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CARL WELLMAN'S CHALLENGE TO DEDUCTIVISM

by

Bradley Eugene Bowen

A Thesis
submitted to the
Faculty of Graduate Studies and Research
through the Department of
Philosophy in Partial Fulfillment
of the requirements for the Degree
of Master of Arts at
the University of Windsor

Windsor, Ontario, Canada

1987


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ABSTRACT

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Deductivism may be represented as the view that only sound deductive arguments are cogent arguments. In the first three chapters of Challenge and Response Carl Wellman criticizes five arguments for deductivism and presents two classes of counterexamples to deductivism. One class of counterexamples is that of inductive arguments and the second is a class that consists of arguments that Wellman calls "conductive." This thesis is a critical examination of the five arguments for deductivism, Wellman's views on the arguments, and the two counterexamples to deductivism that Wellman presents.

The first chapter of this thesis focuses on the five arguments for deductivism. Each argument is criticized and found to be unacceptable. A weak version of deductivism is distinguished from strong deductivism. Strong deductivism is the view that only sound deductive arguments are cogent. Weak deductivism is the view that all cogent arguments can be reformulated as sound deductive arguments. The second chapter of this thesis concentrates on the problem of induction, which can lead to arguments for deductivism.

Three sceptical arguments against the legitimacy of inductive reasoning are considered and found to be unacceptable. The third chapter deals with two counterexamples to deductivism, one conductive and the other inductive. An argument for the weak version of deductivism is considered and rejected, and five strategies for converting these counterexample arguments into sound deductive arguments are examined and found wanting. The conclusion argued for is that it is reasonable to reject strong deductivism and to be sceptical of weak deductivism.

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INTRODUCTION

The topic of this thesis is reasoning. I am interested in this topic because I attribute a large share of the evil in the world to stupidity, gullibility, prejudice, rationalization, self-deception and other intellectual deficiencies, especially in relation to political authority. There was a time in history when political power was intermingled with religious authority and the use of reason to question authority was anathema. Heretics were burned at the stake. Now that political authority has been largely separated from religious authority, one would think that reason would immediately and universally be applied in this most important area of human activity. Sadly, this is not the case.

However, since heretics are no longer being burned at the stake, I have hope that reason may finally be applied in full strength to political authority. I place my hopes in the process and institutions of education to help bring about this transformation. Though educational institutions have a long history of indoctrinating students into the status quo of irrationality, this need not be the case. Much needs to be done to make education serve the cause of true democracy--the thoughtful and rational exercise of power by the people--but this can be accomplished. One of my main purposes in life is to promote the notion that the

first aim of education is to help students to become rational and autonomous thinkers.

That explains my interest in reasoning, but why am I interested in the concept of reasoning, or the theory of reasoning? For one thing, any approach to teaching students to be better reasoners will be improved by a clearer and more accurate conception of the nature of reasoning. For another, I am worried that the tempting view that all reasoning is deductive forces some of our most important thinking into a mold which warps and distorts it. My main concern in this thesis is to point out problems with this view of reasoning, which is called "deductivism."

My discussion of reasoning is heavily dependent upon the early chapters of Carl Wellman's book Challenge and Response, especially Chapter One of his book. Wellman attacks a view of justification which asserts that to justify a claim is to give a sound deductive argument for the claim. He sees this view as being based on two assumptions. The first is that to justify a claim is to give a cogent argument for that claim, and the second is that only sound deductive arguments are cogent arguments. My thesis will focus on the second assumption. In Chapter One of Challenge and Response Wellman examines five arguments for deductivism, presents two classes of counterexamples to deductivism, and criticizes five strategies for reformulating his counterexamples as

deductive arguments. In large part, my thesis is a re-examination of the subject and content of this chapter of Wellman's book.

The purpose of this thesis is primarily negative. I argue against two related views of reasoning: strong deductivism and weak deductivism. In my judgement both of these views involve an over estimation of the scope and value of deductive reasoning. Strong deductivism is the view that only sound deductive arguments are cogent, and weak deductivism is the view that all cogent arguments can be reformulated as sound deductive arguments. In Chapter One, I re-examine the five arguments for deductivism that Wellman criticizes in Challenge and Response. The second chapter ~~focuses on~~ an important aspect of the problem of induction. I discuss the problem of induction because it leads to a major argument for deductivism that Wellman does not adequately cover in his book. Finally, in the third chapter I examine the weak version of deductivism by re-examining the five strategies for reformulating counterexample arguments as sound deductive arguments. I shall try to show that strong deductivism should be rejected and that we should be sceptical of weak deductivism. I do not here attempt to formulate a positive alternative to the view that reasoning is deducing, but I hope that this thesis will show the need for an alternative conception of reasoning to deductivism.

CHAPTER ONE

Arguments for Deductivism

1.0 Arguments for Deductivism: Introduction

In this chapter I will examine five arguments for deductivism that Carl Wellman critiques in the first chapter of his book Challenge and Response. I will comment on Wellman's criticisms and argue for my own evaluations of these arguments. I disagree with many of Wellman's criticisms but agree with his conclusion that none of these arguments is acceptable.

Deductivism asserts a very general claim about all cogent arguments. It asserts that all cogent arguments are sound deductive arguments, that only sound deductive arguments are cogent arguments.[1]

Anti-deductivists like Wellman put forward counterexamples to deductivism, but deductivists like Karl Popper usually put forward abstract or general arguments, such as the problem of induction.[2] This difference is partly a matter of philosophical style or leaning; some philosophers prefer to argue specifics and cases, while other philosophers love abstract argumentation. It is also partly a matter of the nature of the question, for a general claim like deductivism requires a general argument. One can argue cases for years without ever coming close to establishing such a general thesis. The problem is that the

clash of abstract arguments on the one side with counterexamples on the other side leaves the debate in a stalemate. Popper seems to dismiss counterexamples mainly because he thinks his abstract argument for deductivism shows that something must be wrong with the counterexamples. Wellman appears to reject deductivism because of the counterexamples, while largely ignoring the problem of induction. In order to move the debate further along it is necessary for each side to bend a bit and deal with the arguments of the other side. It is necessary to argue both specific cases and general arguments, and to integrate these arguments as much as possible.

The focus of this chapter is on general arguments for deductivism. However, before I focus attention on these arguments, two counterexamples (or classes of counterexamples) to deductivism will be briefly presented. It is my contention that if the general arguments for deductivism are found wanting, then we have no reason in principle to reject Wellman's counterexamples to deductivism. Thus, to the extent that I am able to show that arguments for deductivism are not cogent, we should take Wellman's counterexamples seriously and, if they turn out to be cogent, reject deductivism.

1.1 Two Counterexamples to Deductivism

In Challenge and Response, Wellman puts forward two sorts of counterexamples to deductivism: inductive arguments and a class of arguments that Wellman calls "conductive" arguments. Wellman defines induction as "that sort of reasoning by which a hypothesis is confirmed or disconfirmed by establishing the truth or falsity of its implications." [3] Unfortunately, one of his main examples of induction does not fit this definition:

I have eaten at Barney's ten times and have enjoyed nine delicious meals; therefore, if I eat at Barney's again tonight, I will enjoy another delicious meal. [4]

The prediction that a meal at Barney's tonight would be delicious does not imply that previous meals were delicious. Therefore, the fact that previous meals were delicious is not an implication of that prediction.

Wellman's argument could be repaired to fit his definition by making the conclusion a general statement about the quality of meals at Barney's, such as "Barney's usually serves delicious meals." Even that generalization does not exactly imply that previous meals were delicious. But this argument about Barney's restaurant seems to be a cogent argument that is not deductively valid. So even though it does not fit Wellman's definition of induction, it serves well as a counterexample to deductivism.

Some scientific arguments fit his definition of induction better, such as the following one that Wellman mentions:

Suppose the theory that the world is flat is faced with the daring hypothesis that the world is really round. A possible test case would be to watch a ship sail away into the sunset. The theory that the world is flat implies that the ship will gradually diminish in size as a whole, while the hypothesis that the earth is round implies that the ship will sink out of sight with the lower portion disappearing before the masts. When the experiment is actually tried, it turns out that the red sails can be seen after the hull has ceased to be visible. This result confirms the theory that the world is round and disconfirms the hypothesis that it is flat. [5]

This argument is also a counterexample to deductivism. Its premises do not entail that the earth is round, but it does seem to be a cogent argument in support of this hypothesis. Such inductive arguments give us a good reason to reject deductivism.

Wellman defines induction as "that sort of reasoning in which 1) a conclusion about some individual case 2) is drawn nonconclusively 3) from one or more premises about the same case 4) without any appeal to other cases." [6] I am not sure about the adequacy of this definition, but I like his example arguments: "You ought to take your son to the circus because you promised." [7] and "You ought to return my book by Sunday because you promised to do so." [8] These seem to be cogent arguments even though their conclusions are not entailed by their premises. So we have another

class of cogent arguments that do not fit into the deductivist theory.

But perhaps our acceptance of these counterexamples is hasty. Before we are free to follow our intuitions in these particular cases, we need to take a look at general arguments in support of deductivism. Perhaps such arguments can throw light on these counterexamples and show our intuitions to be mistaken. With these considerations in mind, I now turn to the five arguments for deductivism that Wellman critiques in Challenge and Response.

1.2 The Convenience Argument

Wellman presents his first argument as follows:

There are many strong arguments to support deductivism at least in one area of ethics. One is that it would be more convenient if deductivism were true. If all ethical arguments were deductive, it would be relatively easy to distinguish between valid and invalid ones; one could simply employ the powerful techniques of deductive logic.[9]

This argument may be strong in the sense of being psychologically powerful, but it is hardly strong in terms of cogency. Reality is often not convenient, thus to say that "it would be more convenient if X were the case" is hardly to give a relevant reason in support of the claim that "X is the case" (If wishes were automobiles, graduate students would drive Porsches). The question at issue here is: Does the claim of the deductivist fit reality? not: Would life be easier if reality conformed to deductivism?

1.3 The Simplicity Argument

The second argument is not much better than the first:

Another argument in favor of deductivism is that it is the simpler of two hypotheses. If all valid arguments are deductive, one need recognize only one kind of reasoning and one body of logical rules.[10]

Reality is often not simple. Thus to say that, "reality would be simpler if X were the case" is not to give a weighty reason for the assertion that "X is the case". It is wise to begin with simple hypotheses and theories in trying to explain or account for something, but one should not assume that the truth of the matter will end up being simple in the end. We start with simple hypotheses because they are easier to work with and because sometimes we avoid having to work with more complex hypotheses if we are lucky and reality turns out to be simple in the case at hand. The real question here is: Does the admittedly simple theory of deductivism account for the facts, does it fit reality, or does it oversimplify the way things are? Are there instances of cogent arguments that are not deductive arguments? The above mentioned counterexamples suggest that deductivism oversimplifies reality.

1.4 The Containment Argument

The third argument for deductivism that Wellman considers is more interesting than the first two:

...the very nature of reasoning rules out the possibility of nondeductive reasoning. Reasoning, it is often claimed, is simply making explicit what is contained in one or more premises. Since the conclusion of any valid argument is already implicit in the premises, it always follows necessarily, that is deductively, from them.[11]

Wellman criticizes this argument by pointing out the problematic nature of the concept of "containment" in this argument:

The difficulty with this conception is in explaining just what it means to say that the premises "contain" the conclusion. If no adequate interpretation of this spatial metaphor can be found, then this conception of reasoning must be rejected.[12]

Wellman considers and rejects three possible ways of interpreting the notion of "containment" and concludes that this argument won't do. But I do not think that this is the strongest criticism that can be made against this argument. The three ways of explicating "containment" are really just three ways of trying to explain how a set of premises can entail another statement. Even if a perfectly acceptable explanation of how a set of statements can entail a further statement was available, this would not help one whit to establish the claim that all valid reasoning is making explicit what is contained in the premises of the reasoning. The problem with this third argument for deductivism is that it begs the question by asserting that all valid reasoning makes explicit what is contained in the premises.

Wellman's formulation of the argument makes this petitio fairly clear, though he fails to notice the problem

himself. One of the premises of the argument asserts that, "the conclusion of any valid argument is always implicit in the premises." [13] Thus no matter how the concept of "containment" is unpacked, it must refer to the relation of a conclusion being "implicit in" a set of premises. But what does it mean for a conclusion to be implicit in a set of premises? It means nothing other than that those premises imply (read "entail") that conclusion. But then in order to know that all instances of valid reasoning are instances where the conclusion is "contained in" the premises, one must first determine that all instances of valid reasoning are instances where the conclusion is entailed by the premises. This, however, is the very question at issue. It does not really matter how clearly and plausibly the metaphor of containment is spelled out, because the notion of containment is conceptually linked to the concept of entailment. This third argument for deductivism begs the question.

1.5 The Enthymeme Argument

The fourth argument for deductivism that Wellman considers evolves out of the motivation suggested by the convenience and simplicity arguments:

...nondeductive ethical arguments would be inconvenient to handle in practice and difficult to explain in theory. [But]...it is unnecessary to accept any such troublesome arguments. Granted that many ethical arguments are stated nondeductively, it is always possible to interpret these as deductive but

enthymematic arguments. If it is possible to transform every valid ethical argument into deductive form, then one need not grant the existence of nondeductive reasoning at all. [14]

In some ways this seems the most interesting of the five arguments that Wellman examines. However, I will not criticize this argument at great length here. Chapter Three of this thesis is largely devoted to this argument in that it deals with various attempts to reformulate counterexamples to deductivism into sound deductive arguments. For now I will simply try to clarify the logical relationship between the enthymeme argument above and two different versions of deductivism.

First of all, the enthymeme argument as Wellman has construed it is purely defensive. It is not a positive argument in support of deductivism; rather, it is an attempt to defeat or neutralize the counterexample of cogent inductive arguments. Defeating a counterexample is not the same as establishing a general claim. Furthermore, the neutralization of inductive counterexamples to deductivism fails to eliminate the problem of inductive counterexamples.

These objections could be avoided simply by generalizing Wellman's enthymeme argument as follows:

It is always possible to interpret cogent nondeductive arguments as deductive but enthymematic arguments. If it is possible to transform every cogent nondeductive argument into deductive form, then one need not grant the existence of nondeductive reasoning at all.

Now any argument can be reformulated as a valid deductive argument, so the real question is whether all cogent arguments can be formulated as sound deductive arguments, that is to say, as valid deductive arguments with premises that are true or acceptable. Wellman discusses a number of strategies for converting cogent nondeductive arguments into sound deductive arguments, and I will take a closer look at these strategies in Chapter Three of this thesis. But for now it should be noted that success in reformulating some counterexamples does not prove that all counterexamples can be reformulated. I shall call the claim that all counterexamples can be reformulated the "weak" version of deductivism. Another way of putting this claim is to say that all cogent nondeductive arguments can be reformulated as sound deductive arguments. Weak deductivism contrasts with "strong" deductivism, which asserts that only sound deductive arguments are cogent.

Wellman does not mention a general proof for the claim that all cogent nondeductive arguments can be reformulated as sound deductive arguments, so the first premise of my version of the enthymeme argument for deductivism is left undefended. Since it is far from obvious that the weak version of deductivism is true, this argument is unacceptable as it stands, without further support being given.

Suppose, however, that the weak form of deductivism could be established. Would it follow that the strong version of deductivism was true? That is to say, would it follow that only sound deductive arguments are cogent arguments? I think not. I do not think that the weak version of deductivism entails the strong version.

John Stuart Mill might accept the weak version of deductivism, but also assert the converse of this claim, namely that all sound deductive arguments can be reformulated as cogent inductive (or nondeductive) arguments. There seems to be no obvious contradiction involved in holding both of these positions. But if Mill adopted both positions and turned out to be correct in both cases, then the strong version of deductivism could be wrong even while the weak version was correct. This shows that the strong version does not entail the weak version. Another way of putting this is to say that the fact that all cogent nondeductive arguments could be reformulated as sound deductive arguments does not prove that they must be so formulated, or that sound deductive arguments are uniquely qualified to count as cogent arguments.

An analogy might be useful here. It is probably true that every meaningful sentence in French can be translated into or formulated as a meaningful sentence in English. But this does not prove that only sentences in English are meaningful nor that English is uniquely capable of

expressing meaningful sentences. This can be seen by pointing out that it is probably true that every meaningful sentence in English can be translated into a meaningful sentence in French. There may be some advantages in expressing sentences in English and other advantages in expressing sentences in French. It need not be the case that there is only one true language for expressing sentences. Similarly, cogent arguments might be formulable as deductive and as nondeductive arguments. It need not be the case that deduction is the only true form of reasoning.

It might be objected that translating sentences from French to English is very different from reformulating nondeductive arguments as sound deductive arguments in that translating involves replacing some words with different words while reformulating nondeductive arguments involves the addition of new words (premises) to what was already there. In other words, the reformulation of cogent nondeductive arguments should be viewed as the completion of an incompletely stated argument. But, as Wellman points out, the notion of "completeness" is evaluative in nature and thus presupposes an ideal as to what constitutes a correct argument:

In this view arguments that seem to be both nondeductive and valid are nondeductive, but they are not valid. They seem to be valid only because they are fragments of deductive arguments that really are valid. But how do we know that every nondeductive argument is logically incomplete? Whether or not one must add a premise to make the nondeductive argument valid is

precisely the question at issue. The fact that one can produce an additional premise that will transform the argument into deductive form does not prove that one needs to do so.[15]

That nondeductive arguments are always incomplete or logically defective is something that needs to be argued for. Thus, establishing the weak version of deductivism is not sufficient to prove the strong version of deductivism. The enthymeme argument might work as a defense against counter examples to deductivism and a support for weak deductivism, but it will not do as an argument for the strong version of deductivism, at least not without the addition of a general argument to show that all nondeductive arguments are logically incomplete.

1.6 The Inference Rules Argument: An Overview

The fifth argument for deductivism presents a dilemma for those who wish to claim that ethical arguments like what Wellman terms conductive arguments are both nondeductive and cogent:

Either one must hold that these arguments obey discoverable rules of nondeductive inference or one must hold that they do not obey any such rules. But if one holds that there are such rules, he can be forced to accept deductivism; while if he denies that there are such rules, he can be forced to give up his claim that these arguments are valid.[16]

Wellman argues that neither side of the dilemma defeats the counterexample of conductive arguments. He personally opts for the second horn of the dilemma and holds that inference rules are not necessary in order to establish or determine

the validity of an argument. But he also sees no serious problem with proposing new ethical rules of inference for his conductive arguments.

The first horn of the dilemma is developed from the third chapter of R.M. Hare's book The Language of Morals. The second horn is not backed up by an argument but rather represents a common assumption, that an argument can be taken to be valid only if the inferences in it are warranted with reference to rules of inference.

This fifth argument for deductivism is defensive in nature, and it only defends deductivism against counterexamples in ethics, such as Wellman's conductive arguments. Thus the argument will not do, as it stands, as a general proof for deductivism. Nevertheless, there might be a way to generalize this argument to cover all nondeductive arguments. The concept of inference rules might provide the basis of an argument showing that all nondeductive arguments are logically defective or incomplete. So I will examine this argument in some detail, in spite of the fact that in its present form it will not do as a positive argument for deductivism. I will reject Wellman's criticisms of Hare but agree with Wellman's position that the anti-deductivist can and should take on the second horn of the dilemma.

1.7 The Inference Rules Argument: The First Horn

The obvious move of the anti-deductivist is to suggest a new kind of inference rule and thus to take on the first horn of the dilemma. One might suggest the following inference rule to rescue Wellman's conductive arguments: "from a statement asserting that someone promised to do an act one may infer that that person ought to do that act." [17] This would allegedly authorize the inference from "You promised to return my book by Sunday" to "You ought to return my book by Sunday".

In the following passage, Wellman relates Hare's objection to this attempt to introduce new rules of inference for ethical arguments:

The marks of a genuine rule of inference are that it can be established by analyzing the meanings of the logical words involved and that it is empty. . . . The alleged rule of ethical inference fails on both accounts. . . . Therefore, it really amounts to the moral principle "one ought to keep one's promises" in disguise. —It is not a tautological logical principle, but a substantial moral principle. [18].

Wellman disputes the assumption that accepted rules of inference are established by analysis of the meanings of their logical words, and he points out problems with understanding what is meant by a "logical word". He also suggests that the notion of being "empty" is less than clear, and that on one interpretation proposed rules of ethical inference would be empty.

Wellman has not, however, accurately portrayed Hare's position. Hare does not say that all genuine rules of inference "can be established by analyzing the meanings of the logical words involved . . ."[19] Rather, Hare says that "the rules of inference of ordinary logic can be shown to depend on the definitions of the logical words . . ."[20] Here, in context, the word "ordinary" means "standard" or "traditionally accepted", and "to depend on" means "to be true in virtue of". Hare is saying that traditionally accepted rules of inference are true in virtue of the meanings of the logical words they contain. This does not imply that all new rules of inference must be exactly like the traditional ones and that new inference rules must be true in virtue of logical words they may contain.

In the fifth section of Chapter Three of The Language of Morals, where Wellman found Hare's argument, there is no indication that Hare insists that all new rules of inference be true in virtue of the logical words they contain. In this section, Hare examines and rejects the suggested new rule of inference (for science): This is a mule, so this is barren. Hare never objects to this rule as not being based on the meaning of its logical words. Rather, he objects to it as not being based on the meaning of its words; that is, it is not analytic. Hare objects to this suggested inference rule about mules by stating:

If . . . we want to assimilate the laws of science to the rules of inference, we shall have to show that they, likewise, follow from the meanings of the words used; for example, we shall have to show that the reason why we can pass from "This is a mule" to "This (mule) is barren" has something to do with the meaning of the words "mule" and "barren". [21]

Note that Hare does not object to the fact that "mule" and "barren" are not logical words. He objects only that this alleged inference needs to be shown to be analytic.

In discussing the possibility of new ethical rules of inference, Hare makes the same objection as he does with the above suggested inference rules about mules. He argues that ". . . to hold that an imperative conclusion can be derived from purely indicative premises leads to representing matters of substance as if they were verbal matters." [22]

And he urges us to keep rules of conduct separate from rules of logic:

We should be concerned to distinguish between on the one hand general principles about our conduct which have content, and tell us what to do, or refrain from, certain positive acts in our external behaviour, and on the other logical rules, which are . . . not about our actions, but about the meanings of the words used. [23]

The problem is that proposed rules of inference for ethical arguments "have content"; that is, they are not analytic.

Thus Hare's argument should be understood as follows:

1. Alleged rules of inference for ethical arguments are not analytic.
2. All genuine rules of inference are analytic.

Thus,

3. Alleged rules of inference for ethical arguments are not genuine rules of inference.

It seems fairly clear that ethical rules of inference, or at least the one suggested by Wellman to help his conductive ethical argument, are not analytic. I would argue that there is no contradiction in denying the relevance of promising to do X to the question of whether one ought to do X (See Section 3.7, pages 116 and 117). Of course, it might be odd or mistaken to deny the relevance of the one to the other, but this does not imply that it is self-contradictory or unintelligible. To deny the relevance of having three sides to being a triangle is not merely odd. To say "this triangle does not have three sides" is to say something self-contradictory. We might disagree with someone who denied the relevance of promising to the carrying out of the promise, but we understand what it is that we are disagreeing with. This cannot be said of the assertion that some triangles do not have three sides. Hare is right in his claim that ethical rules of inference make positive judgements that go beyond simply analyzing the meanings of the words involved.

Thus Wellman must defeat the second premise in the above argument in order to allow for proposed ethical rules of inference to be considered genuine rules of inference. Because Hare's argument is slightly misconstrued by Wellman, the objection that is raised against Hare is not directly

aimed at the claim that all genuine rules of inference are analytic. Wellman attacks an assumption that underlies this claim; he tries to show that standard rules of inference are not in fact "established by an analysis of the logical words involved." [24] If Wellman can show this much, he will have at least cast strong doubt on Hare's assumption that standard rules of inference are analytic, for it is hard to see how standard rules of inference could be analytic apart from an analysis of the meanings of their logical words.

Here is how Wellman puts his objection to the assumption that underlies the second premise of Hare's argument:

It is doubtful that the rules of the syllogism are established by an analysis of the meaning of the words involved. Boolean algebra did not depart from traditional logic because it was discovered one day that the words "all" and "some" had been previously misunderstood; rather modern logicians have changed the meaning of these words, to the extent that they still use them, in order to save certain rules of inference they accepted on other grounds. [25]

This argument seems beside the point. Wellman here addresses the question of how rules of inference are discovered, formulated, and adopted. But the issue is whether or not our present standard rules of inference are analytic. Perhaps these rules were not discovered or adopted on the basis of an analysis of their logical words, but that does not impinge on the claim that they are true in virtue of the meanings of their logical words. Even if it is the case that logical words have been assigned new

meanings by modern logicians, this would not affect Hare's claim that standard rules of inference are analytic. For these rules could still be true in virtue of the meanings of their logical words when these words are taken in their new senses. For example, the inference rule that "If X and Y then X or Y" is true in virtue of the meanings of the words "and" and "or", but only when the logical word "or" is taken in the logician's new technical sense known as the inclusive "or", where the truth of both alternatives is permitted.

The other objection that Hare makes is that alleged new rules of inference for ethical arguments turn out to be "nothing but the old rules of conduct in a new disguise. What under the old dispensation appears as an imperative major premise reappears under the new as a rule of inference." [26] That is to say, not only do these alleged rules of inference fail to count as genuine rules of inference, but they turn out to be simply a way to sneak in a missing premise which was needed to make the argument deductively valid. Unfortunately, Wellman does not deal with this argument because he mistakenly takes it to be based upon the claim that proposed rules of inference for ethics are not genuine rules of inference. Thus in objecting to the argument for the claim that these suggested rules of inference can not be genuine rules of inference, Wellman thinks that he is thereby undercutting the argument

that these inference rules are just the old rules of conduct in disguise.

Suppose that Hare's first argument was defeated and it could be shown that the proposed rules of inference for ethical arguments were not disallowed as candidates for genuine rules of inference. It still might be the case that these rules played the same role as used to be played by the major premise of a more traditional deductive ethical argument. In that case, these rules of inference would make what, at first blush, appeared to be a nondeductive argument into an argument that really involves only deductive inferences. Therefore, this second argument of Hare's should be examined on its own merits.

The inference rule that Wellman suggests seems to me to simply be a substitute for an evaluative major premise. It suffers from the same problems that an evaluative major premise has. Wellman himself admits that general ethical premises are problematic:

For my part, I find myself unable to formulate any ethical generalizations that seem to me true universally, and I can always think of exceptions to the principles asserted by my friends. Until we can actually formulate such principles, I do not see how we can use them to justify our ethical conclusions. [27]

So if Wellman's rules of inference for ethical arguments turn out to be analogous to general principles of ethics or evaluative major premises in more traditional deductive

arguments, then Wellman will be forced to give up such rules on pain of contradiction.

The problem with Wellman's proposed rule of inference is the same problem that he finds in ethical generalizations: one can think of exceptions to it. The inference rule he suggests is that, "from a statement asserting that someone promised to do an act one may infer that that person ought to do that act." [28] But what if instead of promising to return a book on Sunday, someone attending a meeting of white supremacists promises to bomb a church full of black people on Sunday? According to Wellman's rule of inference, we would be correct to infer that "that person ought to do that act"! This conclusion is absurd. Yet the premise it is based on is not the problem. The problem lies with the rule of inference that allows this conclusion to be derived from that premise. Wellman might try to patch up his rule of inference by adding qualifications to allow for exceptional cases, but such a move exactly parallels moves made by those interested in trying to formulate true moral principles.

Either Wellman's inference rule allows exceptions or it does not. If it does not, then it is just a universal ethical principle in disguise and it is false. If it does, then it is unclear how and when such exceptions are to be made. The rule does not work in the neat and tidy fashion of traditional rules of deductive reasoning. The rule is

more or less useless unless and until it is carefully explained how to determine whether a given case is exceptional. Otherwise, people could simply claim that particular cases were exceptional whenever it suited their interests to do so.

Thus I conclude that Wellman has failed to defeat Hare's arguments which make the first horn of the dilemma unacceptable. Rules of inference for ethical arguments would be different from standard rules of inference in that they are not analytic. Furthermore, they appear simply to sneak back in the problematic major premise of older deductive ethical arguments, so it is hard to see what is gained or changed by opting for such inference rules. On the other hand, the prospect of finding true moral principles to use in deductive arguments also seems poor. It will take something more novel or sophisticated than Wellman's suggested rules of inference for ethical arguments to resolve this difficulty.

1.8 The Inference Rules Argument: The Second Horn

What about the second horn of the dilemma? This is, after all, the horn that Wellman prefers to take on. He offers two objections to this second horn. The first objection is as follows:

. . . it is taken for granted that the only way to justify the claim to validity is by a rule of inference, but this is just not so. . . one can show

that an argument is valid by reformulating it or by explaining its point. [29]

The word "show" here is problematic. It is ambiguous between the following two senses: (1) prove by argument or, (2) reveal to someone. I take it that the idea behind the second horn of the dilemma is that without rules of inference one cannot prove by argument that an argument is valid. Wellman's reply seems to be that one can reveal to someone that an argument is valid without appealing to rules of inference.

But in the case of valid deductive arguments, at least, revealing an argument to be valid may involve a tacit appeal to rules of inference. In other words, in helping a person to see the validity of a particular argument we may in effect be helping her to see how that argument falls under a general rule of inference. The use of Venn diagrams is a case in point. Suppose I present the following somewhat confusing argument to a class of logic students for evaluation:

1. All cows are cars.
2. It is not the case that some cars are black.

Thus,

3. No black things are cows.

If students had difficulty determining whether this was a valid argument, I could reveal to them the validity of the argument without explicitly appealing to rules of inference by drawing a Venn diagram of the argument on the chalk

board. But it seems to me that what I am doing in revealing the validity of the argument is trying to get my students to gain an intuitive grasp of the inference rules that make the argument valid. At any rate, Wellman needs to show that an intuitive grasp of an argument's validity need not involve grasping a general principle. Otherwise, his first objection to the second horn of the dilemma seems beside the point. Revealing the validity of an argument is a somewhat different task than proving the validity of that argument, and proving an argument to be valid may demand reference to a rule of inference.

The second objection that Wellman makes is that the recognition of the validity of particular arguments is prior to the derivation or discovery of rules of inference:

Far from it being true that the claim to validity in particular cases depends upon the existence of a rule of valid inference, the rules are derived by induction from particular cases. We decide which logical principles to accept by discovering the principles implicit in the arguments we find acceptable prior to any appeal to logic. [30]

When Wellman asserts that the rules of logic are "derived by induction from particular cases" surely he is not suggesting that the basic rules of deductive logic are merely probable hypotheses that might be overturned by future counter instances. But then I am not sure what Wellman means by "induction" here.

Wellman's position on rules of inference parallels his position on ethical principles. He asserts that

"ethical principles, to the extent that they can be formulated and justified, are inductive conclusions from particular cases." [31] Why does he say this? He gives his reasoning in the following passage:

My ability to formulate such principles presupposes my sense of relevance, for it is this that tells me what I must include in my principle. This last point is a crucial one. The various attempts to save moral principles by building in exceptions . . . all begin with the recognition that the principles that first come to mind are false to certain actual or imaginary cases. . . . Here one sees most clearly that a recognition of relevance is presupposed by and not a result of adopting or discovering ethical generalizations. [32]

Perhaps Wellman's reasoning with respect to rules of inference is analogous to the above reasoning. It is true that an allegedly analytic assertion can be disproven by a counterexample, but this does not show that analytic claims are based on probable reasoning. For example, if someone were to claim that the statement "all triangles have five sides" was analytically true, she could be refuted by showing her a single three sided triangle. This does not mean, however, that the statement that "all triangles have three sides" must only be established on the basis of inductive reasoning. That triangles have three sides is a necessary truth about triangles: It is true simply in virtue of the meanings of the words in that statement. One sees the truth of this principle not by examining lots of triangles and hypothesizing that all other triangles are

similar, but by understanding the meanings of the words "triangle" and "three sides".

Wellman seems to give away the game when he says that "We decide which logical principles to accept by discovering the principles implicit in the arguments we find acceptable prior to any appeal to logic." [33] It may be that logical principles are discovered by examining particular examples of intuitively valid arguments, but that does not show that logical principles are justified by appeal to such arguments. The claim that "all triangles have three sides" may be discovered by a child by means of particular examples and so might the claim that " $1+1=2$," but the truth of these claims is not based on particular examples. The key question appears to be begged here: Are our logical intuitions independent of logical principles or are they based on an intuitive grasp of logical principles?

Thus I conclude that Wellman has failed to establish the acceptability of opting for the second horn of the dilemma. He has not established that an argument can be determined to be valid or cogent independently of a rule of inference. But on the other hand, there is no general argument showing the opposite to be true either. So until a cogent general argument can be made to show that reference to a rule of inference is a necessary part of justifying an inference, I see no reason not to take the position that although there are no rules of inference for conductive

ethical arguments, these arguments can be cogent just the same.

1.9 The Inference Rules Argument: Conclusion

I agree with Wellman that the anti-deductivist should take on the second horn of this dilemma. That is, if by "an inference rule" is meant either an analytically true principle, or a principle that provides a mechanical means of making ethical judgements, then there are no special rules of inference for ethics. At least, there ought not to be such rules.

On the other hand, Hare is right in pointing out that an inference from certain factual premises to a certain evaluative conclusion involves the adoption of a certain evaluative stance. There is indeed a logical gap between the premise of Wellman's conductive argument and its conclusion. We know this not because only deductive arguments are "complete" or cogent, but because we can imagine different persons with different evaluative viewpoints drawing conflicting evaluative conclusions from the same set of facts.

There seem to be two different problems in ethical reasoning that are in tension with each other. On the one hand there is the problem of exceptional cases. This problem suggests that the traditional deductive approach will not work in ethics. The other problem is that of

divergent ethical viewpoints, which suggests that there is a logical gap between factual premises and evaluative conclusions in conductive arguments. I suspect that the answer to this puzzle lies in taking a closer look at how intelligent people argue about exceptional cases. Usually this is done in terms of arguing for differing analogous cases. For example, philosophers who examine the abortion issue argue for competing analogies. In any case, I am not able to give an account of such reasoning yet, but this is where I would try to find hints to resolve the apparent conflict between the problem of exceptions and the problem of divergent ethical stances.

1.10 Arguments for Deductivism: Conclusion

I do not find any of the arguments for deductivism that I have examined here convincing. The simplicity argument and the convenience argument are hardly worth considering. The containment argument begs the question. The enthymeme argument seems to be more of a defense against counterexamples than a positive argument, and a similar charge can be made of the inference rules argument. These last two arguments have potential value to the deductivist, but key premises need to be argued for. In the case of the enthymeme argument, the deductivist needs to show that the addition of premises to inductive arguments is necessary to avoid a logical deficiency. In the case of the inference

rules argument, the deductivist needs to argue why it is necessary to justify an inference with reference to an inference rule.

There is one important argument that Wellman largely neglects: the problem of induction. Karl Popper, for example, appears to base his deductivism squarely on the problem of induction. He believes that deduction is the only genuine form of reasoning just because induction is not, in his view, a genuine form of reasoning. Popper thinks that induction is not a genuine form of reasoning primarily because of the problem of induction. Therefore, I shall examine the problem of induction in the next chapter.

NOTES FOR CHAPTER ONE

1. "Deductivism" might also be used to refer to the view that all inferences are deductive in nature. But this view seems to imply that all our inferences are good, for it is difficult to make sense of the notion of a bad deductive inference. The term could be used of the view that all good inferences are deductive in nature, but this view seems difficult to test apart from reference to the truth or acceptability of the premises of any arguments that might be put forward as counterexamples to deductivism.

2. Karl Popper, The Logic of Scientific Discovery (New York: Basic Books, 1959), chap. 1.

3. Carl Wellman, Challenge and Response/ Justification in Ethics (Carbondale and Edwardsville: Southern Illinois University Press, 1971), p. 32.

4. Wellman, p. 21.

5. Wellman, p. 34.

6. Wellman, p. 52.

7. Wellman, p. 51.

8. Wellman, p. 10.

9. Wellman, p. 4.

10. Wellman, p. 5.

11. Wellman, p. 5.

12. Wellman, p. 6.

13. Wellman, p. 5.

14. Wellman, p. 8.

15. Wellman, p. 9.

16. Wellman, p. 18.

17. Wellman, p. 18.

18. Wellman, p. 18 & 19.

19. Wellman, p. 18.

20. R. M. Hare, The Language of Morals (Oxford: Clarendon Press, 1952), p. 47.

21. Hare, p. 47.

22. Hare, p: 46 & 47.

23. Hare, p. 49.

24. Wellman, p. 18.

25. Wellman, p. 19.

26. Hare, p. 48.

27. Wellman, p. 11.

28. Wellman, p. 18.

29. Wellman, p. 20.

30. Wellman, p. 20.

31. Wellman, p. 27.

32. Wellman, p. 17 & 18.

33. Wellman, p. 20.

CHAPTER TWO

The Problem of Induction

2.0 The Concept of Induction

There is a view that induction is any form of reasoning that is not deduction.[1] This view is unacceptable for two reasons: 1. It is not immediately obvious that induction is a completely distinct form of reasoning from deduction, and 2. It is not immediately obvious that all non-deductive arguments are inductive. Now, of course, if one stipulates a definition of "induction" as "any form of reasoning that is not deductive" then it will be true that any form of reasoning that is not deductive will be "inductive", in the new technical sense of the word. But this is cheating. The word "induction" has its own history and usage separate from the word "deduction", so any conceptual connection or distinction between these concepts needs to be argued for rather than assumed. Thus, it is best to give a positive and specific definition of induction that is, at least in part, based on the use of this word in the past. We should be open to the possibility that the relationship between induction and deduction is not as neat and tidy as we might wish. It would also make sense to expect to discover other kinds of argument, or at least not to assume a priori that the

categories of induction and deduction exhaust all possible arguments.

There are at least three different conceptions of induction. Very roughly, they are as follows: 1. Induction is what scientists do when they reason from observations to hypotheses, theories, and laws. 2. Induction is generalizing a pattern or regularity. 3. Induction is making an inference from what has been observed to be so to something that is not entailed by what has been observed to be so. [2]

Briefly, induction is conceived either as the scientific method or as generalization or as an inferential leap from what is known by observation to some new bit of knowledge.

2.1 Introduction: "The" Problem of Induction

One problem with the problem of induction is that it is not clear what induction is. Another problem is that even when it is agreed what induction is, it is not clear what is the problem with it. The basic idea is that inductive inferences or our criteria for judging them are in need of justification and that this is somehow a difficult thing to provide. Sceptical arguments purport to show that it is not possible to justify our inductive inferences and thus that these inferences are in some sense arbitrary or irrational.

There is a chain of scepticism that contains many of the most serious and perplexing philosophical problems of

the past few centuries. This chain is especially noticeable in the writings of David Hume. At one end of the chain are sensations, the bedrock foundation of knowledge, and at the other end of the chain are value judgements, the most problematic species of judgements. In between these two extremes are found various sorts of facts:

Sensations:Present Facts:Past Facts:Future Facts:Values

The sceptic seeks to break this chain at various places along its length. She might challenge inferences from sensations to judgements of present facts, or the inference from present facts to past facts, or from any kind of fact to values. A dilemma is always created between reductionism on the one hand (are values just an odd sort of fact?) and scepticism on the other hand (if not, how can we know a value judgement to be true?) In the case of the problem of induction, the break is sometimes made between past facts and future facts. The idea is that no combination of sensations, present facts, and past facts will legitimately yield a conclusion about future facts. But the problem can be put more generally as the difficulty of justifying inferences from observed things or events to unobserved things or events.

There are a number of responses that have been made to "the" problem of induction. Some of them are as follows[3]:

1. The problem is insurmountable; we ought not to reason inductively.

2. We cannot prove that induction will work, but we can prove that if anything will work, induction will work.

3. We can prove that induction will probably work, because it has worked so well in the past.

4. Inductive reasoning is justified because it is a paradigm case of what it means to think in a reasonable way.

5. Induction is a legitimate form of reasoning because it is simply one form of deductive reasoning.

6. The problem of induction presupposes inductive reasoning and is thus self-defeating.

7. The problem of induction involves an impossible demand, thus it should not be taken seriously.

My basic answer is that different answers are appropriate for different sceptical arguments. I cannot realistically hope to cover all of the various sceptical arguments here, so I will focus on one important strand of scepticism about induction: the argument that any justification of induction must be either fallacious or circular.

In this chapter, I will examine three different sceptical arguments that assert this charge of circularity. I need not defend my choice to examine David Hume's sceptical argument, but I should explain why I have decided to examine sceptical arguments as formulated by Brian Skyrms and S.F. Barker. Both of these philosophers have done serious work in the area of inductive reasoning, so they are not straw men for me to push over. More

importantly, each of them has put forward simple, straightforward sceptical arguments (though neither adopts a sceptical position) that make the charge of circularity against justifications of inductive reasoning. I chose to start with these simple arguments because I wanted to avoid problems of interpretation that arise in more subtle treatments of induction and because I feel that it is best for the sake of clarity to start with simple arguments. If subtler versions of the problem of induction avoid the objections that I make against these sceptical arguments, fine. But problems easily seen in simple formulations may be better hidden in more complex treatments. So my suggestion is that the criticisms that I develop here be applied to other sceptical arguments, to see if the criticisms put light on flaws that might otherwise be missed.

I will not here critique the sceptical argument against induction put forward by Karl Popper. His argument is more complicated and less clearly stated than the arguments that will be examined here. I will, however, consider an important objection that Popper would likely raise to my criticisms of the arguments that I do consider.

2.2 The Problem of Induction as Posed by Barker

I believe that the problem of induction as set out by Barker is easily resolvable, and I shall try to defend that view here. Perhaps some insights gained in dealing with

Barker's problem of induction will help me to deal with or resolve David Hume's problem of induction. That is my hope. The problem is set forth in the first chapter of S.F. Barker's book, Induction and Hypothesis. The problem concerns the selection of one method of reasoning or of prediction-making over another method:

Suppose . . . I have to decide whether to build my house near a river which sometimes overflows. If I regard as highly probable the hypothesis that this river will not flood the building site during the next twenty years, then I shall decide to build there, otherwise not. Suppose that two persons present themselves to assist me: one is an engineer who has carefully studied the past performances of the river and who assures me that this is a dangerous place on which to build; the other is an old gypsy woman who, her palm having been crossed with silver, consults a crystal ball and then assures me that the site is perfectly safe.[4]

The question that Barker raises is:

Why trust the engineer more than the gypsy? What we require is some sort of philosophical explanation of why one method is to be regarded as more reasonable than other alternative methods.[5]

Barker outlines a common-sense answer to this question, and then he attacks this answer by charging that it is circular and question begging. I will try to defend the common-sense answer.

Barker nicely summarizes the position that I wish to defend:

If you are in doubt about whether the engineer's method of making predictions is better than that of the gypsy, then just look and see which of them has had the better record of success so far. . . . The justification of scientific method is that it works.[6]

According to Barker, this answer "is down-to-earth and may appear to bear the stamp of wholesome common sense,"[7] but he argues that "this is circular and begs the question." [8] He then argues for his charge that the common-sense answer is circular. My response to Barker is that the common-sense answer does not beg the question nor involve circular reasoning and therefore is perfectly acceptable. In order to establish my counter-claim, I must, at the very least, refute the reasoning that Barker puts forward in support of his claim that the common-sense answer--usually referred to as the inductive justification of induction--begs the question and involves circular reasoning.

2.3 Question Begging and Circular Reasoning

Before taking a look at Barker's reasoning, it would be useful to clarify the concept of question begging and the concept of circular reasoning. Circular reasoning is a particular sort or way of begging a question. Circular reasoning is more objective in nature than question begging; it is fallacious irrespective of the beliefs of the disputants involved in a given debate. But question begging is, at least in some cases, relative to the beliefs of the disputants.

A person reasons in a circle when she uses a premise which taken by itself implies or presupposes the conclusion being argued for. Such a premise is quite obviously

unacceptable to anyone who would dispute the conclusion. Thus circular reasoning is a particularly gross form of begging the question where the conclusion is hidden in one of the premises. The offending premise is a sort of Trojan Horse proposition, a seemingly innocent statement which contains the "enemy" idea.

Begging the question, however, need not involve such a gross violation of the rules of fair play in argumentation. Any premise which is clearly controversial in a given debate between certain disputants can be said to beg the question. Thus if a Christian tried to prove to an atheist that the end of the world was near by appealing to prophecies in the Bible, this would be an example of begging the question but not of circular reasoning. The Christian would not be using a premise that asserted that the end of the world was near. However, this would be an instance of question begging because atheists usually do not believe in prophecy, and they almost never believe that Bible prophecy is worthy of belief. Note also that the same argument would be acceptable were the Christian arguing with a fellow Christian or anyone who viewed the Bible as divine revelation.

If a Christian were to argue for the existence of God by quoting passages of scripture that affirm this belief, she would be reasoning in a circle, assuming that she accepted the authority of the Bible on the basis of her

belief in God and his trustworthiness. Such an argument is illogical no matter who is giving or receiving the argument. All circular reasoning is question begging, but not all question begging is circular reasoning, and circular reasoning is wrong in a more objective and absolute way than is question begging, since the latter charge is sometimes relative to the views of the disputants in a particular discussion.

2.4 The Objection to the Common-sense Solution

Here is Barker's case against the common-sense position, which-I wish to defend:

The circularity involved becomes evident as soon as we ask, how are we to find out whether the modes of nondemonstrative reasoning that scientists employ do lead to results that are true (or at any rate useful)? Clearly, we must conduct a scientific inquiry in order to discover whether the people who employ these methods actually do obtain true or even useful results through their application. . . . Thus only if we are willing to presuppose the trustworthiness of the modes of scientific inference that we employ, can we repose any confidence in the information obtained through their use . . . If one assumes a certain kind of nondemonstrative reasoning to be sound, one can perhaps show empirically that this kind of reasoning usually leads to true or useful results. But as a proof of the trustworthiness of the method, this is circular and begs the question. [9]

To sum up Barker's reasoning here, he is asserting that it is circular reasoning to use the scientific method to justify the scientific method.

2.5 A Brief Overview of Scientific Method

At this point it would be good for me to say a bit more about the scientific method, for one cannot really justify something that is not understood. The scientific method encompasses ideal ways of producing and testing hypotheses. These ideals can be shown in either principles or paradigms. Neither are followed exactly in practice. Principles are too simple and abstract to dictate behaviour in a mechanical fashion, and paradigms are too specific and complex to dictate behaviour. Somehow the message is understood and there is general agreement as to whether certain investigations constitute science or not.

The scientific method includes ideals with respect to the formulation of hypotheses. That this is so can be seen by contrasting the following rough characterization of some scientific principles with a list of alternative hypothesis forming methods: A scientist should study the available accumulation of empirical knowledge and research related to a specific topic or phenomena and then formulate a clear and specific question to try to answer. Further observations of the phenomena should be made in an attempt to find interesting and apparently relevant regularities, patterns, and anomalies and exceptions. When regularities and patterns have been established as more than coincidental, attempts should be made by the researcher to produce an empirically testable explanation for those regularities,

with special attention being paid to any apparent irregularities and anomalies.

A list of alternative means of producing hypotheses shows that the scientific method is not solely concerned with testing hypotheses but also concerned with their production:

1. See what the Ouija board has to say.
2. Read the Bible backwards, looking for clues from God.
3. Smoke three joints and then write down the third explanation that comes to mind.
4. Go to India and ask a famous Guru.

Of course, if one did hit upon an interesting hypothesis by any of these methods that would not count against the hypothesis. The point is that unless one has read the relevant research, studied the appropriate techniques, made careful observations of relevant phenomena, and tried to reason out a hypothesis that is empirically testable, one is not in a position to reasonably judge what constitutes an interesting hypothesis.

Hypotheses can be categorized into two rough categories. On the one hand, there are proposed "laws" that claim to describe regularities in nature, and on the other hand there are proposed "theories" which attempt to explain such regularities. [10] Both laws and theories are supposed to be testable by observation but in different ways. Laws are usually supported by generalization (every observed

instance fits the law), and theories are usually supported by confirmation (significant implications of the hypothesis have been observed to be so).

A good example of the difference between law and theory can be seen in the distinction between Boyle's Law and the explanation of this phenomena. First there is the regularity found in nature by observation:

Consider the cylinder with the movable piston . . . If we push the piston downward so the volume is half its original value, . . . the pressure will be correspondingly doubled. Decrease the volume to a third its original value and the pressure will be increased by threefold, and so forth. Notice from these examples that the product of pressure and volume is the same. That is, a doubled pressure multiplied by a halved volume gives the same value as a tripled pressure multiplied by a one-third volume. In general, we can say that the product of pressure and volume for a given mass of air is a constant as long as the temperature does not change. So the pressure of a quantity of air multiplied by its volume at one period of time is the same as any different pressure multiplied by its correspondingly different volume at any other time. . . . This relationship is called Boyle's law, after Robert Boyle, the seventeenth-century physicist who is credited with its discovery.[11]

This is an observed regularity, a law of nature that has been supported by careful observations of many instances. It seems so nice and tidy, too nice in fact. Why do gasses behave with such discipline? Surely gasses do not know about multiplying and dividing and algebra. Scientific inquiry does not end with the recording of patterns and regularities. Regularities are important and interesting,

but they make us curious. Why does this regularity exist, rather than some other regularity, or none at all?

The explanation of the above regularity involves the use of the atomic theory of matter:

The molecules of air behave like tiny tennis balls, perpetually moving helter skelter and banging against the inner walls. Their impacts on the inner surface of the [container] . . . produce a jittery force that appears to our coarse senses as an average push. This pushing force averaged over a unit of area gives us the pressure of the enclosed air.

Suppose we have twice as many molecules in the same volume. Then the air density is doubled. If they move at the same average speed, or, equivalently, if they have the same temperature, then, to a close approximation, the number of collisions will be doubled. So we see from this doubling of pressure due to the doubling of density that pressure is proportional to density. [12]

A different example will help to illustrate the difference between generalization arguments and confirmation arguments. The hypothesis that the earth is round can be argued for in two very different ways. One simple way of arguing for this theory is by a generalization argument:

1. The planet Mercury is round.
2. The planet Venus is round.
3. The planet Mars is round.
4. The planet Jupiter is round.
5. The planet Saturn is round.
6. The planet Uranus is round.
7. The planet Neptune is round.
8. The planet Pluto is round.
9. No planet has been observed to be non-round.
10. The Earth is a planet.

Thus,

11. The planet Earth is round.

The same conclusion can be argued for in a more sophisticated manner by a confirmation argument:

1. If the Earth is round, and if light travels in straight lines, then the hulls of sailing ships will disappear behind the water before their sails disappeared (for an observer standing on shore watching ships sail towards the horizon).
2. Light travels in straight lines.
3. The hulls of sailing ships disappear behind the water before their sails disappear (for an observer standing on shore watching ships sail towards the horizon).
4. No other plausible hypothesis implies this.
5. No implications of this hypothesis are known to be false.

Thus,

6. The Earth is round.

The basic idea behind a confirmation argument is that if a theory or hypothesis taken in combination with previously accepted hypotheses or beliefs implies that certain observations will be made under certain conditions, then that hypothesis is confirmed to the extent that such observations are found to actually occur as predicted. [13] Having given this brief exposition of the concept of the scientific method, I shall now return to Barker's sceptical argument.

2.6 Response to the Problem of Induction as Posed by Barker

My reply to Barker's objection that it is circular reasoning to use the scientific method to justify the scientific method is that it is not necessary to apply the "full blown" scientific method. The scientific method is

rather complex. It involves a number of assumptions and concepts and methods or modes of reasoning. The common-sense defense of the scientific method requires, at most, an appeal to a small part of what is encompassed by the notion of the scientific method. Barker himself refers to the "methods" and "modes" of scientific reasoning. By using the plural form of these words he recognizes that the scientific method contains a number of parts or aspects. To the extent that only one part or aspect of the scientific method is used to confirm the scientific method as a whole, no circular reasoning is involved here, for it is not necessary to assume as a premise that "The scientific method (as a whole) is a trustworthy method." The common-sense answer to Barker's question, "Why trust the engineer more than the gypsy?" is based on what could be called the "track record" method of reasoning about forms of reasoning. My claim is that the scientific method is more complex than and encompasses much more than the track record method, and thus that it is not circular reasoning to assume the validity of the track record method in order to establish the trustworthiness of the scientific method in general.

The track record method can be used and accepted by people who doubt the validity of the scientific method and by people who are not well versed in scientific reasoning. For example, someone might be uncomfortable with the way scientists propose the existence of objects and events that

are not directly observable, such as atoms and radiowaves. But the simplest of minds cannot deny the power over nature that the atomic theory and the theory of electromagnetic waves have given to humankind. Clubs and knives are no match for atom bombs and laser beams. The most unscientific thinker in the world could not deny the reality and power of radio and television transmission. That science does work can be observed by primitive or simple people who have little conception of science and the scientific method. The most superstitious tribesman in the world will, when a loved one is sick and close to death, seek out a witch doctor with the best track record available. We all want something that will be consistently successful. That is a bottom line for both the scientist and the superstitious or the unscientific thinker.

Most, if not all, gypsies would defend their practice of crystal ball gazing with testimonials of past successful predictions, thus implying that crystal ball gazing is trustworthy precisely because it has worked in the past, because it has a good track record. Thus the track record method is a method used by both gypsies and scientists. Because the track record method is accepted by both scientists and gypsies, it is not question begging for a scientist to appeal to this simple method in order to prove the superiority of the scientific method of prediction to the crystal ball method. Actually, if the engineer could

present a system or method for predicting floods, then we need not even establish that the scientific method is best in general. We can simply appeal to the track record of that particular method of prediction versus the gypsy method of prediction. The scientific method can be viewed as a method for producing, selecting, and modifying methods of prediction, rather than being a method of prediction itself.

An analogy might help to explain how using a part of a system of beliefs to support the whole is not circular reasoning. Baptists believe that what the Bible teaches is true, and so do Jehovah's Witnesses. But there are many theological disagreements between Baptists and Jehovah's Witnesses. For instance, Baptists believe that Jesus rose from the dead in bodily form, but Jehovah's Witnesses believe that Jesus rose from the dead as a spirit and not in his body. If a Baptist were to debate a Jehovah's Witness, she might quote the following two passages of scripture:

The Jews . . . said to Him, "What sign do You show to us, seeing that You do these things?"

Jesus answered and said to them, "Destroy this temple, and in three days I will raise it up."

The Jews therefore said, "It took forty-six years to build this temple, and will You raise it up in three days?"

But He was speaking of the temple of His body.

When therefore He was raised from the dead, His disciples remembered that He said this; and they believed the Scripture, and the word which Jesus had spoken. (John 2:18-22)

And they arose that very hour and returned to Jerusalem, and found gathered together the eleven and those who were with them,

saying "The Lord has really risen, and has appeared to Simon."

And while they were telling these things, He Himself stood in their midst.

But they were startled and frightened and thought that they were seeing a spirit.

And He said to them, "Why are you troubled, and why do doubts arise in your hearts? See My hands and My feet, that it is I Myself; touch Me and see, for a spirit does not have flesh and bones as you see that I have." (Luke 24:33-39)

It does not require great interpretive skill to see that these passages strongly support the Baptist position and undermine the Jehovah's Witness position on the issue in question. Thus a Jehovah's Witness might be persuaded by these passages to accept some Baptist theology, at least the part of Baptist theology which concerns Jesus's resurrection.

But someone might charge that this Baptist argument is circular and question begging. Belief in the Bible is part of the Baptist system of theology, so the Baptist here could be charged with using the Baptist system of theology to support the Baptist system of theology. Such a description, however, would be less than fully accurate. To be precise, our Baptist arguer is using one uncontroversial part of the Baptist system of theology to support a different and controversial part of the Baptist system of theology. There is no dispute between Baptists and Jehovah's Witnesses over the claim that what the Bible teaches is true. Thus appeals to Biblical passages constitute a neutral ground between Baptists and Jehovah's

Witnesses, and it is completely fair for a Baptist to use quotations from the Bible to persuade a Jehovah's Witness of some theological claim that is controversial. The argument is not circular because it does not involve a premise which by itself implies that Jesus rose in his body. The argument is not question begging because it does not involve a premise which is clearly controversial between Baptists and Jehovah's Witnesses.

The track record method is to the scientific method what the Bible is to the Baptist system of theology. Both the engineer and the gypsy accept the track record method of testing methods of prediction. A method of prediction is trustworthy only if it is usually successful, and one method of prediction is more trustworthy than another only if it is successful more frequently than the other method. The engineer does not need to appeal to the scientific method as a whole in order to support the scientific method, thus the common-sense answer is not an instance of circular reasoning. Since the track record method is accepted by both gypsy and engineer, it is not question begging to use this method. Suppose that soon after the gypsy predicts that the house would be safe, a raging flood occurs on the land where the house was to be built. If the gypsy is brought close enough to the site to view the torrents of water carrying away other houses and trees from nearby lots, the gypsy can hardly deny that she was wrong, at least in

this case. The same point applies to the engineer. If it was the engineer who predicted the house would be safe and the gypsy who warned of impending floods and if severe flooding occurred, then the engineer, standing near the submerged property, could not deny that his prediction was wrong. One mistake does not prove that a method of prediction is no good, but a careful record of how frequently a certain method works or fails can be kept and compared to a careful record of how often an alternative method works or fails. This is, no doubt, a somewhat crude way of assessing methods of reasoning or of prediction, but it has the advantage of being simple and widely accepted.

Barker mentions the possibility of the gypsy using crystal ball gazing as a method of supporting the trustworthiness of crystal ball gazing. This he thinks to be a partial refutation of the suggestion that the scientific method be defended by its "better record of success". There are some important disanalogies between these cases though. For one thing, as I have just pointed out, the common-sense defense of scientific method does not require the use of the scientific method. So the gypsy is using circular reasoning but the engineer is not. But there is another important disanalogy. The engineer probably would not accept the crystal ball gazing method, whereas the gypsy probably would accept the track record method. So the gypsy begs the question here while the engineer does not.

But suppose the gypsy was a rather unusual gypsy, and she rejected the track record method. Suppose that this gypsy only believed "the messages" that she "received" from her crystal ball. In this case the fact that 90% of her predictions turned out to be false or inaccurate wouldn't phase her. "My crystal ball says that the next prediction will be right on target," she might say. What can be said to persuade such a gypsy? Not much. She has stacked the deck in her favor in such a way that there is little hope of disproving her claim that her crystal ball predictions will be correct in the future. The best way to deal with her is to refuse to play her game. It would seem that a certain amount of common-sense is required in order to establish the trustworthiness of the scientific method. Nothing can be proven to an absolute sceptic, and little can be proven to a closed-minded fool.

2.7 The Problem of Induction as Posed by Brian Skyrms

In the second chapter of his book Choice and Chance, Brian Skyrms reformulates Hume's sceptical argument against induction. Skyrms confesses: "I have taken some liberties with Hume and have given the traditional problem of induction a new twist . . ." [14]. His version of Hume's argument has enough "twist," in my estimation, to be taken as an independent argument, distinct from Hume's. For one thing, Hume's argument does not actually refer to induction,

whereas Skyrms's argument does. On the whole, Skyrms's argument is simpler and more compact than Hume's, so perhaps it can serve as a warmup exercise, useful for preparing one to take a swim in the murkier waters of Hume's reasoning.

Skyrms is not an inductive sceptic himself, but he does a creditable job of constructing the reasoning of such a sceptic. Here are the essential parts of the sceptical argument that constitutes the problem of induction according to Skyrms:

It would seem reasonable . . . to require that inductively strong arguments give us true conclusions from true premises most of the time. If it could be shown that a system of inductive logic was such that its inductively strong arguments give us true conclusions from true premises most of the time, we would have good reason for using that system . . . This seems to be what is required to rationally justify a system of inductive logic.[15]

By what sort of reasoning, . . . could we establish such a conclusion? If the argument that we use is to have any force whatsoever, it must be either deductively valid or inductively strong. . . . Since we do not know what the future will be like (if we did, we would have no need of an inductive logic on which to base our predictions), the premises can contain knowledge of only the past and present. But if the argument is deductively valid, then the conclusion can make no factual claims that are not already made by the premises. Thus the conclusion of the argument can only refer to the past and present, not to the future, for the premises made no factual claims about the future. Such a conclusion cannot, however, be adequate to rationally justify scientific induction.[16]

. . . if we attempt to rationally justify scientific induction by use of an inductively strong argument, we are in the position of having to assume that scientific induction is reliable in order to prove that scientific induction is reliable; we are reduced to begging the question. Thus we cannot use an inductively strong

argument to rationally justify scientific induction. [17]

It might seem that Skyrms is demanding too much of induction to require that strong inductive arguments with true premises yield true conclusions most of the time. All that is really required, it would seem, is that induction be shown to be more reliable than any other presently available alternative. However, if the next-best method was totally unreliable and induction was only slightly better, I would feel rather uneasy about some of my inductive inferences. I prefer to know that my car's brakes will work when I push on the brake pedal. The idea that my reasoning here will be correct "most of the time" is less than fully reassuring. Nevertheless, such a position would be preferable to the inductive sceptic's position that I have no reason at all for believing that my brakes will hold fast and stop the car.

Skyrms's sceptical argument has three basic premises:

1. If Induction can be justified, then either induction can be justified with an inductive argument or induction can be justified with a deductive argument.
2. Induction cannot be justified with a deductive argument.
3. Induction cannot be justified with an inductive argument.

Thus,

4. Induction cannot be justified.

2.8 Response to the Problem of Induction as Posed by Skyrms

This argument will not work as it stands, for premises 1 and 3 are questionable. There is a serious problem with the clarity of these premises. The term "induction" is found in both premises and is unacceptably vague. Because of this, it is not possible to assess the truth of these premises as they stand. Worse yet, attempted clarifications of these premises appear to make one or the other of them false or implausible. This suggests that the argument appears acceptable only by equivocating on the term "inductive".

On the one hand, the concept of induction can be broadly (and foolishly) defined in a negative manner to include any and every kind of reasoning other than deductive inference. In this case the first premise is true by definition, but the third premise becomes implausible or groundless. On the other hand, we could define induction more specifically, say as referring to generalization arguments, in which case the first premise would be false.

The argument for the third premise is that it would be circular reasoning to use an inductive argument to justify inductive arguments. This makes sense only if induction is assumed to be a certain kind of reasoning or inference. But if "induction" is simply a word that acts as a grab bag for every kind of reasoning that is not deductive, then induction does not refer to a specific kind

of reasoning. To say of an argument that it is an "inductive" argument--in the overly broad sense of the term--is merely to assert that the mode of inference is not deductive; this tells us nothing positive about the nature of the mode of inference in that argument.

Arguments could be categorized in an infinite number of ways. For example, there are:

1. Three sentence arguments
2. Arguments that have been written down
3. Arguments given by communists
4. Eloquent arguments
5. Arguments only cynical old men can relate to
6. Arguments with "All A's are Bs" conclusions

None of these categories represents a logical kind of argument. Even the last category is not definitive of a logical kind of argument, because it only specifies the nature of the conclusion. We need to know more, something specific about how one goes about inferring a conclusion from premises with respect to the type of argument being defined. A logical kind designates a way or mode of inference. Induction in the broad sense may be a category of arguments, but it is not a specific kind of inference, so there is no obvious circularity in using an inductive argument to justify the use of an inductive argument.

On the other hand, if we try to define "inductive" more narrowly, for example as referring to generalization arguments, then it is fairly obvious that the first premise would be false. Recall my discussion of the scientific

method and the distinction that was made between generalization and confirmation arguments. Confirmation arguments provide a good counterexample to the claim that all nondeductive reasoning is generalization.

In conclusion, the notion of an "inductive" argument is in desperate need of clarification before Skyrms's sceptical argument can carry any weight. I do not see a way of clarifying the term "inductive" that would preserve both the dichotomy of arguments asserted in the first premise and the problem of circularity that underlies the third.

2.9 The Problem of Induction as Posed by Hume

In A Treatise of Human Nature (Book I, Part III, Section VI), Hume appears to argue against the possibility of rationally justifying our causal inferences (such as when we see a flame and infer that it is hot). Hume gives the same, or a very similar, argument in his Abstract and in Section IV of An Enquiry Concerning Human Understanding. Janet Broughton has argued that Hume does not hold that our causal inferences are "unreasonable" but merely that our causal inferences are determined by the faculty of mind known as "imagination" as opposed to the faculty of mind known as "reason". She states that "understanding how a belief is determined does not settle the question whether it is reasonable." [18]

I agree that Hume's primary objective in this section of the Treatise is to establish the descriptive claim as to how our beliefs arise psychologically. But I disagree that Hume says nothing here about the legitimacy of our causal inferences. Hume's reasoning here as well as in Section IV of the Enquiry may be summed up as follows:

1. There can be no cogent arguments to support our causal inferences.

Thus,

2. Our causal inferences cannot merely be products of our faculty of reason.

In other words, Hume's descriptive psychological conclusion is based on an evaluative logical premise for which he argues... As far as I am concerned, the evaluative claim that there are no good arguments to support our causal inferences is much more interesting than the descriptive conclusion that Hume draws from this claim.

Now it is true that Hume believed our causal inferences to be "useful to us" [19] and "necessary to the subsistence of our species" [20]. But that is precisely why Hume considered his own skeptical argument to be a problem in need of some sort of resolution:

I want to learn the foundation of this inference. No reading, no enquiry has yet been able to remove my difficulty, or give me satisfaction in a matter of such importance. Can I do better than propose the difficulty to the public, even though, perhaps, I have small hopes of obtaining a solution? [21]

On the one hand he believed in his own causal inferences, but on the other he could not back them up with solid

arguments. And this, quite understandably, bothered him. Indeed, he seemed to have a solid argument which proved that no one could ever support a single causal inference with a solid argument.

David Hume never actually talked about inductive arguments per se, but he did create a perplexing sceptical argument that seems to eliminate the possibility of constructing sound inductive arguments. Hume spoke in terms of "probable arguments" and "demonstrative arguments". The notion of a probable argument should not be confused with the notion of an inductive argument. Hume created a dichotomy of ideas or statements, and then he used this dichotomy to formulate a dichotomy of arguments. He divided ideas into "relations of ideas" and "matters of fact". Demonstrative arguments are arguments that have a conclusion that is a "relation of ideas" idea, that is, a conclusion that is analytic or necessarily true. Probable arguments are those which have a "matter of fact" for a conclusion, that is, a conclusion which is not analytic or necessarily true. Hume casts doubt on all probable arguments, and since almost all inductive arguments are also probable arguments in Hume's sense, most inductive arguments are put into doubt as well.

2.10 The Problem of Induction as Posed by Hume: An Analysis

The basic idea of Hume's sceptical argument is that all probable arguments presuppose something which cannot be proved. The claim that all probable arguments are supposed to presuppose is as follows: "those instances, of which we have had no experience, resemble those, of which we have had experience." [22] I will refer to this claim as the principle of probability or more simply as P. Hume concentrates his efforts primarily on establishing that the principle of probability cannot be supported by a cogent argument:

1. ". . . let us consider all the arguments, upon which such a proposition may be suppos'd to be founded; . . . these must be derived either from knowledge or probability, . . ." [23]
2. ". . . there can be no demonstrative arguments to . . . prove, that those instances, of which we have had no experience, resemble those, of which we have had experience." [24]
3. ". . . 'tis impossible this presumption [the principle of probability] can arise from probability." [25]

The conclusion of this part of Hume's argument is not explicitly stated, but it is clearly implied:

4. There can be no argument to prove that those instances, of which we have had no experience, resemble those, of which we have had experience.

This argument needs a bit of tidying up in order to show its formal validity more clearly:

- 1a. There are no other arguments besides demonstrative and probable arguments.

2a. No demonstrative argument can be a cogent argument for P.

3a. No probable argument can be a cogent argument for P.

Thus,

4a. There can be no cogent argument for P.

Now premise 4a is not, as it stands, a sceptical conclusion. To this premise we must add the following assertion made by Hume:

5. ". . . probability is founded on the presumption of a resemblance betwixt those objects, of which we have experience, and those, of which we have had none . . ." [26]

Or more clearly:

5a. All probable arguments presuppose P.

Premise 4a taken in combination with premise 5a suggests a negative evaluation about all probable arguments. Hume implies his sceptical conclusion when he makes a challenge to the defenders of common sense:

Shou'd any one think to elude this argument; and without determining whether our reasoning on this subject be deriv'd from demonstration or probability, pretend that all conclusions from causes and effects are built on solid reasoning; I can only desire, that this reasoning may be produc'd . . . [27]

The sceptical conclusion suggested here is that:

6. None of our "conclusions from causes and effect are built on solid reasoning."

This sceptical conclusion follows only on the following assumption:

A. If a presupposition of an inference cannot be proven, then that inference does not rest on solid reasoning.

Since Hume believes that causal inference is involved in all probable arguments[28], we can revise these premises to refer to cogent probable arguments. In this way I can side step the complex issues surrounding Hume's causal scepticism and focus exclusively on his circularity charge against probable reasoning. Thus I take the following argument to be an important sceptical argument that is suggested by what Hume says in the Treatise:

4a. There can be no cogent argument for P.

5a. All probable arguments presuppose P.

A1. If there can be no cogent argument for a presupposition of an argument, then that argument is not a cogent argument.

Thus,

6a. There are no cogent probable arguments

2.11 The Problem of Induction as Posed by Hume: A Critique

Assumption A1 seems problematic. There are a number of presuppositions made by all arguments. If it is question begging for an argument that presupposes X to be used to support X, then it would follow, assuming A1, that no argument would be cogent. This implication is absurd, so either it is acceptable in some cases for an argument that presupposes X to be used to support X, or else some presuppositions are to be accepted in spite of the fact that any argument for them would beg the question.

One example of such a presupposition is suggested by Brian Skyrms:

Suppose some unredeemable sceptic were to ask why it is rational to accept any argument at all. One could not advance any argument to convince him without begging the question, for he has called into doubt the acceptability of all arguments. [29]

We might say that all arguments presuppose that "there is at least one cogent argument" or that "argumentation can help one to make rational judgements". These presuppositions are so basic that it seems to be impossible to support them without using circular reasoning. Another such presupposition is that "some statements have meaning". Since it is absurd to conclude that no arguments are cogent, the notion that all presuppositions of arguments must be provable by arguments that do not presuppose their conclusions seems implausible at best.

The argument for 4a is not cogent. The best way to refute 4a would be to produce a solid argument to justify P. I will not attempt to do that here, though. Instead, I shall point out problems in the argument that is given in support of 4a.

The argument that Hume gives for 4a suffers from the same difficulty that I pointed out in Brian Skyrms's sceptical argument. There appears to be an equivocation or ambiguity with respect to the key term "probable argument". On the one hand we could interpret this term very broadly as a negative category that encompasses any miscellaneous arguments that do not fit into the category of

"demonstrative". By doing this we would insure the truth of premise 1a but sacrifice the plausibility of premise 3a. Premise 3a is based on the idea that all probable arguments presuppose P and thus that using a probable argument to support P would be question begging: "To endeavour, therefore, the proof of this last supposition by probable arguments . . . must evidently be going in a circle, and taking that for granted, which is the very point in question." [30] But if the term "probable argument" does not refer to a specific type of argument and is merely a grab-bag category, then it is far from obvious that all such arguments presuppose P. When I criticize premise 5a, we shall see that this generalization is in fact false. On the other hand, if the term "probable argument" is restricted to a specific type of inference, then, though premise 3a might be rescued, this would mean sacrificing premise 1a. Premise 1a asserts that the categories of demonstrative and probable arguments exhaust all possible types of argument, but it is rather implausible that all of the various sorts of non-demonstrative arguments could be shown to reduce to one specific type of inference, such as generalization. So it would appear that either 1a or 3a must be rejected, depending on how we interpret the term "probable argument".

But it is not necessary to base an argument for 4a on an exhaustive dichotomy of arguments. If there is something about probable arguments that makes them uniquely capable of

supporting P, then a somewhat different argument could be given for 4a:

7. Only a probable argument can be a cogent argument for P.

3a. No probable argument can be a cogent argument for P.

Thus,

4a. There can be no cogent argument for P.

I suspect that this argument is what Hume actually had in mind. At any rate, it expresses in a straightforward way, the logic behind Hume's argument, without becoming entangled in the problem of constructing an exhaustive categorization of arguments. I shall use the above reformulation of Hume's reasoning when I suggest a revised version of Hume's sceptical argument later in this chapter. Now I will move on to examine premise 5a of Hume's argument.

Premise 5a is false. Consider the following counterexample argument: "There is a white cow in that field, and cows are animals, so there is a white animal in that field." This is a probable argument ("probable" in Hume's sense) that does not presuppose P. The conclusion is not a relation of ideas; it is not a necessary truth. To get around this counter example it is necessary to revise Hume's fifth premise either by qualifying the subject of the sentence ("All probable arguments") to exclude this example, or by broadening the predicate of the premise ("presuppose P") to cover the example. Because this argument does not

seem to be the sort of argument that Hume intended to attack, and because any broadening of the predicate to cover this example would have stretch it so far as to require an entirely different argument from Hume, an attempt should be made to modify the subject of the premise so as to exclude the counterexample.

2.12 A Revision of the Humean Sceptical Argument

The only way that I can see to qualify the subject of premise 5a is simply to define the arguments referred to in terms of the presupposition that Hume refers to. I would define a class of "predictive" arguments[31] that use only premises about instances of which we have had experience in order to establish conclusions about instances of which we have had no experience. The revised premise that results from this qualification seems more plausible than the original premise:

5b. All predictive arguments presuppose P.

This premise, however, is also false. Consider the following counterexample argument; "My car's gas milage has always been good in the past; therefore, my car's gas mileage will probably be poor tomorrow." This is a predictive argument that does not presuppose P. If anything, it presupposes that instances of which we have had no experience will not resemble instances of which we have had experience. To get around this counterexample it is

necessary to revise this premise either by qualifying the subject of the sentence ("All predictive arguments") to exclude this example, or by broadening the predicate of the premise ("presuppose P") to cover the example. The obvious way to get around this counterexample is to qualify the subject so that it refers only to a sub-class of predictive arguments:

5c. All cogent predictive arguments presuppose P.

This claim seems plausible so long as we have in mind generalization arguments, such as the example argument that I gave about the round earth hypothesis:

1. The planet Mercury is round.
2. The planet Venus is round.
3. The planet Mars is round.
4. The planet Jupiter is round.
5. The planet Saturn is round.
6. The planet Uranus is round.
7. The planet Neptune is round.
8. The planet Pluto is round.
9. No planet has been observed to be non-round.
10. The Earth is a planet.

Thus,

11. The planet Earth is round.

But the conclusion that the Earth is round can be argued for in a more sophisticated manner by the confirmation argument mentioned earlier:

1. If the Earth is round, and if light travels in straight lines, then the hulls of sailing ships would disappear behind the water before their sails disappeared (for an observer standing on shore watching ships sail towards the horizon).
2. Light travels in straight lines.
3. The hulls of sailing ships disappear behind the water before their sails disappear (for an

observer standing on shore watching ships sail towards the horizon).

4.No other plausible hypothesis implies this.

5.No implications of this hypothesis are known to be false.

Thus,

6.The Earth is round.

Now this confirmation argument does not appear to presuppose P. Recall that Hume's principle states that instances of which we have had no experience resemble instances of which we have had experience. The concept of resemblance (or similarity) seems too limiting, too restrictive. My definition of a predictive argument describes only the nature of the premises and the conclusion; it does not directly specify the nature of the inference. But P refers only to those inferences that involve the relation of resemblance (or similarity). There is nothing especially similar between the sails of a ship and the shape of the Earth. The sails may be square and flat, but that doesn't mean that the Earth is square and flat. So the above confirmation argument is a counterexample to premise 5c.

Premise 5 must again be revised in order to make Hume's argument cogent. Either the subject must be further qualified to exclude the above counterexample or the predicate must be modified so as to cover this case. It may be that the most accurate interpretation of Hume's sceptical

argument is one that takes Hume to be focused almost exclusively on generalization arguments. The examples that Hume gives seem to all be generalization arguments. Thus we might qualify the subject of premise 5 to refer to cogent generalization arguments. If this was done, we could also clarify Hume's principle so that it could truly operate as premise in generalization arguments:

If many "instances of which we have had experience" of a certain category have been observed to possess a certain property and no instance of that category has been observed to lack that property, then any given "instance of which we have had no experience" belonging to the same category will probably "resemble" the other instances in possessing the same property.

I shall call this the principle of generalization, or G.

Premise 5 might thus be reformulated as follows:

5d. All cogent generalization arguments presuppose G.

This premise seems more or less acceptable to me.

But it creates other problems for Hume and inductive sceptics. For one thing, it is far from obvious that only a generalization argument could be used to support the principle of generalization, or G. Just as I suggested earlier when criticizing Barker's problem of induction that generalization could be used to support scientific reasoning, or confirmation, so perhaps confirmation could be used to support the principle of generalization. Once induction is narrowed to a specific type of inference such as generalization, the door is opened for other types of nondeductive reasoning to come to the rescue of induction.

A second problem with using premise 5d is of a similar nature. Presumably, inductive sceptics want to do more than show that one particular sort of nondeductive reasoning is problematic. In so far as inductive scepticism is a means to the end of deductivism, the inductive sceptic wishes to discredit every kind of argument that is non-deductive. Should premise 5d be used in the Humean version of the problem of induction, confirmation arguments would be left intact. Since confirmation arguments represent a large class of important non-deductive arguments, such a sceptical argument would fall far short of the aims of inductive sceptics who were interested in supporting deductivism.

Therefore, I shall try a different approach to saving premise 5. Instead of further qualifying the premise to exclude the counterexample of the above confirmation argument, I will revise the predicate so that it covers both generalization arguments and confirmation arguments. This can be easily accomplished by revising P so as to drop the restriction on the type of inference to those that involve the relation of resemblance (or similarity):

An argument with premises exclusively about "instances of which we have had experience" can be a cogent argument for a conclusion that is about an "instance of which we have had no experience."

I'll call this the principle of induction, or N for short.

Now I can reformulate premise 5:

5e. All cogent predictive arguments presuppose N.

This premise seems acceptable to me, although there may be some problem as to what is meant by "presuppose". But it does seem that cogent predictive arguments presuppose N in some sense of the word "presuppose". Now I can revise the Humean sceptical argument to see if it can be strengthened enough to stand up under further criticism. Premise 4 and the conclusion must be revised to correspond with the changes that I have made to premise 5, and the argument supporting premise 4 must be revised as well:

7a. Only a predictive argument can be a cogent argument for N.

3b. No predictive argument can be a cogent argument for N.

Thus,

4b. There can be no cogent argument for N.

5e. All cogent predictive arguments presuppose N.

A1. If there can be no cogent argument for a presupposition of an argument, then that argument is not a cogent argument.

Thus,

6b. There are no cogent predictive arguments.

2.13 A Critique of the Revised Sceptical Argument

I have already pointed out problems with premise A1. I am not sure how A1 might be repaired. This is a problem I must leave, for now, to inductive sceptics.

Premise 5e seems more or less acceptable as it stands. The only problem that I have with 5e is that the term "presuppose" requires some clarification. It is clear

that predictive arguments do not presuppose N in the sense that N is a premise found in all predictive arguments. Nor does N function as an inference rule in predictive arguments, as principle G does in relation to generalization arguments. Nor is N presupposed by some premise in any given predictive argument. In what sense do all predictive arguments "presuppose" N?

This presupposition is an assertion which virtually any sane and serious arguer is committed in putting forward a predictive argument. If someone believed that no predictive argument were cogent, it would be silly, or pointless or deceptive to put forward a predictive argument in a debate or discussion. Someone could, I suppose, put forward a predictive argument and not realize that the argument was a predictive argument. Even so, though she may not believe or avow that predictive arguments can be cogent, her claim that the argument was cogent taken in conjunction with the fact that the argument was a predictive argument makes her committed to, or liable for, the claim that a predictive argument can be a cogent argument. If someone pointed to a flea in a flea circus and proclaimed that her pet "Samuel" could lift two pounds, then she would be committing herself to the assertion that "at least one flea can lift two pounds" or "it is possible for a flea to lift two pounds." This would be the case even if she was unaware that her pet "Samuel" was a flea.

Thus the nature of the presupposition of N in predictive arguments is that one is entitled to infer that an arguer is committed to N when she puts forward a predictive argument as a cogent argument. It is the arguer, rather than the argument, that presupposes N. It is the giving of the argument that commits one to the presupposition.

What about premise 4b? All that would seem to be required to refute 4b would be an example of an argument that is both a predictive argument and is a cogent argument. Consider, for example the confirmation argument that I have mentioned in support of the hypothesis that the earth is round. Call this argument R. We can now argue that 4b is false as follows: Argument R is a predictive argument, and argument R is a cogent argument, thus argument R is predictive argument that is cogent, thus there is a predictive argument that is cogent, thus a predictive argument can be a cogent argument, thus N is true. Giving an actual case of a cogent predictive argument establishes that such a thing is possible.

But this is too easy, an inductive sceptic might say. What about the argument given in support of 4b? This is a fair objection, for although the counterexample to 4b may serve as a prima facie argument against 4b, it would not be fair to ignore the argument given in support of 4b. Perhaps something in that argument will show that our intuitions

with respect to argument R are faulty in some way. Thus it is important to take a closer look at the argument for 4b:

7a. Only a predictive argument can be a cogent argument for N.

3b. No predictive argument can be a cogent argument for N.

Thus,

4b. There can be no cogent argument for N.

Premise 7a is questionable at best. I see no reason to accept 7a, and I have at least one good reason to reject this premise. My argument R in support of N is not a predictive argument, but it does seem to be a cogent argument. The premises of my argument are about an instance of which we have had experience (the confirmation argument for the round earth hypothesis) but the conclusion is not about an instance of which we have had no experience. The conclusion does not go beyond the premises, but, rather, follows deductively from the premises. If the inductive sceptic rejects this counterexample and dogmatically asserts premise 7a, then it would appear that it is the sceptic who begs the question. The only way around this would be for the sceptic to give an independent argument in support of premise 7a. I have no idea what such an argument might be, so I can only judge this premise on the basis of the evidence that I have, which goes against it.

Premise 3b seems plausible initially, but it also has problems. The reasoning behind 3b is, of course, that using

a predictive argument in support of N would amount to circular reasoning or question begging. Now there are two slightly different arguments that may be given in support of premise 3b:

5e. All cogent predictive arguments presuppose N.

8. No argument that presupposes an idea can be a cogent argument for that idea.

Thus,

3b. No predictive argument can be a cogent argument for N.

9. A predictive argument can be a cogent argument for N only if a predictive argument can be a cogent argument for the claim that a predictive argument can be a cogent argument.

10. No argument of a given category can be a cogent argument for the claim that an argument of that category can be a cogent argument.

Thus,

3b. No predictive argument can be a cogent argument for N.

The vulnerable premises here are premise 8 in the first argument and premise 10 in the second. Premise 8 would be true if the term "presuppose" were qualified so that it only applied to assumed premises or rules of inference or to the presuppositions of individual premises. But as I pointed out earlier in my discussion of premise 5e, predictive arguments do not presuppose N in any of these ways. Thus the intuitive plausibility of premise 8 is damaged.

Furthermore, the following argument shows that both premise 8 and premise 10 are false:

Some arguments are modus ponens arguments with two premises both of which are true.

If some arguments are modus ponens arguments with two premises both of which are true, then a two-premise argument can be a cogent argument.

Thus,

A two-premise argument can be a cogent argument.

Note that the above argument "presupposes" that a two-premise argument can be a cogent argument and that it is a two-premise argument given in support of the claim that a two-premise argument can be a cogent argument. Also note that the argument is cogent. Thus it is false to say that an argument that presupposes an idea cannot be a cogent argument for that idea, and it is false to say that an argument of a given category cannot be a cogent argument for the claim that an argument of that category can be a cogent argument. But why are premises 8 and 10 false? How is it that this exception or counterexample is possible?

The basic problem with these premises is one that I have already touched upon: the category of predictive arguments is not a logical category of argument, just as the category of two-premise arguments is not a logical category of argument. Arguments may be categorized in a number of ways. Only some of the many possible ways of categorizing arguments include criteria concerning the type of inference involved in the argument. Recall that the category of

"predictive" arguments is defined in terms of the nature of the premises and the nature of the conclusion of the argument, rather than in terms of the nature of the inference. Just as there can be more than one route from one city to another city, so there can be more than one inferential process that leads from a set of premises to a given conclusion. Because the definition of a predictive argument does not specify the nature of the inference in a predictive argument, it will be difficult if not impossible to support the objection that using a predictive argument in support of N amounts to circular reasoning.

In view of the difficulties with premise 4b and the problematic nature of assumption A1, I conclude that the revised version of Hume's sceptical argument fails to establish its conclusion. It has not been shown that it is impossible to justify induction.

2.14 Conclusion to The Problem of Induction

In this chapter I have tried to show that the circularity charge against induction does not hold up. Barker's argument fails because only the track record method, not the whole of scientific method, is necessary to justify the scientific method. Skyrms's argument fails because it is based on a false dichotomy between deduction and induction. The sceptical argument derived from Hume's Treatise failed because "probable" arguments and

"predictive" arguments do not define specific kinds of inference and because the word "presuppose" can be used in terms of actions as well as statements. I have not defeated all sceptical arguments against induction, nor have I justified induction. I have shown that there are serious difficulties with sceptical arguments that assert that it is impossible to justify induction apart from using circular reasoning.

There is an important objection that I need to briefly mention. Karl Popper sees a problem of infinite regress in trying to justify induction. He might concede that one kind of nondeductive reasoning could be used to justify another type of nondeductive reasoning, but I imagine that he would object that such a move is merely a stalling tactic. He might object that we must either accept some form of nondeductive reasoning without justification or that we must continually discover new forms of nondeductive reasoning in order to justify the older nondeductive reasoning previously used to justify still older forms of nondeductive reasoning. This objection seems to amount to a demand that any nondeductive reasoning be ultimately justified by a deductive proof. This demand appears to beg the question. To the extent that it is logically impossible to provide a deductive justification of a nondeductive form of reasoning, this demand precludes the possibility of nondeductive reasoning from the start.

NOTES FOR CHAPTER TWO

1. See the opening paragraph of "Induction", by Max Black, in The Encyclopedia of Philosophy, 8 vols., ed. Paul Edwards (New York: The Macmillan Company & The Free Press, 1967), vol. 2.

2. I am referring here to the conceptions of induction implicit in various versions of the problem of induction, rather than to various definitions of induction. Stephen Barker puts the problem of induction in terms of the scientific method. ~~Karl Popper and Brian Skyrms~~ put the problem in terms of generalization, while David Hume focuses on inferential leaps from premises based on direct observation.

3. These seven views are held by the following philosophers: (1) Karl Popper, (2) Wesley Salmon, (3) Max Black, (4) Paul Edwards and Stephen Barker, (5) D. C. Williams, (6) Keith Campbell, and (7) Frederick Will.

4. Stephen F. Barker, Induction and Hypothesis (Ithaca, New York: Cornell University Press, 1957), p. 12.

5. Barker, p. 14.

6. Barker, p. 15.

7. Barker, p. 15.

8. Barker, p. 15.

9. Barker, p. 16.

10. I am using these three words in a purely descriptive way. Sometimes they are used with evaluative meanings to indicate the extent to which a scientific idea has been proven or tested. My use of these terms allows for the possibility of such expressions as: "well-established hypotheses," "unproven theories," and "unproven laws."

11. Paul Hewitt, Conceptual Physics, 4th ed. (Boston: Little Brown and Company, 1971), p. 222 & 223.

12. Hewitt, p. 222.

13. This conception of confirmation is taken from the second and third chapters of Carl Hempel's book Philosophy of Natural Science (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1966).

14. Brian Skyrms, Choice and Chance (Belmont, California: Dickenson Publishing Co., 1966), p. 22.

15. Skyrms, p. 23.

16. Skyrms, p. 24.

17. Skyrms, p. 25.

18. Janet Broughton, "Hume's Scepticism about Causal Inferences," Pacific Philosophical Quarterly, vol. 64, p. 5

19. David Hume, An Enquiry Concerning Human Understanding. Enquiries Concerning Human Understanding and Concerning The Principles of Morals, ed. L. A. Selby-Bigge, 3rd ed. revised by P. H. Nidditch (Oxford: The Clarendon Press, 1975), p. 44.

20. Hume, Enquiry, p. 55.

21. Hume, Enquiry, p. 38.

22. David Hume, A Treatise of Human Nature, ed. L. A. Selby-Bigge, 2nd ed. revised by P. H. Nidditch (Oxford: The Clarendon Press, 1978), p. 89.

23. Hume, Treatise, p. 89.

24. Hume, Treatise, p. 89.

25. Hume, Treatise, p. 90.

26. Hume, Treatise, p. 90.

27. Hume, Treatise, p. 90.

28. Hume, Enquiry, p. 26.

29. Skyrms, p. 45.

30. Hume, Enquiry, p. 36 & 37.

31. I owe this distinction to J. P. McGrath, who used it in his essay, "Hume's Inductive Scepticism," Philosophical Studies, Ireland, vol. 24, p. 70.

CHAPTER THREE

Weak Deductivism

3.0 Weak Deductivism in Recent Textbooks on Reasoning

In the first chapter of Challenge and Response, Carl Wellman examines what I have called the enthymematic argument for deductivism. As I have already pointed out (in section 1.6), this argument is best construed as a defense against counterexamples to the strong form of deductivism, or as an argument for the weak version of deductivism. Remember that the weak version asserts that all cogent nondeductive arguments can be reformulated into sound deductive arguments. This version of deductivism is perhaps the most significant in terms of education in the area of reasoning and logic, for it appears that a number of recent textbooks in this area advocate or presuppose or suggest that the weak version of deductivism is true.

The clearest advocate of this thesis is Thomas Schwartz. In the first chapter of his textbook The Art of Logical Reasoning, Schwartz makes the following statement:

. . . any argument can be construed as deductive without impairment . . . For this reason, although I expect you to understand the special contention that makes an argument deductive (truth of the premises would necessitate truth of conclusion), I do not expect you to be able to sort garden-variety arguments into deductive and nondeductive display cases.

We shall study deductive arguments for the most part. Or, rather, we shall construe the arguments we study as deductive for the most part, not much caring

(because it does not much matter) whether their authors intended this construction.[1]

If a cogent nondeductive argument cannot be reformulated as a sound (or cogent) deductive argument, then construing that argument as deductive would impair the argument. So clearly, Schwartz is by implication asserting what I have called the weak version of deductivism.

Perry Weddle, author of another recent textbook[2] in the field of reasoning, advocates a position that comes very close to weak deductivism:

Now of course poor arguments called inductive, based on insufficient evidence, will give only some grounds for their conclusions. But is the same true of the careful ones? . . .

When an arguer properly hedges the conclusion of a traditionally inductive argument, the result assumes the role held to belong exclusively to deduction. . . . In other words, "it is absolutely impossible for the premises to be true unless the conclusion is true also." [3]

. . . with the premises filled out and/or the conclusion appropriately hedged, a good traditionally inductive argument becomes deductively tight.[4]

Weddle does not explicitly say that such a happy conversion of inductive and nondeductive arguments is always possible, but neither does he explicitly qualify his claim. I would interpret this as an indication that Weddle is sympathetic to such a universal claim but that he is not willing to commit himself to this yet.

Michael Scriven, author of Reasoning, may not be committed to weak deductivism, but what he says in an

introductory chapter of his text suggests or borders on this idea:

You don't need to memorize the terms "inductive" and "deductive"; we mention them only because you may run across them in some of your background reading. A slight juggling of the premises (by adding some unstated ones) and the conclusions can-always convert an inductive argument into a deductive one without any essential loss of the "point of the argument", so the distinction isn't one you would want to build very much on; . . . [5]

I'm not sure whether turning a cogent inductive argument into an unsound deductive argument would involve an essential loss of the point of the argument, but if Scriven saw this as a possible consequence of converting some inductive arguments, I doubt that he would take the inductive/deductive distinction so lightly.

Finally, two other recent textbooks are worth mentioning in this respect. Gerald Nosich and Vincent Barry both have textbooks on reasoning.[6] Both authors advocate reconstructing arguments in such a way that the reformulated argument becomes deductively valid. Aside from the problem that this may hinder students from judging an argument to have committed a formal fallacy (such as affirming the consequent), this in effect teaches students that any argument, including inductive and conductive arguments, can be properly and accurately interpreted as ethymemes, as incomplete deductive arguments. Vincent Barry does point out the existence of cogent inductive arguments, but he advocates that "In general, you should fill in missing

premises whenever an argument is incomplete and its missing premises are not obvious. In an incomplete argument the stated premise does not entail the argument's conclusion." [7] If students are supposed to always turn inductive arguments into deductive arguments, why bother mentioning the idea of induction, especially when it is asserted that the "truth of the premises of a valid inductive argument do [sic] not guarantee the truth of its conclusion" [8] Gerald Nosich is at least consistent; I do not think the word "inductive" ever occurs in his three hundred page text.

In view of the presence of weak deductivism in some recent textbooks on reasoning, it seems worthwhile to take a closer look at the project of reformulating cogent inductive and conductive arguments as sound deductive arguments. In this chapter I will examine one argument for the weak version of deductivism and five different strategies for converting such arguments into deductive form. These five strategies and some criticisms of them are taken from Carl Wellman's critique of the enthymeme argument for deductivism.

3.1 An Argument for Weak Deductivism

Before I begin examining the five strategies, I will briefly criticize an argument that Thomas Schwartz gives for weak deductivism. Schwartz considers the idea of

reformulating a particular inductive argument, but his argument can be generalized to cover all nondeductive arguments, both inductive and deductive. The example argument that he considers is as follows: A thousand balls have been drawn from an urn and all are blue, so the next ball drawn from the urn will be blue. Schwartz argues in the first chapter of his textbook that this argument can be reformulated as a sound deductive argument:

Suppose we now allow it [this argument] this tacit premise:

If a thousand balls have been drawn from the urn and all are blue, then the next ball drawn from the urn will be blue.

Then we can reasonably construe [this argument] as a pretty good deductive argument. For the truth of its two premises would not merely support but necessitate that of its conclusion. What is more, to assert or accept the original argument is to assert or accept, among other things and without further defense, that the conclusion is true if the premises are true. So it is perforce to assert or accept, without further defense, the new premise. Therefore, even if the new premise is false or otherwise objectionable, adding it to the premises cannot impair the argument: although not a premise, it already was an undefended part of the argument.

As this illustrates, any argument can be construed as deductive without impairment . . . [9]

The key premise here is the statement that "to assert or accept the original argument is to assert or accept . . . that the conclusion is true if the premises are true." It is important to be clear about what is referred to by the expression "the premises." Maybe this expression refers

to both stated and unstated premises. In that case the key premise would be equivalent to the following:

To assert or accept the original argument is to assert or accept that the conclusion is true if the original premise and any tacit premises are true.

This statement might be acceptable, but it will not do the job that Schwartz needs it to do. The question at issue here might be put as "When can we say that an argument has tacit premises?" One answer is to say that an argument has tacit premises whenever the premise or premises given do not entail the conclusion. This, or something like this, is what Schwartz is arguing for. Thus, the key premise in his argument would beg the question, since it refers to the problematic and controversial concept of "tacit premises" as if all parties could agree when an argument contains tacit premises.

Thus we should take Schwartz to be referring only to the explicitly stated premises:

To assert or accept the original argument is to assert or accept that the conclusion is true if the stated premise or premises are true.

This interpretation gets Schwartz around my initial criticisms. Since he intends his argument to be generalized, this premise also needs to be generalized beyond the example that he discusses. I would suggest the following revision for that purpose:

To assert or accept an argument is to assert or accept that the conclusion of that argument is true if the stated premise or premises of that argument are true.

On this assumption, if I assert the argument "A, so C", then I am committing myself to the conditional statement "If A is true, then C is true" or "If A, then C".

Similarly, if I assert the argument "A and B, so C", then I am committing myself to the conditional statement "If A and B are both true, then C is true" or "If A and B, then C".

Thus this step of Schwartz's argument can be summarized as follows:

To assert "A, so B" commits one to the assertions "A" and "If A, then B".

There are two basic parts to Schwartz's argument:

The second step or premise seems so obviously true that it seems silly to write it out, but for the sake of clarity this must be done. Schwartz clearly holds that the addition of the assertion "If A, then B" to the original premise "A" will yield a deductive argument. So the second main part of Schwartz's argument is that:

"A" and "If A, then B" conjointly entail "B".

The two main parts of Schwartz's argument both appear to be true and appear to establish his conclusion that all arguments "can be construed as deductive without impairment." What can I say against his argument?

My objection is that there is an equivocation between the two main premises of his argument. The problem lies in an ambiguity in the meaning of conditional (or IF/THEN) statements. Statements of the form "If A, then B" have a

specific uses in the field of deductive logic. They are often defined in terms of truth functions or logical necessity. But the ordinary use of such statements does not neatly correspond to the technical meanings given to such statements by deductive logicians. It may well be that asserting "A, so B" commits one to the assertion "If A, then B" in accordance with some ordinary use of such statements, but it is not true that the resulting IF/THEN statement taken in accordance with its ordinary use will entail its consequent when taken in combination with the assertion of its antecedent.

An example should help here. Suppose someone gives the following argument:

Dark clouds fill the sky, so it will rain today.
 Since this assertion fits the form "A, so B", Schwartz's first premise asserts that such an arguer is committed to the assertion that "If A, then B". In other words, the person who asserted the above argument would be committed to this assertion:

If dark clouds fill the sky, then it will rain today.

Now this seems acceptable at first glance, but we need to be careful as to what exactly this IF/THEN statement means. It does not mean any of the things that deductive logicians usually mean by IF/THEN statements. For example, it does not mean any of the following:

1. "Dark clouds fill the sky" materially implies "It will rain today."
2. "Dark clouds fill the sky" strictly implies "It will rain today."
3. "Dark clouds fill the sky" entails "It will rain today."

It does not mean the same as either statement 2 or 3 because the ordinary use of the IF/THEN statement in this case does not involve the criteria of logical necessity. That is to say, showing that it is logically possible for dark clouds to occur and not be followed by rain disproves 2 and 3 but does not disprove the ordinary language use of the IF/THEN statement about the relation between clouds and rain.

Furthermore, showing that there were in fact dark clouds and that it did not in fact rain that day would disprove 1 but not the ordinary language IF/THEN claim.

In other words, the IF/THEN claim that one is committed to by asserting the argument about rain is one that allows for exceptions, whereas no IF/THEN statement that allows for exceptions can be used by Schwartz to yield an entailment or a deductive argument. Schwartz has confused the ordinary use of IF/THEN statements with the technical use of such statements by deductive logicians, and this leads him to construct an argument for weak deductivism that involves an equivocation as to the meaning of statements of the form "If A, then B". On the deductive logician's meaning of IF/THEN statements, the second premise

would be acceptable but the first premise would be false. On the ordinary language interpretation of IF/THEN statements, the first premise would be plausible but the second premise would be false. I conclude that this argument for weak deductivism is not cogent.

3.2 Five Strategies for Deductivizing Counterexamples

For the rest of this chapter I will be taking a look at five strategies for converting cogent nondeductive arguments into sound deductive arguments. I will focus my critique around the following two counterexample arguments:

1. Sheri promised to return the book by Sunday, so she should return the book by Sunday.
2. Dark clouds fill the sky, so it will rain today.

The first argument is a slightly modified version of a conductive argument that Carl Wellman examines in the first chapter of Challenge and Response. [10] The idea for the second argument is from an example of an inductive argument that Perry Weddle considers in his article "Induction, Deduction," [11] but my argument is simpler than Weddle's and significantly different in other respects.

These arguments appear to be cogent, but neither is a deductively valid argument as it stands. In order for these arguments to be transformed into deductive arguments it is necessary, at the very least, to add at least one more premise to each of the arguments. Carl Wellman suggests and criticizes the following five strategies for turning such

arguments into sound deductive arguments, each of which involves the addition of a certain sort of principle or premise[12]:

1. A Universal Principle ("One should always do what one has promised" or "It will always rain on the days that dark clouds fill the sky")

2. A Qualified Principle ("One should always do what one had promised, unless a life can be saved by breaking the promise" or "It will always rain on the days that dark clouds fill the sky, unless high winds occur that day")

3. A Probabilistic Principle ("One should usually do what one has promised to do" or "It usually rains on the days that dark clouds fill the sky")

4. A Specific Conditional Claim ("If Sheri promised to return the book by Sunday, then Sheri should return the book by Sunday" or "If dark clouds fill the sky today, then it will rain today")

5. A Provisional Principle ("Other things being equal, one should do what one has promised to do" or "Other things being equal, it will rain on the days that dark clouds fill the sky")

I shall examine what Wellman has to say about these strategies and I will make some points of my own about them. It is my aim to show that each of these strategies encounters serious difficulties. If I am successful, I will not have proven that the project of deductivizing all cogent nondeductive arguments is an impossible task, but I will have provided reasons to be sceptical about this project.

3.3 Strategy One: Adding a Universal Principle

One traditional way of converting nondeductive arguments into deductive form is to add a universal

principle to the stated premise or premises. According to this strategy my two nondeductive arguments would be revised as follows:

1a. Sheri promised to return the book by Sunday.

One should always do what one has promised.

Therefore,

Sheri should return the book by Sunday.

2a. Dark clouds fill the sky.

It always rains on days when dark clouds fill the sky.

Therefore,

It will rain today.

Before I criticize these reformulated arguments it is worth pointing out the general objection that Wellman makes to each of the proposed five strategies for converting arguments into deductive form:

Is it true that one can always find one or more premises to transform a nondeductive argument into a deductive one? If one is allowed to pull any old premise out of his hat, there is no doubt that the trick can be done. . . . The trouble with adding premises to an argument is that a false or doubtful premise is of no help in establishing a conclusion. If ethical arguments are to be of any use in justifying ethical conclusions, the arguer must be able to justify his premises as well as the logic of his argument. To save the validity of the argument by adding unjustifiable premises is to make the argument useless for justifying ethical statements. This is too high a price to pay.

Unfortunately, I can think of no way of transforming conductive ethical arguments into deductive ones that does not pay this price. [13]

In other words, the goal is not simply to transform cogent nondeductive arguments into valid deductive arguments but

rather to transform them into sound deductive arguments. This requires that every premise that is added to the original premises be true (or acceptable). To the extent that it is not possible to find premises that both make the original argument deductively valid and are true, it will not be possible to transform cogent nondeductive arguments into deductive form. The same objection holds, I believe, with respect to inductive arguments.

The problem with the strategy of adding a universal principle is that, at least in the cases in question, the universal principle is false. It simply is not the case that "One should always do what one has promised." Such a general principle is easy to counterexample. For instance, if it were necessary for Sheri to break her promise in order to "save a drowning man or give first aid to the victim of a hit-and-run driver," [14] then we would not hold her to keeping her promise. As I pointed out in my discussion of alleged ethical rules of inference (see section 1.8), someone motivated by racism could promise to bomb a church full of black people. But we would not hold this person to their promise in such a case. It is simply absurd to think that any and every promise must be kept no matter what the consequences or circumstances.

A similar problem occurs in the case of the inductive argument about rain. If high winds come up, then the clouds might be pushed away before it rains (I take it that in

context the conclusion of this argument means something like, "It will rain here in this town today."). It is not true that rain will always follow the presence of dark clouds filling the sky.

3.4 Strategy Two: Adding a Qualified Principle

Since the problem seems to be that there are exceptions, a natural response is to try to build the exceptions into the rule. Given the above objections, the two nondeductive arguments would be reformulated as follows:

1b. Sheri promised to return the book by Sunday.

One should always do what one promised, unless a life can be saved by breaking the promise.

Sheri cannot save a life by breaking the promise.

Therefore,
Sheri should return the book by Sunday.

2b. Dark clouds fill the sky.

It always rains on days when dark clouds fill the sky, unless high winds come up that day.

High winds will not come up today.

Therefore,
It will rain today.

This second strategy is hardly any better than the first. For one thing, there are many other actual exceptions to these rules. Saving a person from terrible pain seems a sufficient reason for Sheri to break her promise, even if the cause of the pain was not a life-threatening injury. The same is true in the case of the

inductive argument. There are many other ways in which rain may fail to occur. For one thing, if the temperature drops below freezing, it may snow or hail rather than rain. Even if we could assemble a finite list of all the exceptions to these rules that have ever occurred, this would not do. For we can always think up other possible exceptions that have not yet occurred.

There is another serious difficulty with this strategy, at least with respect to ethical arguments. Even if all of the possible exceptions could be built into a qualified ethical principle about promising, there remains the following further difficulty:

. . . each of the considerations that define such situations is a matter of degree. It would be necessary to specify in the rule what degree of danger to life outweighs what degree of solemnity in promising, . . . [15]

In other words, some way of determining the weight of particular promise-obligations and of determining the relative opposing weight of other considerations must be built into the principle. Otherwise, no judgement about the particular case at hand is entailed by the application of the principle, or worse, significantly differing instances will be treated in exactly the same way.

It is not clear that such a formula could ever be developed, even in the simple case of weighing a promise-obligation against degrees of danger to life. But there are many other possible exceptions to this rule. In a true

ethical principle, all of the possible exceptions would have to be understood in relation to each other and to other positive reasons for keeping the promise. Thus the task of developing a qualified ethical principle that cannot be counterexampled is so complex that it could never be carried out in practice, even if it were possible in theory. And even if such a principle were developed (say by a super computer) it would fill many volumes and could hardly be the kind of thing that a person could justifiably believe or use in everyday reasoning. So we must reject this strategy for trying to deductivize nondeductive arguments.

3.5 Strategy Three: Adding a Probabilistic Principle

The third strategy for deductivizing arguments is to add a probabilistic principle to the original premise(s). This by itself will not make the argument deductively valid, for a probabilistic premise can, at best, support a probabilistic conclusion. Thus it is also necessary to modify the conclusion, to "hedge" the conclusion (as Perry Weddle puts it). In accordance with this strategy, my counterexample arguments would be reformulated with the word "probably" in their conclusions:

1c. Sheri promised to return the book by Sunday..

One should usually do what one has promised.

Therefore,

Sheri should probably return the book by Sunday.

2c. Dark clouds fill the sky.

It usually rains on days when dark clouds fill the sky.

Therefore,

It will probably rain today.

It is clear that the word "probably" in the conclusion cannot refer to the strength of the inference in this argument. The inference is supposed to be deductive, not probable, in nature. As Wellman points out, the word "probably" in the conclusion here means something like "in most cases." [16] Because the conclusion refers to a specific instance, we should modify this interpretation of the word "probably" to: "chances are this is a case in which." If the conclusion is to follow necessarily from the probabilistic principle, then the conclusion cannot assert anything definite about the particular case at hand. Since a considerable proportion of promises are justifiably broken or left unfulfilled, there would always be the chance that the present case was one of the exceptions.

If we interpret the conclusion that "Chances are this is a case in which Sheri should do what she promised, namely return the book by Sunday," as implying that it is best that Sheri return the book by Sunday; then this amounts to practically the same thing as concluding dogmatically that Sheri should return the book by Sunday. In the case of ethical decisions there is no room for halfway conclusions, though there is room for doubt; one either keeps a promise

or does not keep it. Because our probabilistic premise tells us in every case that "Chances are this is a case in which you should do what you promised." we could always draw the same conclusion without using any discretion or judgement. In this case, we would fail to allow for legitimate exceptions. Such reasoning would lead Sheri to refuse to save a drowning man for fear of breaking a trivial promise, just because most promises should be kept. She ~~could~~, as in all other cases, conclude that she "should probably return the book by Sunday," in spite of the fact that doing so would cost some poor soul his life.

R.M. Hare argues in his book, The Language of Morals, that ethical principles are not usually qualified purely in quantitative terms. His criticisms of this idea point to an ethical error very different from the short-sighted dogmatism that I attribute to probabilistic principles. He is more concerned with the possibility of an overly lax and hit-or-miss attitude towards ethical decisions. Probabilistic ethical principles are to be rejected not only because they lend themselves to wooden dogmatism, but also because they lend themselves to wanton arbitrariness:

We have therefore to inquire what can be meant by saying that a rule is 'in general' valid, but not universally. It ~~sounds~~ sensible to say that the rule 'Never say what is false' is a rule of this sort; for in fact we do think it right to observe it in the majority of cases, but we also think it right to break it in exceptional cases in the interests, for example, of tact, the winning of wars, or the preservation of innocent people from homicidal maniacs. Now I can

think of at least two ways in which a rule or principle can be incompletely rigorous. The first way is when the rule lays down that a certain kind of action is in certain circumstances to be done, but it is understood that it is sufficient if it is done in the great majority of instances; exceptions are allowed if they are not too numerous in proportion to the total number of cases. An example of such a principle would be the principle that undergraduates must not take a week off work during term; clearly if once or twice during his career an undergraduate, whose industry is otherwise exemplary, takes some time off, even a week, we think no harm of it; but if he takes every week off, or even the majority, he probably gets into serious trouble. It is clear that the principle about not saying what is false is not of this character, because we do not say 'It doesn't matter your saying what is false occasionally, so long as you don't do it too often'. [17]

The problem with probabilistic ethical principles is that, even if we knew them to be true, they give us no help whatsoever in deciding whether a given case is a standard case or an exceptional case. They only point out the fact that there are such things as exceptional cases. Furthermore, if we can recognize exceptional cases, then we can agree with the premises of the reformulated ethical argument but disagree with the conclusion. If Sheri can save a drowning man only by breaking her promise to return the book, then it is just false to say that "Sheri probably should return the book," even though it is true that promises should usually, or in most cases be kept. This reformulated argument is not really deductively valid, for it is possible to accept the premises and yet reject the conclusion.

What about the rain argument? It does not involve ethics or ethical principles, so perhaps it, and other inductive arguments, can be reformulated with the addition of a probabilistic principle. Perry Weddle argues that an argument very similar to my rain argument (as reformulated with a probabilistic principle) becomes a sound deductive argument when the conclusion is hedged with the word "probably". [18] This simply is not so. There is no contradiction in saying that "Dark clouds fill the sky, and it usually rains on days when dark clouds fill the sky, but it probably will not rain today." This is not self-contradictory because there are known exceptions to the principle of prediction that relates rain to days when dark clouds fill the sky.

Consideration of other relevant information may lead to an opposite prediction. For example, one might predict that it will not rain because high winds have come up and will more than likely push the clouds out of town before the rain starts. Or one might predict that it will not rain because it is too cold to rain and that any precipitation would occur in the form of snow or hail. Because there is no contradiction in asserting both the premises of the reformulated rain argument and denying the argument's conclusion, the premises do not entail the conclusion. Thus, despite Perry Weddle's claim to the contrary, this is not a deductively valid argument.

David Hitchcock makes this same criticism of Weddle's rain argument in an article written in response Weddle's article "Inductive, Deductive":

Weddle claims that with premises thus filled out and the conclusion hedged, it is impossible for the premises to be true and the conclusion false. But suppose some facts not mentioned in the premises make it highly unlikely that it will rain tomorrow. Then, despite the truth of the premises, the conclusion is false. [19]

If new information or new premises are added to the argument, we can continue to accept the old premises while rejecting the conclusion as false or unacceptable. If high winds come up, or the temperature drops below freezing, then it is still true that it usually rains when dark clouds fill the sky, and it is still true that dark clouds filled the sky, but it is no longer obvious that "It will probably rain today." This shows that it is possible to accept the premises of the original argument and yet reject the conclusion. Thus the argument is not a deductively valid argument.

Weddle makes a couple of interesting responses to Hitchcock in a follow-up article. The first response suggests that Hitchcock has misunderstood the meaning of the conclusion:

Most hedged forecasts are no more than general probability statements applied to an impending case. Such applications do not exactly predict occurrences . . . but merely unfold the probabilities implicit in the data. So when an alleged "predicted occurrence" fails to happen because of uncited counter evidence,

the argument's conclusion can seem false, even though its premises be true.[20]

Weddle is saying in effect that the conclusion that "It will probably rain today" can be true even if it does not end up raining as predicted. But that much is obvious, and was most likely obvious to Hitchcock. Weddle has missed the point of Hitchcock's objection; it is not just that the prediction that is hedged by the word "probably" can fail, but that we can have reasons for believing the very opposite of that prediction even ahead of time. Additional information can lead one to make the prediction that "It probably will not rain today" while one still fully accepts the original information that initially, taken by itself, suggested the very opposite.

In a second response Weddle shifts the issue somewhat by talking about an argument that makes reference to quantified probability:

From data, plus an assessment of conditions today, meteorologists forecast "about a 70% chance of rain tomorrow." That 70% figure incorporates already the potential for uncited counter evidence, such as competing high pressure ridges. The data is only true in the aggregate; . . . For all these meteorologists know, in many of the cases reflected in the data rain may in reality have been highly unlikely. So when they apply the data as a probability to tomorrow's case, they do not exclude that other things may happen. The conclusion is not falsified by whatever happens tomorrow. Neither is the "likely" conclusion in my argument. Looking back on a record in which, at the 70% forecast level, it had rained on 140 of 200 occasions, these meteorologists could congratulate themselves on a perfect record.[21]

Weddle admits that in a given case "rain may in reality have been highly unlikely", even when a forecast for a "70% chance of rain" was appropriately deduced. Yet he wants to equate his notion of rain being "likely" to the notion of there being a sizeable probability, in terms of percentage, that it will rain. This seems to imply that rain may be likely even when it is unlikely to rain. Weddle appears to be making a distinction between likelihood in relation to specific events and likelihood in relation to events in an aggregate. This distinction will not help him, though, because what we are interested in is the specific case at hand.

If the conclusion "It will probably rain today" only means that "Today is a day which falls into a category of days such that most such days have measurable rainfall," then this conclusion is of little use, for there may be other categories that this day also falls under in which virtually none of those days has measurable rainfall. Today may be a day in which dark clouds fill the sky, but it can also be a day in which there are high winds or in which the temperature is below freezing. No day has measurable rainfall when the temperature is ten below zero all day long.

Wesley Salmon gives a nice example of such conflicting categorizations in his text, Logic. He points out that a man who is only thirty-five years old will likely

live "for three more years", but that a man with an advanced case of lung cancer will likely "not survive for three more years." [22] The problem is that one and the same man can be thirty-five and have an advanced case of lung cancer. It would hardly be a comfort to such a man, to tell him that it was "likely" that he would survive for three more years in the technical sense that he belonged to the class of persons who are thirty-five years of age and that people who are that old usually live at least three years more. He is not interested in whether thirty-five year olds usually live three years more, but whether he--a man with an advanced case of lung cancer--could expect this much more time.

Similarly, when dark clouds fill the sky and high winds have come up, one does not merely want to know whether rain usually occurs on days in which dark clouds fill the sky; one wants to know if rain usually occurs on days when it is the case both that dark clouds fill the sky and that high winds have come up. Thus the initial conclusion that rain is "likely" today because dark clouds fill the sky parallels the initial assumption of our unsuspecting cancer victim that he will be alive three years hence because he is only thirty-five. It would be just as foolish to continue believing that rain was "likely" in the face of new counter evidence, as for our poor victim of cancer to delude himself into believing that he would "likely" be alive three years hence, even after finding out that he had an advanced case

of lung cancer. Weddle's technical use of the word "likely" allows him to keep the rain argument deductively valid only at the expense of making the conclusion absurdly weak. The resulting argument is not the kind of argument that normal, sane people give and consider in deciding how to live and act. Weddle has shifted the meaning of the word "likely" and is no longer dealing with the same argument that he first put forward. I conclude that the strategy of adding a probabilistic principle is a failure.

3.6 Strategy Four: Adding a Specific Conditional Claim

The fourth strategy for deductivizing counterexample arguments is to add a conditional claim that refers only to the specific case at hand. This strategy represents an attempt to circumnavigate the difficulties involved in trying to find true general principles (either ethical or predictive). If my arguments are revised in accordance with this strategy, no qualification of the conclusions would seem to be necessary:

1d. Sheri promised to return the book by Sunday.

If Sheri promised to return the book by Sunday,
then Sheri should return the book by Sunday.

Therefore,

Sheri should return the book by Sunday.

2d. Dark clouds fill the sky today.

If dark clouds fill the sky today, then it will
rain today.

Therefore,
It will rain today.

The specific conditional claims that have been added to these arguments only apply in these specific cases. They do not make the broad sort of claim usually asserted in the major premise of traditional syllogistic arguments, and thus they appear to avoid the vulnerability of general principles to exceptions and counterexamples.

The specific ethical claim that "If Sheri promised to return the book, then Sheri should return the book" simply links the facts of this particular case to an ethical conclusion about only this particular case. Wellman objects that it is, "impossible to justify the premise, without justifying the conclusion it is advanced to justify." [23] In other words, though this added premise avoids the problem of facing the counterexamples and unforeseen exceptions that ethical principles must face, its truth is solely a function of the variables involved in the particular case at hand. It does not assert that Sheri should return the book by Sunday just because she promised to do so but, rather, that under the circumstances of this case Sheri's having promised to return the book Sunday makes her obliged to return the book by Sunday. But in order to decide whether this premise is true one must plunge into the perhaps complex pros and cons of this case and come to an overall decision as to which considerations outweigh the others.

Wellman is not quite correct in saying that it is impossible to decide on the truth of this premise without justifying the conclusion, for one could agree that under the specific conditions of this case Sheri should return the book by Sunday if she had promised to do so, but still be uncertain as to whether she had in fact made this promise. Thus one could accept the conditional premise, but be uncertain about the conclusion. However, the basic point is that for someone who is sure that Sheri made the promise but who was unsure as to whether other considerations would make it permissible for Sheri to break the promise, this additional premise would be of little use. For in order to decide the truth of this premise it would be necessary to weigh all of the pros and cons of this case and come to an overall conclusion about what Sheri should do. To the extent that someone in this position is doubtful about whether Sheri should keep the promise, he will also be doubtful about the truth of the conditional premise. Furthermore, it is precisely the weighing of pros and cons that lies at the heart of this counterexample, thus the addition of a specific conditional claim merely moves this nondeductive reasoning back one step. This reformulation fails to show how deductive reasoning can encompass all of the kinds of reasoning involved in deciding complex cases.

It is also important to note that the conditional claim here is not the sort of claim that deductive logicians

intend by their conditional statements. When a deductive logician writes "If A, then B," she means by this either "A materially implies B" or "A strictly implies B" or "A entails B." But, the specific conditional claim that "If Sheri promised to return the book by Sunday, then Sheri should return the book by Sunday" does not assert that the statement "Sheri promised to return the book by Sunday" materially implies (or strictly implies or entails) the statement "Sheri should return the book by Sunday." The specific conditional claim allows for the possibility, even the actuality, of exceptional cases. It allows that in other cases the former statement could be true while the later statement was not true. The problem here is that the statements which constitute the argument may not give all of the relevant information. What is important is not the logical relations between the statements that are premises and the statement that is the conclusion. What is important is the whole collection of relevant information and the judgement of the reasoner in the light of those considerations. The IF/THEN statement does not assert a logical connection between Sheri's promise in this case to Sheri's obligation in this case; rather, it asserts a judgement about this specific case. In view of these considerations, it is no longer obvious that the reformulated argument is deductively valid.

On the other hand, if we decide to reformulate this argument by using a conditional claim as it is used in deductive logic, then the additional premise will no longer be true or acceptable. As I argued in my discussion of Thomas Schwartz's argument for weak deductivism (Section 3.1), such a statement would not allow for exceptions to the rule. Since we know there are real exceptions, such a statement cannot be accepted as true. It appears that rescuing the validity of the argument involves sacrificing the truth of the premises.

Can this strategy be used to reformulate the rain argument? I have already argued that this strategy does not work if we take the conditional to mean what deductive logicians mean by IF/THEN statements (Section 3.1). All of the above criticisms seem to apply equally well to this argument. Since the meaning of the specific conditional claim cannot be identified with the meaning of the conditional statements found in deductive logic, it is not clear that this argument is deductively valid. And since it is necessary in some instances to infer the consequences of a complex synthesis of factors in order to predict rain, it would seem that important kinds of nondeductive reasoning are buried in the additional premise. The specific conditional premise pushes the nondeductive reasoning back one step in order to avoid dealing with it. Thus I conclude

that there are significant problems with this strategy for deductivizing counterexamples to deductivism.

3.7 Strategy Five: Adding a Provisional Principle

The fifth strategy represents an attempt to build into the ethical or predictive principles a sort of "looseness" that is different from that of probabilistic principles. The key idea here is found in the phrase, "other things being equal." In accordance with this strategy, my counterexample arguments would be reformulated with the addition of two more premises:

- 1e. Other things being equal, one should do what one promised to do.

Sheri promised to return the book by Sunday.

In this case, other things are equal.

Therefore,

Sheri should return the book by Sunday.

- 2e. Dark clouds fill the sky.

Other things being equal, it will rain on days that dark clouds fill the sky.

In this case, other things are equal.

Therefore,

It will rain today.

It is not clear what it means to say that "other things are equal." Before I attempt to clarify this idea, it would be useful to look at Wellman's two objections to this strategy. His first objection is that provisional

ethical principles can only be judged by judging the case at hand:

. . . one must explicitly decide what one ought to do in this case in order to know that in this case other things are equal or that in this case no stronger prima facie obligation exists.[24]

His second objection is that the provisional principle and the other premise that asserts that other things are equal both presuppose a concept of relevance such that "facts are reasons for ethical conclusions." [25] Here is how he puts this objection:

. . . the kind of relevance required by these ethical principles cannot be interpreted as deductive, for it is presupposed in stating the very principles needed to make the ethical reasoning deductive: What this appeal to obligations other things being equal or prima facie obligations has really done is to build the nondeductive reasoning into the premises needed to make the original argument deductive in form. To do this is not to save deductivism but to abandon it.[26]

Are these objections valid? This question can be answered only after the notion of "other things are equal" has been clarified. In order to clarify this idea, I shall turn to an essay by John Searle where he proposes an ethical argument which involves the use of this phrase. In his essay "How to Derive an 'Ought' from an 'Is'," Searle explains the concept this way:

The force of the expression 'other things being equal' in the present instance is roughly this. Unless we have some reason . . . for supposing the obligation void . . . or the agent ought not to keep his promise . . . then the obligation holds and he ought to keep his promise. It is not part of the force of the phrase 'other things being equal' that in order to satisfy it we need to establish a universal negative proposition

to the effect that no reason could ever be given by anyone for supposing the agent is not under an obligation or ought not to keep the promise. That would be impossible and would render the phrase useless. It is sufficient to satisfy the condition that no reason to the contrary can in fact be given. [27]

It has been pointed out by critics of Searle's important essay that this definition of "other things are equal" is too subjective. [28] That is to say, just because "we have" no "reason to the contrary" does not mean that there is no reason to the contrary. Reality does not always conform to our expectations and conceptions. Sometimes we find out new information that leads us to reject earlier evaluations and predictions. I see dark clouds above and only later realize that high winds were pushing the clouds out of town. I hear Sheri make a promise to return my book by Sunday, but news of her efforts to save a drowning man on Sunday afternoon does not reach me until after I have already begun mentally scolding her for breaking her promise. I talk excitedly with a man in his thirties about long range plans and my high hopes for the future, then I am told by someone else, too late, that that man has an advanced case of lung cancer. On Searle's subjective interpretation of "other things are equal," the premises of my counterexample arguments fail to entail their conclusions because they leave open the possibility that new information could lead to a rejection of the conclusions.

A more objective interpretation of this key phrase is, however, suggested by another passage in Searle's essay:

We rely on definitional connections between 'promise', 'obligate', and 'ought', and the only problem which arises is that obligations can be overridden or removed in a variety of ways and we need to take account of that fact. We solve our difficulty by adding further premises to the effect that there are no contrary considerations, that other things are equal. [29]

On this interpretation of "other things are equal", this assertion would deny the existence of contrary considerations in the case at hand. Thus the third premise of my ethical argument would mean:

No considerations exist which are relevant reasons in support of the claim that "It is not the case that Sheri should return the book by Sunday."

Wellman's first objection seems to fit this premise. To assert this premise is to assert the conclusion of the argument. Assuming that a statement must have reasons in support of it in order for it to be true (whether the reasons are known or not is irrelevant), to claim that no reason whatsoever exists in support of a given claim is to deny the truth of that claim. To deny the claim that "it is not the case that Sheri should return the book by Sunday." is to assert the claim that "Sheri should return the book by Sunday." Thus, to assert the "other things are equal" premise is, on this interpretation, to assert the conclusion of the argument. Wellman's first objection is correct here; this premise begs the question.

There is a way to interpret the "all things are equal" premise that corresponds more closely to what I believe Searle intended:

In this instance, other considerations--besides the fact that Sheri promised to return the book by Sunday--are not relevant to the claim that Sheri should return the book by Sunday.

This premise does not entirely beg the question. It leaves open the possibility that the conclusion of the argument is false. How can it do this? It leaves the question open because it leaves open the possibility that the fact that Sheri promised to return the book is also irrelevant or negatively relevant. A social anarchist might feel that the whole business of promising was an evil institution that unnecessarily entangled people and restricted the natural freedom of action that people have at birth. Such an anarchist might think it his duty to make and break as many promises as he could in order to do his part to destroy this evil institution (an inversion of Kant's notion of willing a universal law). Thus, the above premise leaves open the possibility that precisely because Sheri made a promise to return the book, Sheri should not return the book.

Unfortunately, such a premise would in every case, or almost every case, be false. For example, in order for Sheri to keep her promise she will probably have to spend some of her time locating and transporting the book back to its owner. She may even have to use a few cents worth of

gas in order to transport the book from one place to another. If one looks hard enough, one can always find some sort of negative consideration. And even if there were occasions when no such negative considerations existed, it would be very difficult to establish or determine that this was the case. It would seem to require a god-like awareness of the universe as a whole in order to know this premise to be true.

Again, all of the above objections apply equally to the use of an "other things are equal" premise in the rain argument. The subjective interpretation neglects the possibility of unknown factors. Dark clouds suggest rain, but I may be unaware of other relevant factors such as the existence of high winds. The strong objective interpretation of "other things are equal" begs the question just the same as it does in ethical reasoning because all true claims require the existence of some reason, even if a reason that is not yet known. Finally, the weaker version of the objective interpretation will not do. It is never the case that the presence of dark clouds is the only relevant existing factor in determining whether it is going to rain. Humidity, temperature, and air pressure are always playing some role in relation to what the weather will be like. So if we take this last interpretation, the "other things are equal" premise will definitely be false.

What is needed here is a conception of "other things are equal" which allows for more than one consideration, a conception that recognizes the need to weigh pros and cons. Such a conception can be gleaned from Sir William Ross's notion of prima facie duty. In the second chapter of his book The Right and the Good, Ross outlines his theory of ethical reasoning and puts forward the concept of a prima facie duty:

When I am in a situation, as perhaps I always am, in which more than one of these prima facie duties is incumbent on me, what I have to do is to study the situation as fully as I can until I form the considered opinion (it is never more) that in the circumstances one of them is more incumbent than any other; then I am bound to think that to do this prima facie duty is my duty sans phrase in the situation.

I suggest 'prima facie duty', or 'conditional duty' as a brief way of referring to the characteristic (quite distinct from that of being a duty proper) which an act has, in virtue of being of a certain kind (e.g. the keeping of a promise), of being an act which would be a duty proper if it were not at the same time of another kind which is morally significant. Whether an act is a duty proper or actual duty depends on all the morally significant kinds it is an instance of. [30]

Given the above notion of prima facie duty, one might be tempted to reformulate my argument about promising as follows:

1f. Sheri promised to return the book by Sunday.

One should do what one promised unless a stronger duty conflicts with the duty to keep one's promises.

In this case there is no duty that both conflicts with Sheri's duty to keep her promise and is stronger than her duty to keep her promise.

Therefore,

Sheri should return the book by Sunday.

This argument does not quite work, because Sheri may be totally unable to return the book by Sunday. She might, for example, be involved in an automobile accident and go into a coma over the weekend. It would not be right to say that she was obliged to return the book even if there was no stronger conflicting duty in this case. But such an objection can be easily overcome by adding a further condition to the principle. A more serious problem is that the provisional ethical principle here is false. It may be the case that no single duty outweighs her duty to keep her promise and yet that a combination of lesser duties, when taken together, overrides the duty to keep her promise.

The provisional ethical principle needs to be revised in order to avoid the problem of a combination of duties outweighing another duty or combination of duties. To avoid this problem I would revise the argument as follows:

1g. Sheri promised to return the book by Sunday.

One should do what one promised if one is able to do so and if the combined strength of the duty to keep that promise and any other duties that would be fulfilled by the action required to keep the promise is greater than the combined strength of any other set of duties that would be fulfilled by taking an alternative course of action that conflicts with the action required to keep the promise.

In this case, Sheri is able to return the book by Sunday, and the combined strength of the duty to keep her promise and any other duties that would be fulfilled by the action required to keep the

promise is greater than the combined strength of any other set of duties that would be fulfilled by taking an alternative course of action that conflicts with the action required to keep the promise.

Therefore,

Sheri should return the book by Sunday.

Now that is an argument! This argument avoids the problem that it was created to avoid, but it runs into other difficulties. Both of Wellman's objections work against this argument. It seems to me that to assert the "other things are equal" premise (the third premise) is to assert the conclusion. Thus this premise appears to beg the question. I am not positive on this point, but I have difficulty seeing how to avoid the conclusion while accepting this premise. At any rate, there is no doubt that Wellman's second objection finds its mark here. In order to judge the truth of the third premise one must engage in the complex reasoning that is involved whenever one weighs pros and cons. But the point of using conductive arguments as counterexamples to deductivism is that they involve such reasoning. This argument converts the counterexample argument into deductive form only by burying the interesting and complicated reasoning in the third premise. In this way the deductivist fails to show how deductive arguments can adequately represent the reasoning involved when one weighs pros and cons.

I am not sure as to how to relate the discussion of prima facie duty to the rain argument, but I suspect that this can be done by generalizing Ross's notion to the idea of a good reason. The revised rain argument would thus speak of stronger and weaker reasons:

1g. Dark clouds fill the sky.

If there is a good reason to believe that it will rain (such as that dark clouds fill the sky) and there is no better reason to believe that something else will occur instead, then it will rain.

There is no better reason to believe that something else will occur instead.

Therefore,
It will rain today.

I believe that a line of criticism similar to the criticism leveled against the Rossian version of the promise argument can be developed with respect to this argument.

The provisional predictive principle here would not work as it stands but would need to be reformulated along the lines of my revision of the provisional ethical principle above. The argument using this revised predictive principle would then be subject to the criticism that its "other things are equal" premise begs the question and buries the complicated reasoning that the deductivist was supposed to translate into deductive reasoning. Thus I conclude that the method of adding a provisional principle is unsuccessful.

3.8 Weak Deductivism: Conclusion

As I pointed out in the opening section of this chapter, weak deductivism is a view that is suggested and even promoted by some recent textbooks on reasoning. In this chapter I have tried to show that there are some serious difficulties with this view. I have criticized an argument by Thomas Schwartz for weak deductivism, and I have pointed out various problems with five different strategies for converting counterexample arguments into deductive form. I have not proven or established that weak deductivism is false, but I have given sufficient reasons to be sceptical about weak deductivism.

NOTES FOR CHAPTER THREE

1. Thomas Schwartz, The Art of Logical Reasoning (New York: Random House, 1980), p. 12.
2. Perry Weddle, Argument/ A Guide to Critical Thinking (New York: McGraw-Hill, 1978).
3. Perry Weddle, "Inductive, Deductive," Informal Logic Newsletter, vol. ii, no. 1. (November 1979), pp. 1-5.
4. Perry Weddle, "Good Grief! More on Deduction/ Induction," Informal Logic Newsletter, vol. iii, no. 1 (October 1980), p. 9.
5. Michael Scriven, Reasoning (New York: McGraw-Hill, 1976), p. 34.
6. Vincent Barry, Invitation to Critical Thinking (New York: Holt, Rinehart and Winston, 1984); and Gerald Nosich, Reasons and Arguments (Belmont, California: Wadsworth Publishing Company, 1982).
7. Barry, p. 153.
8. Barry, p. 180.
9. Schwartz, p. 12.
10. Carl Wellman, Challenge and Response/ Justification in Ethics, (Carbondale and Edwardsville: Southern Illinois University Press, 1971), p. 10.
11. Weddle, "Induction, Deduction," p. 3.
12. These strategies are found on the following pages of Wellman's Challenge and Response: (1) p. 4, (2) p. 5, (3) pp. 5-8, (4) pp. 8-18, and (5) pp. 18-20.
13. Wellman, p. 10.
14. Wellman, p. 11.
15. Wellman, p. 11.
16. Wellman, p. 15.
17. R. M. Hare, The Language of Morals (Oxford: The Clarendon Press, 1952); pp. 50 & 51.

18. Weddle, "Inductive, Deductive," p. 3; and, "Good Grief! More on Deduction/Induction," p. 12.

19. David Hitchcock, "Deductive and Inductive: Types of Validity, Not Types of Argument," Informal Logic Newsletter, vol. ii, no. 3 (June 1980), p. 9.

20. Weddle, "Good Grief! More on Deduction/Induction," p. 12.

21. Weddle, "Good Grief! More on Deduction/Induction," p. 12.

22. Wesley Salmon, Logic (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1963); p. 62.

23. Wellman, p. 16.

24. Wellman, p. 13.

25. Wellman, p. 13.

26. Wellman, p. 14.

27. John Searle, "How to Derive 'Ought' from 'Is'," The Is-Ought Question, ed. W. D. Hudson (Bristol: Macmillan, 1966), p. 124.

28. See other essays in The Is-Ought Question, especially pp. 157-67.

29. Searle, p. 125.

30. William Ross, The Right and the Good (Oxford: The Clarendon Press, 1930); pp. 176 & 177.

CONCLUSION

In this thesis I have shown that none of the five arguments for deductivism that Wellman considers are cogent arguments. The first three arguments are no good, and the last two were found to be problematic as they stand. I have argued that the alleged problem of circularity in trying to justify induction rests on an ambiguity or lack of clarity in the use of the term "induction" (or its analogue in the Humean sceptical argument). Finally, I have pointed out some serious difficulties with various attempts to defeat counterexamples to deductivism by trying to reformulate the counterexample arguments as sound deductive arguments.

I have not presented any general arguments which show either that strong deductivism or that weak deductivism is false, but to the extent that confirmation arguments, generalization arguments, and conductive arguments appear to be cogent arguments, they provide good reason to reject strong deductivism. Insofar as there are no cogent arguments in support of strong deductivism, we should accept these arguments for what they appear to be, cogent arguments that are not sound deductive arguments. To the extent that there are no cogent arguments for weak deductivism and no acceptable strategies for converting cogent nondeductive arguments into sound deductive arguments, we should be sceptical of weak deductivism.

I do not claim that my review of the relevant arguments has been exhaustive. In fact, I am aware of at least one important argument for deductivism in Wellman's book which I have not canvassed in this thesis. However, I have tried to cover enough angles on this topic so that one could predict my criticisms of other arguments that might be put forward on this issue. Furthermore, I sense that in some of my criticisms there are the seeds of a general argument or critique of deductivism. But that is a project for another day.

The implications of this thesis for the teaching of reasoning are very simple: 1. An alternative to the deductivist theory of reasoning needs to be developed and integrated into textbooks on reasoning, and 2. Instructors need to be very cautious about reformulating arguments into deductive form. It may be that putting arguments into deductive form distorts the meaning of many arguments and yet that doing so is a useful and practical technique in argument criticism. This is a topic for a whole thesis in itself. However, until weak or strong deductivism is established or until the practical advantages can be shown to outweigh any disadvantages, I think it would be best to use caution and restraint in reformulating arguments. If an argument does not naturally fit into the mold of deductive reasoning, it should not be forced to fit that mold.

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VITA AUCTORIS

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