe C.: 1975, *Thinking Straight*, Prentice Hall, Englewood Cliffs.

Bonevac, Daniel: 1987, *Deduction*, Mayfield, Palo Alto.

Bowles George: 1991, 'The Deductive/Inductive Distinction', unpublished.

Churchill, R.P.: 1986, *Becoming Logical*, St. Martin's, New York.

Copi, Irving M.: 1982, *Introduction to Logic*, Macmillan, New York.

Damer, Edward: 1987, *Attacking Faculty Reasoning*, Wadsworth, Belmont.

Engel, S. Morris: 1986, *With Good Reason: An Introduction to Informal Fallacies*, St. Martin's, New York.

Fohr, Samuel D.: 1980a, 'The Deductive-Inductive Distinction', *Informal Logic Newsletter* (ii) 2, 5-8.

Fohr, Samuel D.: 1980b, 'Deductive-Inductive: Reply to Criticisms', *Informal Logic Newsletter* (iii) 1, 5-10.

Freeman, James B.: 1983, 'Logical Form, Probability Interpretations, and the Inductive/Deductive Distinction', *Informal Logic Newsletter* (v) 2, 2-10.

Freeman, James B.: 1988, *Thinking Logically*, Prentice Hall, Englewood Cliffs.

Govier, Trudy: 1980, 'More on Deductive and Inductive Arguments', *Informal Logic Newsletter* (ii) 3, 7-8.

Grovier, Trudy: 1987, *Problems in Argument Analysis and Evaluation*, Foris, Dordrecht.

Guttenplan, Samuel: 1986, *The Languages of Logic*, Basil Blackwell, Oxford.

Hitchcock, David: 1980, 'Deductive and Inductive: Types of Validity, Not Types of Argument, *Informal Logic Newsletter* (ii) 3, 9-10.

Hitchcock, David: 1981, 'Deduction, Induction and Conduction', *Informal Logic Newsletter* (iii) 2, 7-15.

Hurley, Patrick: 1985, *A Concise Introduction to Logic*, Wadsworth, Belmont.

Kelley, David: 1988, *The Art of Reasoning*, W.W. Norton & Co., New York.

Kalish, Donald and Richard Montague and Gary Mar: 1980, *Logic—Techniques of Formal Reasoning*, Harcourt Brace Jovanovich, New York.

Little, J. Frederick and Leo A. Groarke and Christopher W. Tindale: 1989, *Good Reasoning Matters!*, McLelland and Stewart, Toronto.

Machina, Kenton F.: 1985, 'Induction and Deduction Revisited', *Nous* (19) 571-578.

Moore, Brooke Noel and Richard Parker: 1989, *Critical Thinking*, Mayfield, Mountain View.

Salmon, Merrilee H.: 1984, *Introduction to Logic and Critical Thinking*, Harcourt Brace Jovanovich, New York.

Skyrms, Brian: 1986, *Choice and Chance*, Wadsworth, Belmont.

Thomas, Stephen: 1986, *Practical Reasoning in Natural Language*, Prentice Hall, Englewood Cliffs.

Waller, Bruce N.: 1988, *Critical Thinking—Consider the Verdict*, Prentice Hall, Englewood Cliffs.

Walton, Douglas N.: 1987, *Informal Fallacies—Toward a Theory of Argument Criticisms*, John Benjamins, Amsterdam.

Weddle, Perry: 1980, 'Good Grief: More on Deduction/Induction', *Informal Logic Newsletter* (iii), 1, 10-13.

Weston, Anthony: 1987, *A Rulebook for Arguments*, Hackett, Indianapolis.

Yanal, Robert J.: 1988, *Basic Logic*, West, St. Paul.

MARK VOROBEJ
DEPARTMENT OF PHILOSOPHY
McMASTER UNIVERSITY
HAMILTON, ONTARIO
L8S 4K1 ❑