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## The justification of empirical belief in Hume's Treatise.

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THE JUSTIFICATION OF EMPIRICAL BELIEF  
IN HUME'S TREATISE

A Dissertation Presented

By

NORMAN SCOTT ARNOLD

Submitted to the Graduate School of the  
University of Massachusetts in partial fulfillment  
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

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Norman Scott Arnold 1979

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THE JUSTIFICATION OF EMPIRICAL BELIEF  
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Dedicated to my Parents,  
Elsie and Wayne

ABSTRACT

The Justification of Empirical Belief  
in Hume's Treatise

February, 1979

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The primary purpose of this dissertation is to argue that, through the first three parts of Book I of the Treatise, Hume had a causal theory of the justification of empirical belief. In particular, he held that, among beliefs that are caused by other beliefs, a belief is justified if and only if it is caused by the process Hume calls "causal inference".

In the first chapter it is argued that Hume held that all empirical beliefs (that are caused by other beliefs) which are not caused by causal inference are unjustified. This is by no means obvious, but careful attention to some heretofore neglected sections of Part (iii) of Book I make this attribution quite plausible. In Chapter II an argument for this substantive claim of Hume's is developed. It is at least in part implicit in his discussion of the seven philosophical relations. This argument is meant to demonstrate



how, on the basis of Hume's psychological theory he could have argued for the assertion that all beliefs not caused by causal inference are unjustified.

In Chapters III and IV an argument is offered for the converse of the interpretive claim of Chapter I, viz. that Hume held that all beliefs caused by causal inference are justified. In defense of this claim one is almost immediately faced with an enormous interpretive problem. In Part (iii) Section 6 Hume discusses the justification of beliefs arrived at via inductive (causal) inference. It is the received opinion that Hume was highly sceptical of such beliefs. He is alleged to have held that beliefs about the observed provide no ground or warrant for beliefs about the unobserved. It is the contention of this dissertation that this interpretation is completely mistaken; Hume was only concerned to establish that all such inferences have less than the highest possible measure of epistemic warrant.

Since one of Hume's primary aims in the Treatise is the construction of an elaborate psychological theory of the operations of the human mind, it is not surprising to find that, throughout the first three parts of Book I, Hume assumes that "arguments from experience" that constitute causal (inductive) inference have some measure of epistemic warrant. The crucial question in Part (iii) Section 6

is only, "How much?".

It is not until Part (iv) that he reaches the more sceptical conclusion that has customarily been attributed to him. His arguments here are completely independent of any arguments of Part (iii), notably Part (iii) Section 6 wherein he is alleged to pose the so-called "Problem of Induction".

Scattered throughout Book I of the Treatise are a number of suggestions concerning the grounds for our belief in the legitimacy of inductive inference. In the last chapter an attempt is made to state clearly exactly what the Problem of Induction is and to evaluate critically six proposals that have obvious roots in Hume's philosophy. Finally, the outline of a correct solution of this problem is proposed.

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## I N T R O D U C T I O N

Since the publication of Norman Kemp Smith's The Philosophy of David Hume, a landmark in Hume scholarship, it has been generally acknowledged that Hume's A Treatise of Human Nature has philosophical significance that extends beyond his sceptical and essentially negative conclusions. However, as yet there is no firm consensus about even the general nature and purport of Hume's positive philosophical views.

Many commentators have noted that, while many of the particular arguments that Hume offers for various claims are relatively clear, the overall pattern of the argument of the Treatise is puzzling and obscure. The main problem seems to be that Hume's aims are two-fold: On the one hand, he is trying to construct a psychological theory which, he believes, can serve as the only solid foundation for all the sciences (see his Introduction to the Treatise). On the other hand, he has philosophical aims as well, i.e. to evaluate our claims about the nature of the self, the existence of bodies, the necessity of causal connection, and so on. In terms of the number of pages, the psychological theory predominates.

Nonetheless, it is the evaluation of beliefs which

are in some sense fundamental and of systematic importance that is a distinctively philosophical task. One of the most distressing tendencies in the secondary literature on Hume (which is perhaps best exemplified by Kemp Smith) is to interpret Hume as maintaining that these evaluations are, in some sense, "absorbed" by the psychological theory. Evidence for this view is not wanting. Consider the following passage from the opening paragraph of Book I Part (iv) Section 2:

We may well ask, What causes induce us to believe in the existence of a body? but 'tis in vain to ask, Whether there be body or not? That is a point, which we must take for granted in all our reasonings.<sup>1</sup>

This general line of interpretation holds that Hume confuses or deliberately conflates psychological questions and philosophical ones.

Speaking very generally, this line of interpretation is almost entirely pernicious. In a work such as Kemp Smith's, one is repeatedly faced with the following kind of situation: Hume is faced with a philosophical problem

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<sup>1</sup>David Hume. A Treatise of Human Nature, L.A. Selby-Bigge, editor, (Oxford, 1973), p. 169. All references to Hume's Treatise will be to the Selby-Bigge edition, hereafter abbreviated, e.g. T. 222.

and by following the thread of the commentary, one finds that the answer "disappears" in the psychological theory. This is pernicious because the two kinds of questions can be separated and usually were separated by Hume. If and when they are not properly separated, Hume should be brought to task for it. In short, the philosophical significance of Hume's psychological theory has been vastly overrated.

Obviously these are quite general remarks, and there is not the space here to substantiate them. However, if one adopts the attitude implicitly recommended by these remarks, I am confident that one will find Hume easier to understand and his commentators easier to evaluate.

The primary purpose of this dissertation is to discuss Hume's evaluation of one kind of belief--empirical beliefs that are caused by other beliefs. Before discussing in more detail how I have gone about this, I should like to discuss briefly the motivations that have shaped this project and the grander scheme into which it fits. My original intention was to produce a definitive study of Hume's epistemological theory of moral judgments. In particular, I was concerned to answer the following questions that are relevant to an epistemology of morals:

a) What are moral judgments?



- b) Are they truth-valued?
- c) If they are truth-valued, under what conditions are they true?
- d) If they are truth-valued, are they corrigible?
- e) If they are corrigible, how are they to be justified?

In the secondary literature on Hume's moral theory, there has been a heated controversy concerning his views on some of these questions. Nonetheless, to the best of my knowledge (see Bibliography) none of these commentators has systematically addressed the counterparts of the above questions [especially (a), (c), and (e)] for ordinary empirical claims. That is, there has been no attempt to offer a systematic interpretation and reconstruction of Hume's theory of the nature and justification of our opinions concerning matters of fact. It would seem that this would be a good idea for a variety of reasons:

- (i) Often it is maintained that Hume held that moral judgments are significantly different in various respects from ordinary empirical judgments (opinions concerning matters of fact). It is difficult to evaluate such claims without an interpretation of Hume's views on the latter. This sort of deficiency is particularly glaring with regard to so-called

"non-cognitivist" interpretations of Hume's ethics. Interpreters of this stripe often fail to tell us much about the class of "cognitive" judgments of which moral judgments are not members.

- (ii) From the point of view of philosophical theory, it is good business to reduce, as much as possible, the number of basic principles without sacrificing explanatory power. The systematic unity--or lack thereof--of Hume's Treatise can be appraised in part by examining the relationship between the basic principles of the general theory of knowledge and the moral epistemology.

In a paper I wrote two years ago, I answered the first four of the questions asked on the preceding page. Some of these answers required some interpolation because there were some obvious lacunae in Hume's epistemology (i.e. he never says what an ordinary predicative judgment is). The last question, however, raises considerable difficulties when one turns to Hume's discussion of the justification of ordinary empirical judgments. It is this question--and these difficulties--which have given rise to this dissertation.

There can be little doubt that, at the end of Book I, Hume espoused a radical form of scepticism concerning all

of the mind's important claims to knowledge. This scepticism cuts the epistemological grounds out from under his psychological theory, not only as it is developed in Book I, but also as it is worked out in Books II and III. A closer look at Book I reveals, however, that the arguments that lead Hume into this scepticism are peculiar to Part (iv).<sup>2</sup> This suggests that perhaps prior to these arguments, Hume endorsed some criterion of justification.

This view gets some indirect corroboration from a quite plausible hypothesis advanced by Norman Kemp Smith. He argues, on a variety of grounds, that Hume wrote Book I of the Treatise after he wrote Books II and III. This would explain why Books II and III, which contain an elaborate psychological theory, appear after the last Part of Book I where he indulges in a most profound scepticism. It is my contention, to be argued in detail in this thesis, that he did not argue for this profound scepticism until Part (iv). In fact, prior to that, he had the elements of a substantial positive theory of the justification of empirical belief. The bulk of this thesis consists of an elucidation and defence of this as a correct interpretation of Hume.

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<sup>2</sup>This will be argued in detail in Chapter 4.



However, my efforts have been restricted to just those beliefs that are caused by other beliefs. This restriction requires some defence. Conspicuous by their absence are beliefs in the continued and distinct existence of bodies. Hume has a long and complex discussion of such beliefs in Part (iv). In addition, I have made no attempt to discuss beliefs that arise from the operation of the memory. There are three reasons for not discussing the justification of these beliefs:

(i) I shall argue that, among those beliefs that are caused by other beliefs, a belief is justified if and only if it has a certain sort of cause. Since the cause of a belief is relevant to its justification, it may not be the case that beliefs that have radically different kinds of causes can be easily assimilated to this theory. That is, Hume might have had a bipartite theory of the justification of empirical belief. Thus, the division between beliefs that are caused by other beliefs and those that are not so caused is a natural one from an epistemological point of view.

(ii) An adequate interpretation of Hume's views on the justification of these other beliefs would require an adjudication of a number of major interpretive and philosophical problems that go beyond the scope of what

can be accomplished here. It would require an interpretation or rational reconstruction of Hume's views on the nature of perceptions and the relation between perceptions and their objects (or contents); it would also require a decision about where Hume stands on the debate between realists and phenomenologists. Finally, since some of the arguments that lead to Hume's deep scepticism arise out of his discussion of the belief in the continued and distinct existence of bodies, it would probably be necessary to discuss and evaluate Hume's scepticism. The latter topic alone would, I suspect, be sufficient for an entire dissertation.

(iii) Finally, since moral judgments are caused by beliefs (viz., beliefs about a person's character or motives) the theory developed in this thesis will be sufficient for the purposes of comparison with (and, if my ultimate views are correct, assimilation of) the theory of the justification of moral judgments. Thus, if the present work meets with sufficient approbation, I should like to carry out at some future time the "Grand Scheme" of laying out Hume's epistemology of moral judgments. The theory of the justification of empirical belief worked out in this thesis should provide an adequate foundation for a discussion of correlative issues in the moral theory.

Consequently, in this thesis I shall restrict my attention to Hume's theory of the justification of empirical beliefs that are caused by other beliefs.

\* \* \* \* \*

This thesis makes three modest contributions to Hume scholarship and the philosophical problems about which Hume wrote:

1. That Hume held a causal theory of the justification of belief in at least the first three parts of Book I of the Treatise is, as far as I am able to determine, entirely original with this dissertation. In the first chapter I argue that Hume held that all empirical beliefs (that are caused by other beliefs) which are not caused by the process Hume calls "causal inference" are unjustified. This is by no means obvious, but careful attention to some heretofore neglected sections of Part (iii) make this attribution quite plausible. In Chapter 2 I develop an argument for this substantive claim of Hume's that is at least in part implicit in his discussion of the seven philosophical relations. It is meant to demonstrate how, on the basis of Hume's psychological theory, he could have argued for the assertion

that all beliefs not caused by causal inference are unjustified.

2. In Chapters 3 and 4 I argue for the converse of the interpretive claim of Chapter 1, viz. that Hume held that all beliefs caused by causal inference are justified. In defence of this claim one is almost immediately faced with an enormous interpretive problem. In Part (iii) Section 6 Hume discusses the justification of beliefs arrived at via inductive (causal) inference. It is the received opinion that Hume was highly sceptical of such beliefs. He is alleged to have held that beliefs about the observed provide no ground or warrant for beliefs about the unobserved. It is my contention that this interpretation is completely mistaken; Hume was only concerned to establish that all such inferences have less than the highest possible measure of epistemic warrant. This interpretation is not original with me. In recent years, a few philosophers have maintained it. However, the alternative view has many adherents and at least one able defender (D.C. Stove). Which view is correct is by no means obvious. The problem with those philosophers who adopt the same position as I do on this problem is that they do not take seriously enough the position of



our opponents, nor do they provide a very detailed positive argument for their own position.

What is unique about my discussion of this issue is that I have argued for this interpretation on different grounds and with more care and detail than has heretofore been done. This argument occupies almost one half of the thesis (Chapters 3 and 4). Though there may be arguments for my interpretation that I have not recognized, I venture to affirm that no such argument will be more conclusive than the one here offered. And, though my argument does not constitute a proof about what Hume was trying to do, it is, I think, sufficiently powerful to daunt anyone tempted to argue for its contrary.

3. From a substantive point of view, Hume's epistemological position on inductive inference has two parts: (i) He claims that such inferences have less than the highest possible measure of epistemic warrant. (ii) He believes that some inductive inferences are epistemically "better off" than others. Hume's argument for (i) is carefully laid out in Chapter 3. I have made little effort to supplement it. The argument is virtually flawless and constitutes one of the most brilliant pieces of reasoning in the history of philosophy. On the other hand, it is not at all clear if Hume has much of an argument for (ii).

In Chapter 5 I offer a critical evaluation of a number of proposals intended to substantiate (ii) or something similar. All of these proposals are "Humean" in that they are suggested by things that Hume said. Finally, I shall offer what I take to be the correct view on this matter. In effect, I shall be outlining what I believe to be the solution to the Problem of Induction.

## C H A P T E R I

A major problem facing an interpreter of Hume's A Treatise of Human Nature is the identification and clarification of major epistemological doctrines. Since his avowed aim is to construct a "science of human nature", much of what we find is a purely psychological theory, the aim of which is to give a causal explanation of the operations of the mind. However, Hume's most profound reasonings in Book I--those concerning causality, personal identity, induction, and the continued and distinct existence of bodies--clearly concern metaphysical and epistemological issues. It is important, though sometimes difficult, to separate the two kinds of problems.

Throughout much of Book I, Hume is concerned to provide an account of the causes of belief. In the course of doing this, however, he also addresses himself to the question of the justification of beliefs. My concern in this dissertation will be primarily with the latter issue. I shall show that there is an intimate connection between Hume's psychological theory and his views on the justification of our empirical beliefs. In particular, I shall show that Hume held that such beliefs are justified if and only if they have certain sorts of causes. Throughout

much of what follows I shall use certain epistemic terms (e.g. 'justified', 'warranted', etc.) as though their meanings are relatively clear. This calls for special explanation. There are primarily three reasons why this is an acceptable procedure:

1. For the most part, Hume's use of peculiar epistemological terms is informal, and he relies on a rough and intuitive understanding of such terms in order to make his point. The contexts where he uses such terms with more precision (e.g. his discussion of the difference between judgments about matters of fact and those concerning relations of ideas) are often peripheral to the present task.
2. Part of the purpose of this dissertation is to show that Hume was not a sceptic about empirical claims. That is, I shall show that Hume held that some of these claims are "epistemologically better off" than others. For that purpose, an intuitive understanding of such terms is sufficient.
3. Finally, and most importantly, it will be possible to attain a clearer understanding of these terms only when we are able to see why and under what circumstances certain beliefs are "epistemically better" than others.

Thus, as a noteworthy philosopher has said (in another connection):

. . .we have been obliged to advance in this seemingly preposterous manner, and make use of terms before we are able to exactly define them or fix their meaning. (T. 169)

The bulk of Hume's discussion of the justification of ordinary empirical claims is found in Part (iii).<sup>1</sup> In this Part, his primary concern is to provide a psychological explanation of the causes of the mind's beliefs in accordance with his basic methodological principles outlined in Part (i). However, it is primarily in Part (iii) that he addresses the epistemological question of the justification of our beliefs concerning matters of fact. In the remainder of this chapter, I should like to focus on one part of this discussion. I shall show that Hume held that certain sorts of beliefs concerning matters of fact are unjustified and that they are unjustified because they are not caused by the process Hume calls "causal inference".

#### I. Unjustified Belief and the Systems of Realities

In the early sections of Part (iii) Hume establishes

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<sup>1</sup>All Part and Section references are to Book I unless otherwise indicated.



the centrality and importance of the relation of causation and the mind's reasoning concerning it. All of this is done from the point of view of a psychological theory of the operations of the mind. In Section 8 he discusses how causal and reasoning engenders belief. Briefly, the process is this: After the mind has observed a constant conjunction of two objects, an impression of the one object will determine the mind to form an idea of the correlative object. Some of the force and vivacity of the impression will be "transferred" to the idea. This subsequent forceful and lively idea is the belief in the unobserved occurrence of the cause or effect.

Ostensibly, the purpose of the next few sections is to discuss the effects of other relations and habits which are responsible for the association of ideas. In particular, he will be concerned with the effects of other relations and habits on belief.

The immediate problem at the beginning of Section 9 is that the relations of contiguity and resemblance would seem to have the same effect as causation, viz. to enliven the related idea and thereby engender belief. The reason for this apparent problem is that contiguity and resemblance, as well as causation, are natural relations. That is, the mind tends to associate ideas in the imagination that bear (or are believed to bear) these

relations. Since these relations do not in fact engender belief (or at least not very often), Hume feels obliged to explain why.

To accomplish this task, he first sketches two interlocking systems of beliefs that do not depend on resemblance and contiguity; these systems of belief are engendered by the operation of memory and by the operation of causal inference. Hume says that we dignify these beliefs by calling them realities. He goes on to point out the centrality and importance of these systems.

He then claims that resemblance and contiguity can "assist" causal reasoning; the resultant beliefs will be more firmly infixed in the mind. The former relations alone, however, are not enough to cause belief. Thus, Hume argues that resemblance and contiguity are unlike observed constant conjunction, which, together with a present impression, cause belief in the occurrence of an event. That is, the effect of the relation of causation is belief, whereas resemblance and/or contiguity alone do not have this effect.

Throughout the remainder of Section 9 and at one place in the beginning of Section 10, he considers the effect of other relations and habits; unlike resemblance and contiguity, some of these other relations and habits do engender

belief. These beliefs have causes other than the process involved in causal inference. Thus much of these sections is devoted to providing a psychological account of the causes of certain sorts of beliefs. Interspersed with this causal account, he argues that each of these kinds of beliefs (which are engendered by other relations and habits) is unjustified or unwarranted. In each case he either explicitly says or clearly implies that the reason that such beliefs are unjustified is that the causes of these beliefs are different from the causes of beliefs arrived at through causal inference. In what follows I shall show this in detail.

Since much of what follows involves contrasting certain kinds of beliefs with beliefs that belong to the "systems of realities", it will be helpful to get a clearer idea of what kinds of beliefs Hume claims belong to these systems. As noted previously, there are two interlocking systems--one based on memory (connected with some present impressions) and the other based on causal inference. With regard to the former, he says:

Of these impressions or ideas of the memory we form a kind of system, comprehending whatever we remember to have been present, either to our internal perception or senses; and every particular of that system, joined to the present impressions, we are pleased to call a reality. (T. 108)

Since the survey of this system of memories is activated by a present impression or impressions, some measure of the force and vivacity of the latter is transferred to the memory system, thereby engendering belief. However, our system of belief would be quite impoverished, if it was limited to our memories. We find that there is another system connected to it by what Hume calls 'custom or the relation of cause and effect' (i.e. causal inference). He says,

and as it [the mind] feel that tis in a manner necessarily determined to view these particular ideas, and that the custom or relation, by which it is determined, admits not of the least change, it forms them into a new system, which it likewise dignifies with the title of realities. The first of these systems is the object of the memory and senses; the second of the judgment. (T. 108)

Thus there are two interlocking systems of belief that might be called "systems of realities". As subsequent quotations will clearly demonstrate, Hume held that not all of our beliefs arise from memory or causal inference. These other kinds of beliefs are not memories and arise from kinds of causes that are different from the causes of those beliefs that belong to the system of the judgment. Again, though the primary concern is to give a psychological explanation of these beliefs, he also

maintains that these kinds of beliefs are unjustified. The relevant discussions are those concerning Credulity, Education, and Fools and Madmen.

A. Credulity. Hume defines credulity as a too easy faith (or belief) in the testimony of others. Our belief in the testimony of others arises from our experience of those who testify. Generally, we find (presumably by a kind of corroborative checking) that men tell the truth and report, with reasonable accuracy, what actually occurs. Our reasoning is causal in that we find that it is generally the case that (at least part of) the cause of someone's testimony is a lively idea or series of ideas that the testifier has; these ideas constitute his belief that the event actually occurred. Lapses here make a person a liar. We in turn find that (at least part of) the cause of his or her forceful and lively ideas is the occurrence of the event in question. Hume says that the ideas "represent and resemble the facts or objects."

These facts are "known through" (or perhaps are identical to) certain impressions that the testifier has had. In the overwhelming majority of cases when someone testifies, they do so on the basis of their memory of what was present to their senses. It is not clear what Hume would say about cases of testimony where one is reporting



what one is currently witnessing (e.g. sportscasting). He may want to say that there are two sets of perceptions--the impressions and the ideas which constitute beliefs about those impressions. One of his definitions of belief (see Treatise, p. 96) suggests that no impression is identical to a belief. Whatever is the correct description of this kind of case on the basis of Hume's psychological theory, let us restrict our attention (as Hume seems to have done) to those cases where the proximate cause of the testifier's testimony (i.e. utterances) is a series of purported memory ideas. Of the connection between these ideas and the past impressions, Hume says,

This . . . connection is generally much overrated and commands our assent beyond what experience will justify; which can proceed from nothing beside the resemblance betwixt the ideas and the facts.  
(T. 113)

Lapses here are perhaps more frequent than in the case of lying; in this case the cause of the testifier's (mistaken) belief is a faulty memory or a misinterpretation of what was observed. Generally speaking, however, we find that the grounding link in a causal chain which results in our belief in the testimony of others is the occurrence of the event that the testifier describes.

Experience (i.e. causal inference) will cause only a

limited faith in the testimony of others. That is, we find that there is often, but not always, a resemblance between (what we believe to be) the testifier's memory ideas and the facts. What, then, is the cause of our too easy faith in the testimony of others? Though it is hard to pin Hume down exactly on this, he seems to suggest that our discovery in the past of a resemblance between (what we believe to be) the testifier's ideas and the events described in the veridical cases has, as an effect on our minds, the enlivening of our ideas (which are the result of the testimony) beyond what experience will justify. That is, our degree of belief is greater than it would be if we let past experience of genuine cases be our sole guide. Thus, it is the relation of resemblance and not past experience based solely on causal inference that guides us when it comes to the testimony of others.

But though experience be the true standard of this, as well as of all other judgments, we seldom regulate ourselves entirely by it. . . .No wonder, therefore, we are so rash in drawing our inferences from it [testimony] and are less guided by experience in our judgments concerning it, than in those upon any other subject. (T. 113)

This passage makes clear that Hume holds that our too easy faith in the testimony of others is unjustified or unwarranted. Furthermore, he holds that this credulity

is not caused by a causal inference or a series of causal inferences. Causal inferences only warrant a limited faith in the testimony of others. What causes credulity is a (past) frequently discovered resemblance between the ideas of the testifier and what actually occurs. Thus, a too easy belief in the testimony of others is unjustified; the reason that it is unjustified is that it is caused by something other than causal inference, viz. an alleged resemblance.

B. Education. Hume teaches that custom may operate in two ways in "invigorating" an idea and thereby engendering belief. First, the mind may experience a constant conjunction of the two objects. Upon the occurrence of an impression of the one, the mind will form a strong and lively idea of the other; this is what occurs in causal inference. On the other hand, an idea may be frequently introduced without any of this preparation. Hume says that this idea will eventually become firmly infixed in the mind, thereby engendering belief. Beliefs introduced in this manner are what Hume calls the result of Education. (We might be inclined to call it, more accurately, indoctrination.)

Such beliefs may operate in much the same way as those that belong to the Systems of Realities. He says,

so the judgment, or rather the imagination, by the like means, may have ideas so strongly imprinted on it, and conceive them in so full a light, that they may operate upon the mind in the same manner with those, which the senses, memory or reason present to us. (T. 117)

Note that Hume first says that these ideas are imprinted on the judgment (i.e. the system of realities engendered by causal inference) but immediately corrects himself and says that they are imprinted on the imagination (that is, they become believed). As the context of this passage and the footnote that follows it make clear, Hume here means by 'reason' what he customarily means by 'causal reasoning'.

Thus the cause of beliefs induced by Education is the repeated introduction of the idea into the mind. This is obviously different from the cause of beliefs that are induced by causal inference, which requires a constant conjunction of impressions of objects and a present impression (or memory idea) of one of the objects.

What is Hume's evaluation of opinions induced by education? His answer is clear: They are not, on that account, warranted.

But as education is an artificial and not a natural cause, and as its maxims are frequently contrary to reason and even to themselves

in different places and different times, it is never upon that account recognized by philosophers. . . . But though education be disclaimed by philosophy, as a fallacious ground of assent to any opinion, it prevails nevertheless in the world . . . (T. 117, 118)

The philosophers here, as elsewhere in Part (iii), are the Wise. While the Vulgar may accept views that are induced by education, the Wise do not accept a proposition solely because someone has tried to "educate" them with respect to it. Of course, Hume is not saying that all opinions derived from education are false. Rather, he says that their being engendered by education does not, upon that account (for that reason) recommend such beliefs to the Wise. Thus because such beliefs have the causes that they do, they are unjustified. In particular, such causes are not the causes that give rise to belief via causal inference.

C. Fools and Madmen. In Section 10 Hume discussed the influence of belief on the passions and the influence of poets on the imagination. When a skillful poet describes something in very vivid terms, the mind's resultant ideas are so lively and intense that it becomes difficult to withhold assent. Indeed, some people (weak-minded members of the Vulgar, no doubt!) fail in this respect and actually



believe some preposterous poetical system. Hume notes that the poets themselves are often victims of this.

A lively imagination may have other effects as well. Sometimes such an imagination degenerates into madness or folly. On Hume's account of physiological psychology, an extraordinary ferment of blood and animal spirits causes a vivacity of ideas (i.e. belief) which indicates that the powers and faculties of the mind have become disordered. When this happens,

. . . there is no means of distinguishing betwixt truth and falsehood; but every loose fiction or idea, having the same influence as the impressions of the memory or the conclusions of the judgment is received on the same footing . . . A present impression and a customary transition are no longer necessary to enliven our ideas. Every chimera of the brain is as vivid and intense as any of those inferences which we formerly dignify'd with the name of conclusions concerning matters of fact. (T. 123)

Here, more clearly than in any other passage, Hume explicitly states the views that I have been attributing to him. The beliefs of fools and madmen are caused by something other than causal inference (the causes are aberrant physiology). Because such beliefs are so caused, these individuals have no way of distinguishing the true ones from the false ones. That is, they have no means by which

to judge which beliefs are justified and which are not. It is the cause of these beliefs that cuts away their credibility.

\* \* \* \* \*

Hume's discussion of Credulity, Education, and Fools and Madmen clearly shows that beliefs can arise from causes other than the operation of memory and causal inference. Thus, not all beliefs belong to the Systems of Realities. Furthermore, he argues that these beliefs are unjustified and that they are unjustified because they have causes other than causal inference.

It would be a mistake to conclude from this discussion that the only causes of unjustified belief are aberrant physiology, education, and that which results in a too easy faith in the testimony of others. In Sections 11 through 13 of Part (iii), Hume's doctrine of belief gets complicated by the fact that, as a consequence of his definition of belief, belief admits of degree. Furthermore, he appears to claim in Section 13 that the degree of belief can be unwarranted or unjustified if it has certain causes. To get a complete picture of Hume's views on unjustified belief and its causes, it will be necessary to examine his position in Section 13, "Of Unphilosophical Probability".

## II. Of Unphilosophical Probability and Unjustified Belief

Up through the end of Section 10 Hume has supposed, for expository purposes, that all of the mind's beliefs concerning matters of fact which arise from causal inference require an observed constant conjunction together with an impression or memory idea. In Sections 11 through 13 he discusses variations and complications of this basic pattern of reasoning. His main concern, as in the past, is to provide a psychological explanation of how such reasoning causes belief.

At the beginning of Section 11 he remarks that he, as well as other philosophers, have divided human reason into knowledge and probability. Knowledge arises from a comparison of ideas and admits of no doubt or uncertainty. As a consequence of this division, all arguments from causation are merely probable. The conclusion of any such argument is not entirely free of doubt and uncertainty. Hume recognizes that this is somewhat unfortunate because, in common parlance, it is ridiculous to say, for example, that it is only probable that all men must die. The conclusions of well-established causal arguments achieve a kind of practical certainty that needs to be taken into account. Accordingly, Hume designates such arguments as

"proofs", and it seems reasonable to say that their conclusions are practically certain.

Arguments that proceed from some variation on causal reasoning and whose conclusions are attended with some measure of uncertainty are rebaptized as "probabilities". This class is in turn divided into two subclasses; one subclass concerns arguments founded on chance. An example of this would be the argument whose conclusion is that it is likely that the next poker hand to be dealt will not be a straight flush. These arguments and the beliefs that attend their conclusions are the subject of Section 11.

Section 12 concerns arguments that suppose the secret (unknown) operation of contrary causes to account for a contrariety of effects. What Hume has in mind here can best be made clear by an example. Suppose that we observe, on a number of occasions, that a certain metal bar attracts iron filings. We then suppose that the cause of the motion of the filings is the operation of a force exerted by the bar. On a few later occasions, however, the filings fail to move when the bar is appropriately placed. Thereafter, our expectations about what will happen on a given occasion in the future will be attended with uncertainty. The Vulgar (falsely) suppose that causes do not always bring about their effects; Philosophers know better; they suppose the secret operation of contrary causes (such as someone's

having coated the bar with some special substance before the occasions when the filings did not move) to account for the contrariety of effects. Usually the secret causes, either by dint of their minuteness or remoteness, are not readily discoverable.

However, past observations still have an effect; the Philosophers, as well as the Vulgar, will still retain some degree of conviction that the iron filings will move towards the bar on the next occasion. Since belief is only a more forceful and lively conception of an object or event, and since the force and vivacity of a perception admits of degree, Hume allows that there can be degrees of belief. The degree of belief that is caused by an uncertainty about the cause(s) or effect(s) of an event is the subject of Section 12. His main task, in both Sections 11 and 12, is to provide a (causal) explanation for the various degrees of belief that are engendered by these variants of causal inference that are employed under conditions of uncertainty.

Hume seems to approve of these kinds of inferences (see especially his opening remarks in Section 13). Nonetheless, all of these kinds of inference depend, in one way or another, on causal inference. Thus the question of Hume's views on the justification of beliefs arrived at through these kinds of inferences will depend on what Hume



thinks about the justification of causal inference. I shall discuss this topic in detail in a later chapter.

Section 13, however, involves a discussion of beliefs that Hume thinks are clearly unjustified. He discusses four kinds of situations that result in unjustified belief. Again, his primary concern is to provide a causal account of the beliefs in question. In what follows, I shall show in detail that, in these situations the beliefs are unjustified because they have certain sorts of causes.

The first three kinds of situations concern beliefs that arise directly from causal inference. In these cases the degree of belief is weaker than it would be ordinarily. Hume is interested in explaining why this occurs.

Case 1. In causal reasoning from an idea of the memory, the idea which is the conclusion of the causal inference gets its force and vivacity (in part, at least) from the memory idea. Thus the degree of belief that attends the conclusion of a causal inference will be, in part, a function of the degree of the force and vivacity of the memory idea. Hume puts the matter this way:

The argument, which we found on any matter of fact we remember, is more or less convincing, according as the fact is recent or remote; (T. 143)

An example will make this clear. Suppose that at one time in the past I observed my Uncle Joe board a plane for Paris. A few months later, someone asks me if I believe that my Uncle Joe has ever been to Paris. I recall my observation of him boarding the plane; by causal reasoning I infer that an effect of this action was his arrival at Orly Airport in Paris. My memory idea is quite lively and vivid because this happened a relatively short time ago; consequently, the degree of my belief that Uncle Joe has been to Paris is quite high. A number of years later, someone asks me the same question. This time my memory idea is not as lively and vivid as it was previously (but, let us suppose, not so faint that I doubt that Uncle Joe boarded the plane). Again, by causal reasoning I come to believe that Uncle Joe has been to Paris. However, the degree of belief is much less because the force and vivacity of the memory idea is less.

Hume thinks that the difference in the evidence afforded by the two memory ideas is unwarranted; he argues for this by a kind of reductio ad absurdum.

tho' the difference in these degrees of evidence be not received by philosophy as solid and legitimate; because in that case an argument shall have a different force today from what it shall have a month hence. (T. 143)

Hume seems to claim that the degree of belief in the case where the belief arises from the fainter memory is unjustified. His argument for this is something like the following:

On two different occasions, the mind has before it ideas that it believes to be memories (e.g. an image of Uncle Joe smiling and waving as he boards an Air France jet). The ideas differ in their force and vivacity. Hume cannot hold that the mind doubts whether the fainter image is in fact a memory (rather than a mere imagining). Otherwise, it seems reasonable to say that the diminution of the degree of the subsequent belief is warranted. In neither case is there any doubt that the ideas are memories. In each case, by causal reasoning, the mind arrives at a belief that is not a memory. The degrees of these beliefs are, however, different. Hume seems to hold that the degree of belief in the case where it is weaker is unjustified. The cause of the degree of this belief is the relative faintness of the memory idea--a cause that is extrinsic to the process involved in the causal inference.

There are a number of difficulties with this claim that it is the degree of belief that is unjustified. There are some relevant questions that need to be answered. How do we determine which degree (or range of degrees) is justified? Presumably, the force and vivacity of the rele-

vant memory ideas can vary considerably. Which degree of belief is appropriate? Furthermore, it is not clear what the Wise (the Philosophers) do in such cases. Is the degree of belief the same for them in both cases? If, as Hume intends, his argument is a causal one, the Wise would be affected with the same changes in degree of belief as the Vulgar. What does it mean, on this account, to say that they do not receive these changes as solid and legitimate? Hume does not even address these questions. Furthermore, given the machinery that he has to work with, it is hard to see how he could reply to these questions. Fortunately there is another way to understand what is going on here which avoids these problems.

Recall that Hume claims that well-established causal arguments can rightly be called "proofs". Their conclusions can be regarded as practically certain. My reasoning concerning Uncle Joe's having been in Paris seems to be such an argument, as long as there is no doubt that what are believed to be memory ideas in each case are in fact memory ideas. Nonetheless, in each case, the degree of belief is different.

What do the wise actually do in such a case? Since presumably they are human, and since Hume's arguments apply to all human minds, they must also suffer a diminution in the degree of their belief in the second case. However,

they do not take account of this difference; it is not regarded as "solid and legitimate". Both chains of reasoning are regarded as proofs. The conclusions are viewed as practically certain. That is, the Wise, in effect, make or are disposed to make an epistemic judgment about the argument. They regard the premises of the argument as bestowing a practical certainty on the conclusion. It is on the basis of this epistemic judgment (or their disposition to make such a judgment) and not the momentary feeling of less than full conviction that they guide their future inferences and actions.

What of the Vulgar in such cases? It is tempting to say that they too make an epistemic judgment. Given their proclivity (often noted by Hume) for taking things as they appear, they might judge that the conclusion is less than certain, thereby taking their degree of conviction as the sole indication of the conclusiveness of the argument.

But isn't this crediting the Vulgar with too much? Don't the Vulgar merely entertain the conclusion with a degree of belief less than that of full conviction? Don't the Vulgar have, for the most part, no epistemological beliefs? On Hume's account of belief, where belief is occurrent rather than dispositional, the answer seems to be "Yes." However, it does not seem unreasonable to say

that the Vulgar are disposed to have the kind of epistemic belief or to make the epistemic judgment suggested above. Not only is the second argument about Uncle Joe subjectively less convincing than the first, the Vulgar, on Hume's reading of the situation, are not disturbed by this. Were they to be asked about the conclusiveness of the causal argument and its conclusion, they would reply that its conclusiveness is on a par with how convincing it is, viz., less than practically certain. This would be unlike the Wise, whose felt conviction may be less than entire, but who nonetheless recognize that the argument constitutes a proof.

The difference between the Vulgar's (dispositional) epistemic belief and that of the Wise would, perhaps, be manifest in long run dispositions to act and make inferences. The momentary subjective degree of conviction, which, if Hume's argument is correct, is identical for both the Vulgar and the Wise, might be manifest in more short-term dispositions, e.g. the willingness to take, on the "spur of the moment" and unreflectively, certain bets. Whether this is all plausible from the standpoint of psychological theory will be examined shortly. What is being developed here is a line of reasoning Hume might well have pursued. Given all this, what belief is unjustified and why?



Since, in order for a belief to be unjustified, it must actually occur in the mind as a perception or series of perceptions (given Hume's account of belief as occurrent rather than dispositional) let us suppose that a representative Vulgar, say Dr. Johnson, actually believes that the conclusion is less than certain. Clearly Hume wants to hold that such a belief is unjustified (cf. quotation on p. 32). Can it be shown that such a belief is not caused by causal inference?

Hume could argue that Dr. Johnson falls prey to the same sort of process that makes him so gullible. Experience shows that there is often a resemblance between the degree of conviction and the degree of conclusiveness of the conclusion of an argument (see the discussion of the probability of chances and the probability of causes in Part (iii) Sections 11 and 12). As the current discussion of unphilosophical probability shows, this resemblance is not always present. However, since resemblance is a natural relation, responsible (in part) for the association of ideas, Dr. Johnson extends this resemblance "beyond what experience will justify". Thus he supposes that the degree of conclusiveness resembles the degree of conviction and makes his judgment accordingly. The conclusion is regarded as less than certain. Thus, his judgment is not caused by causal inference.

Craftier types, such as, say, Adam Smith, make or are disposed to make the following causal judgment: "Were the force and vivacity of the memory ideas equal, there would be no difference in the degree of conviction in the two cases." This is what Hume might mean when he says that the actual difference in degree of conviction is not regarded as "solid and legitimate". This also captures the intent of my claim that the degree of conclusiveness is the same in both cases, though the degree of conviction differs.

This psychological explanation is obviously not in Hume's discussion of unphilosophical probability. His remarks are much more cursory. This explanation does show, however, how Hume could have proceeded on the basis of his psychological principles. Furthermore, it shows just exactly what belief is unjustified and that such a belief is not caused by causal inference.

Actually, there is something about Hume's psychological explanation and subsequent evaluation that does not ring true. One might ask, 'Do the Vulgar really behave in the way Hume seems to suggest?' In addition, the diminution over time of the liveliness of a memory idea might be indicative of (in the absence of any corroborative evidence) legitimate doubt about the veracity of the purported memory idea. That is, (all else equal) I am less certain, both

psychologically and epistemically, about my childhood memories than I am about my recent ones. In the cases that Hume describes, the arguments really are not "the same" as Hume suggests. In one case, one begins with a purported memory idea about which there is doubt. In the other argument this doubt is not present. It seems that the conclusiveness of the two arguments differs. Hume seems to be committed to holding that there is a range of degrees of force and vivacity within which legitimate doubt, minor though it may be, has no place. This seems very odd. In the absence of corroborative evidence, the liveliness of a purported memory idea is a prima facie measure of its legitimacy.

Nevertheless, whatever may be the problems with Hume's actual discussion, the account that I have offered seems to characterize accurately his intentions. Moreover, in the remaining cases to be discussed, Hume's psychological description and his epistemological diagnosis seem to be much more plausible.

Case 2. This case is similar in many respects to Case 1. Here again it is the mind's limited memory capabilities that have undesirable effects. The observation of a cause and effect in the past is in part responsible for the belief that, in similar circumstances, the effect (cause) will occur

(has occurred) when the cause (effect) has been observed. When the observation of the past cause and effect is remote, the mind's recollection of it will be weaker and fainter than when the observation is more recent. The degree of the subsequent belief arrived at through causal inference will vary correspondingly. With regard to this Hume says,

There is a second difference, which we may frequently observe in our degrees of belief and assurance, and which never fails to take place, tho' disclaimed by philosophers. An experiment, that is recent and fresh in the memory, affects us more than one that is in some measure obliterated; and has a superior influence on the judgment, as well as on the passions. (T. 143-144)

As an example, Hume cites the case of a drunkard who observes his friend die of a debauch. For a short time thereafter, he more firmly believes that the same fate will befall him. After a time, however, the memory of the cause of his friend's demise (the debauch) and its effect (his friend's death) fades; the degree of his belief that a similar end awaits him lessens and, as a consequence, so does his fear. This explains why his friend's death may bring about a partial reform in his drinking (or at least a concern if he does not reform) for only a relatively short time. Thereafter, he reverts to his old ways. A recent observation of a cause and effect

has the same result as the more recent memory idea in Case 1. He says,

A more recent observation has a like effect; because the custom and transition is there more entire, and preserves better the original force in the communication. (T. 144)

The degree of belief differs, then, according to how recent the observation is. As Hume indicates by his remark that such differences are disclaimed by philosophers (see the second previous quotation), these differences should be of no account. What this means is that such beliefs should be viewed as conclusions of proofs (if, indeed, the inference is a genuine causal inference), and, as such, the conclusion should be regarded as practically certain. If someone comes to believe that a conclusion of this sort is only probable because his degree of belief has been weakened by, in effect, the passage of time, his belief is unjustified. It is unjustified because he has supposed, without the benefit of causal reasoning, that the degree of conclusiveness resembles the degree of (actual) conviction.

Case 3. In this case the degree of belief of the conclusion of a proof gets weakened because the proof requires many steps. That is, a great number of causal inferences are required to reach the conclusion from an impression of

sensation or an idea of the memory. The force and vivacity of the ideas entertained in the chain of reasoning gets weaker as the chain of causal inferences grows longer. Hume describes the mechanics of this process as follows:

Tis from the original impression, that the vivacity of all the ideas is deriv'd, by means of the customary transition of the imagination; and tis evident this vivacity must gradually decay in proportion to the distance, and must lose somewhat in each transition. (T. 144)

The result of this process is that the degree of belief that attends the conclusion of this extended chain of causal inferences is considerably weakened. The Vulgar unjustifiably regard the conclusion as less than practically certain, i.e. as merely probable, even though each step is (in Hume's words) "just and conclusive". The mind unwarrantedly supposes that the argument is a "mere probability".

I add, as a third instance of this kind [i.e. unphilosophical probability] that tho' our reasonings from proofs and probabilities be considerably different from each other, yet the former species of reasoning often degenerates insensibly into the latter, by nothing but the multitude of connected arguments. (T. 144)



The unjustified belief is the belief that the conclusion is merely probable rather than practically certain. The cause of this belief is the supposed resemblance between the degree of conviction and the degree of conclusiveness of the conclusion. This supposition is not caused by causal inference.

In all three of these cases the degree of belief is irrelevant to the certainty of the conclusion. The conclusion is practically certain because the argument upon which it is based is a causal argument. This is not the case in other sorts of arguments. In arguments concerning the probability of causes, the degree of belief that attends the conclusion determines how probable the conclusion is [see Sections 11 and 12 of Part (iii)].

Case 4. Unlike cases 1, 2 and 3, this case does not result in the Vulgar supposing that a conclusion is merely probable when it ought to be judged as certain. Rather, in this case the Vulgar unjustifiably believe that the conclusion is practically certain when it is, at best, only probable. The undesirable effects on the judgment here are the result of the following (the wrong sort of) general rules.

Hume says,

A fourth unphilosophical species of probability is that derived from general rules, which we rashly form to ourselves, and

which are the source of what we properly call PREJUDICE. An Irishman cannot have wit, and a Frenchman cannot have solidity;. . . we have entertained such a prejudice against them, that they must be dunces or fops in spite of sense and reason. (T. 146, 147) (emphases are Hume's)

Hume claims that the formation of such general rules is the effect of custom or habit. Though the operation of causal inference is also explained as the effect of custom, there are considerable differences between the psychogenesis of the two.

Hume explains the formation of these unreasonable general rules as follows: In the mind's observations of causes and effects, there is usually a complication of circumstances, some of which are essential to (i.e. are constantly conjoined with) the production of the effect and some of which are superfluous (i.e. are only occasionally present). If these superfluous features are remarkable and oft present, their presence, even in the absence of what is essential, will cause the mind to form an idea of the alleged effect with a force and vivacity that is indicative of full conviction. The propensity of the mind to pass from a perception of the superfluous circumstance to a forceful and lively idea of the effect is the general rule. The effect of this general rule is that the mind

will believe, with respect to anything that satisfies the superfluous circumstance that it also satisfies the other condition.

Hume never explicitly says how this accounts for prejudice, but the implicit account is relatively clear. If someone observes numerous instances of (what he or she believes to be) witless Irishmen, then even if he or she does not observe a constant conjunction of the qualities of being Irish and being witless, the occurrence of the superfluous circumstances (being Irish) will still have an effect on the mind--it will pass to an idea of witlessness. The force and vivacity of the idea in question will be such that the person believes, with full conviction, that this particular Irishman is witless. This belief is the effect of a propensity of the mind to pass from a perception of the superfluous circumstance to an idea of the alleged effect. This propensity is the general rule; its effect is a prejudicial judgment of a particular Irishman. The cause of this propensity is the observation of the occasional (but not constant) conjunction of qualities that are remarkable or prominent.

This is the effect on the mind; how do the Vulgar respond here? The Vulgar believe with full conviction that this Irishman is witless. In addition, they are disposed to believe, on the basis of past experience, that this

conclusion is (practically) certain, and they guide their future actions and inferences accordingly. The Vulgar's epistemic belief (supposing it to be actualized) is caused by the bigot's supposing, without the benefit of causal inference, that the degree of conclusiveness of the conclusion (about a particular Irishman) resembles his degree of conviction. As the above quotation makes clear, Hume thinks that such a belief is unjustified. In Hume's words, it is believed "in spite of sense and reason". The Wise, on the other hand, are more diffident in their epistemic dispositions. Even though they may believe with full conviction that this Irishman is witless, they do not trust that sentiment to guide their future actions.

Hume's account here makes a good deal of sense. Any person, whether he be a member of the Wise or of the Vulgar cannot help but feel prejudice with regard to an ethnic or racial group with which he or she has had long and negative experience. Nonetheless, the judicious person will not let those sentiments guide his actions (in the absence of other evidence) in, e.g. hiring and housing.

On the other hand, what if a person believed, on the basis of past experience, that it is only probable that the next Irishman is witless (regardless of his actual degree of conviction)? This is a judgment quite different from that of the bigot. Hume discusses probabilistic

judgments on the basis of frequent--but not constant-- conjunction in Sections 11 and 12. Though such judgments are the result of a variant form of causal inference, the bigot's belief or disposition to believe that it is certain that the next Irishman to be observed is witless is not the result of such a process.

This completes my discussion of Hume's catalogue of the venal sins of epistemology. In each case, I have given evidence that Hume held that certain beliefs are unjustified and that they are unjustified because they are not caused by causal inference. The obvious question to ask at this point is, "WHY?". That is, from an interpretive point of view, one might wonder why every time Hume discovers a kind of belief not caused by causal inference he pronounces it unjustified. Leaving to one side two important classes of beliefs that I have not discussed, viz. those that attend memory and sensation, a partial explanation might be that Hume is committed to the following principle:

- (\*) All beliefs (concerning matters of fact) not caused by causal inference are unjustified.

This raises two important questions:

- (a) Is Hume really committed to (\*)?
- (b) If so, what arguments did he or might he offer for (\*)?

Let us consider question (a) first. This is solely a

problem of interpretation. It might be argued on inductive grounds that Hume did indeed hold (\*). The argument would be something like the following:

- (1) Hume believes that each kind of belief that he examines in Part (iii) that is not caused by causal inference is unjustified.

Therefore, probably

- (2) Hume believes that every kind of belief not caused by causal inference is unjustified.

The evidence for (1) has been accumulated in this chapter. If inductive arguments are warranted, then this seems to be a good argument.

However, in order not to beg any questions and for the benefit of those who are sceptical of inductive procedures (and Hume might be among them!), it would be better if a different sort of interpretive argument could be given. And, indeed such an argument can be given.

If we take seriously the claim that Hume is trying to provide a psychological theory of the operations of the human mind, then we would expect him to provide an exhaustive account of the causes of our beliefs concerning matters of fact. This is exactly what he appears to be doing in Sections 4 through 13 of Part (iii). A desideratum of any scientific theory is to subsume a variety of apparently diverse phenomena under a small number of principles. I shall show that Hume held that all of our beliefs concerning matters of fact are engendered by a small number



of processes. I shall also show that he holds that each of these processes, except for causal inference (and perhaps the processes that result in beliefs about sensation and memory) cause unjustified belief. That is, I shall show that the catalogue of unjustified belief considered in this chapter is exhaustive. Then I shall proceed to consider Question (b).

In Section 7 of Part (iii), Hume argues that belief is to be defined as a lively idea related to or associated with a present impression. As the mind makes a transition from the original impression to the subsequent idea, some of the force and vivacity of the former gets transferred to the latter. Without the present impression, the subsequent idea is weak and feeble; belief is not present. On the basis of this definition, the causes of belief will be accounted for by the impression and the principles governing the transition, which may consist of a number of ideas. The causes of impressions of sensation are, in part, unknowable (cf. Treatise, p. 7). But, Hume clearly allows that the cooperation of sense organs and a mind in which they "reside" are necessary for their occurrence. The occurrence of the constituents of the transition (i.e. the ideas) is determined by the association of ideas. Ideas are associated by the three natural relations, viz. resemblance, contiguity, and causation. However, as we have

already seen (cf. pps. 4-5 above), Hume holds that resemblance and contiguity cannot sufficiently enliven ideas to produce belief; they can, nonetheless, "assist" causation, which can so enliven ideas. When the transition is governed by causation, causal inference occurs. There are a number of distinct processes that Hume calls causal inference (these will be discussed in Chapter III), and there are some variants on the basic process or processes.

For the purposes at hand, it is not necessary to consider the exact mechanisms involved. The important point is that Hume seems to hold that all of the mind's beliefs concerning matters of fact are caused by some version of causal inference, perhaps occasionally assisted by resemblance or contiguity. Or does he? Actually, there is another process that causes belief, but it is explained by the same principle that explains causal inference. Causal inference is so ubiquitous because the transition based on the relation of causation is customary or habitual. It is because of custom or habit that the mind believes that the future resembles the past. But, this is not the only effect of custom.

. . . custom, to which I attribute  
all belief and reasoning, may  
operate on the mind after two  
several ways. (T. 115)

He proceeds to describe what occurs when the mind is engaged

in causal inference. The other effect of custom is described as follows:

But let us next suppose, that a mere idea alone, without any of this curious and almost artificial preparation [observed constant conjunction, etc.] should frequently make its appearance in the mind, this idea must, by degrees acquire a facility and force; and both by its firm hold and easy introduction distinguish itself from any new and unusual idea. (T. 116)

What Hume is talking about is, of course, education which I have discussed before. The important point here is that this is the only way, aside from causal inference, that custom can "invigorate" an idea and engender belief.

Given Hume's definition of belief and these basic tenets of his psychological theory, it is possible to see that Hume has in fact discussed all the various kinds of belief concerning matters of fact. Beliefs that arise from education are the result of custom; those of fools and madmen result from physiological or psychological disturbances; credulity and all the kinds of unphilosophical probability are all founded, to some extent, on causal inference, but they get an unfortunate "assist" from resemblance. Finally, of course, there is causal inference, memory, and sensation.

The point of all this is that a pattern emerges from

## C H A P T E R   I I

As noted previously, much of Hume's discussion in Part (iii) is devoted to providing a psychological explanation of the causes of the mind's beliefs concerning matters of fact. However, he does not begin with a discussion of belief. Rather, the opening two sections are concerned with what occurs when the mind is engaged in reasoning. The reason for this move will become apparent as I proceed.

What does Hume think reasoning is? It is not until the beginning of Section 2 that he gets around to proposing something like a definition of reasoning. He says,

All kinds of reasoning consist in nothing but a comparison and a discovery of those relations, constant or inconstant, which two or more objects bear to each other. (T.73)

Implicit in Hume's definition here and in the surrounding discussion is the notion that all reasoning issues in some judgment or other. This judgment may not be believed, as is the case when the reasoning is hypothetical, but the end result of a bit of reasoning will always be some sort of judgment.

Since, as the above quotation indicates, the discovery of relations is essential to all reasoning, Hume opens Part (iii) with a discussion of all the relations; they have been exhaustively enumerated in Part (i) Section 5. The importance of the judgment that terminates a bit of reasoning is recognized at the beginning of Section 1; Hume opens this section with an epistemological distinction based on such judgments. Some relations depend entirely on the ideas, and the relation is present as long as the ideas remain the same. The discovery of these relations result in judgments that constitute knowledge in the strict sense because their denials are inconceivable and absurd. The relations in question are resemblance, contrariety, degrees in quality, and proportions in quantity and number.

In Section 2 he discusses the other three relations (viz. identity, relations of time and place, and causation), which may be present or absent even though the ideas remain the same. Some instances of reasoning terminate in judgments about such relations; these may be false without being absurd or self-contradictory.

The discussion thusfar presupposes that the ideas that constitute a bit of reasoning are given. We might well ask, 'Can the reasoning process generate (i.e. cause) these ideas?' If so, then the mind will suppose or believe

that the objects of these ideas exist. The reason for this is that Hume holds that existential judgments are identical to the occurrence of the idea whose object is the subject of such judgments (see Treatise, p. 97n).

This has significant consequences. For, now the question becomes, 'Can reasoning carry the mind beyond what is present to the senses and inform it of existences, and objects with which it is not sensuously acquainted?' Hume's answer is an emphatic 'Yes', but only if the objects of the constituents of a bit of reasoning are believed to be causally connected. I shall investigate why he held this below. A more immediate problem is this: While it is clear that, to judge that an object exists is just to have an idea of that object, what about judgments that something occurs? Things that are causally related will often be something other than mere physical objects. Hume recognizes this in his discussion of relations in Part (i) Section 5. There he speaks of actions or motions of objects as causally connected. Let us call them 'occurrences'. As I shall show below, they are not what we might call events because unlike events, occurrences can recur at different times.

What are we to make of judgments that an occurrence occurs? According to Hume's way of individuating percep-



tions, any change in the object of a perception means a change in perception. Thus such a judgment cannot be the mere occurrence of a perception. Nonetheless, there seems to be an important similarity between such judgments and judgments that an object exists. Accordingly, it seems reasonable to suggest that a judgment that an occurrence occurs is a series of perceptions, the objects of which constitute the occurrence. Judgments that an object exists or that an occurrence occurs can both be appropriately termed 'existential judgments' to distinguish them from relational and predicative judgments.

The picture of the termini of instances of reasoning is more complicated than it was a few pages back. Reasoning can issue in a relational judgment or an existential judgment. In the case where reasoning issues in a relational judgment, the penultimate step will be an existential judgment of one kind or the other. In cases where reasoning issues in an existential judgment, the mind will be disposed to judge that some relation(s) obtain among the objects of the constituents of a bit of reasoning.

However, not all existential judgments are termini of instances of reasoning. Hume's claim is that such judgments have this status only if they are the result of the process of causal inference. What about relational judgments? Hume's definition of reasoning seems to

indicate that all relational judgments are the product of reasoning. Suppose, however, that I arbitrarily judge that the horse is next to the barn by comparing my ideas of the horse and of the barn. If these ideas are not brought about by causal inference, then the existential presuppositions upon which my relational judgment rests are not the result of reasoning. It is not obvious that Hume could hold that, in such a case, the relational judgment is the result of reasoning. He might be able to cover himself by saying that, in such cases, as long as the mind supposes that the existential presuppositions are merely hypothetical, the relational judgment is the result of reasoning. That is, if the mind does not believe that the process by which the ideas arise (say, the operation of mere caprice) actually informs it of existences and objects, the subsequent relational judgment could count as an instance of reasoning because a relation has been discovered. On the other hand, if the relational judgment has existential presuppositions that do not arise from causal inference and if these existential presuppositions are believed, it seems unreasonable to say that such a judgment is the result of reasoning because it logically depends on a belief that is not the result of reasoning. Hume's definition of reasoning would

have to be amended to take this into account.

The process that most interests Hume is reasoning that results in belief both in the existence of the objects of ideas and the relations they bear. Let us call all such reasoning 'empirical reasoning' to distinguish it from the discovery of relations among objects, the ideas of which result from other causes such as the reveries of the fancy.

Before considering Hume's arguments for the claim that only the relation of causation can be made use of in reasoning to carry the mind beyond what is present to the senses, it would be helpful to ponder the epistemological significance of saying that a particular belief is caused by empirical reasoning. Though Hume devotes a great deal of attention to the psychological description of what happens when the mind is engaged in empirical reasoning, he does not explicitly consider the epistemological significance of saying that a belief is the result of empirical reasoning.

Clearly, Hume does not mean to say that all beliefs concerning matters of fact are caused by empirical reasoning. As I have shown in the previous chapter, there are other sources of belief besides empirical reasoning (e.g. education, disturbances of the animal spirits, etc.). It is also clear that empirical reasoning does not (invariably)

cause true belief. This should be obvious for the following reason: all empirical reasoning is causal reasoning. In causal reasoning, the mind observes a constant conjunction of objects or occurrences; upon the appearance of one of these to the senses or the memory, the mind infers the existence or occurrence of the other; it also believes or is disposed to believe that there is a causal connection between the two. However, one or both of these beliefs can be mistaken. The observed constant conjunction might only have been coincidental; alternatively, the object might exist (or the occurrence occur) in that particular case, but there may not be any causal connection. Thus, empirical reasoning does not produce all true beliefs concerning matters of fact. What sorts of beliefs does it produce?

Since Hume thinks that the only kind of empirical reasoning is causal reasoning, let us consider what he thinks causal reasoning produces. He says,

Tis only causation which produces such a connection, as to give us assurance from the existence or action of one object, that t'was follow'd or preceded by any other existence or action. (T.73-74)

The key word here is 'assurance'. Upon reflection, it should be clear that it is an epistemic rather than a

psychological term. Hume is not here arguing that the mind passes from a perception to an idea only when their objects are believed to be causally connected. Such a claim would clearly contradict his view that there are other natural relations (resemblance and contiguity), which are responsible for the association of ideas in the mind. Nor is he making the sweeping psychological claim about the causes of belief, for the reasons cited above. The assurance that Hume is talking about here is the assurance of warranted or justified belief. Thus, his claim in the above quotation is that a justified belief (concerning matters of fact) is produced by a transition from a perception to an idea only when causal connections are supposed among the objects of the perceptions. Let us call all such empirical judgments that arise from a transition from a perception to an idea 'mediate judgments' to distinguish them from the immediate judgments that attend the operation of the memory and the senses. Hume can then be interpreted as making the following claim:

- (1) A mediate empirical judgment is justified only if it is caused by causal reasoning.

This is logically equivalent to:

- (1a) All mediate empirical judgments that are justified are caused by causal reasoning.

This, in turn, is logically equivalent to:

- (1b) All mediate empirical judgments that are not caused by causal reasoning are unjustified.

(1b), of course, is very similar to (\*) of Chapter I (cf. p. 47). The difference is that Hume has an argument for the contrapositive of (1b) in Section 2, whereas in the sections discussed in Chapter I he offers no argument for (\*). Obviously, if his argument in Section 2 works, this is an acceptable procedure. It is to this argument that I shall now turn.

The way that Hume sets up his argument for (1b) is somewhat peculiar. He supposes that there are only three kinds of relations that are candidates for the foundation of empirical reasoning--identity, relations of time and space, and causation. He argues that the first two will not do and claims that causation will. This procedure seems unwarranted; why could not the mind be informed of existences and objects with which it is not sensuously acquainted by say, the relation of resemblance? Hume does not even consider this question. Fortunately, I shall be able to show that the same arguments that rule out identity and spatial and temporal relations as foundations for empirical reasoning rule out all other relations as well.

It is now possible to consider the question, 'Why is causal reasoning the only kind of empirical reasoning?' One might expect Hume to appeal to some requirement that a relation must satisfy in order that it be suitable for empirical reasoning. After a fashion, this is what he does.



However, the requirement, as I shall show, is extraordinarily complex, and Hume only hints at what it is.

Hume's strategy is to argue that neither relations of time or space nor the relation of identity can be made use of in empirical reasoning unless some causal connections are presupposed. He then states, without argument, that causation can be so used. Thus, the key to the question asked in the preceding paragraph will lie in his essentially negative arguments about these other kinds of relations. The first of these arguments goes as follows:

nor can the other two relations ever be made use of in reasoning, except so far as they either affect or are affected by it [causation]. There is nothing in any objects to persuade us that they are either always remote or always contiguous; and when from experience and observation we discover, that their relation is in this particular invariable, we always conclude that there is some secret cause, which separates or unites them. The same reasoning extends to identity . . .  
(T. 74)

The case of this argument is thoroughly psychological. He is concerned to describe what in fact occurs in the mind. However, the process that he is describing is the process of empirical reasoning. That is, it may happen that an idea whose object is believed to be spatially contiguous to the object of some other perception gets introduced into the mind, even though there is no "secret

cause" presupposed. Nonetheless, in such cases what has occurred is not an instance of empirical reasoning; rather, it is a mere association of ideas.

As the above quotation indicates, in all genuine cases of empirical reasoning, a relation that the mind believes to obtain among the objects of perceptions must be, in some sense, invariable. Although some spatial or temporal relations are invariable with respect to some objects<sup>1</sup>, this is not the case with all spatial and temporal relations among objects. And, as Hume makes clear, when a spatial or temporal relation between some particular objects is believed to be invariable, some causal connection(s) is always presupposed.

Of the four kinds of relations under consideration, tis only causation that always has the requisite invariability. The obvious question to ask at this point is, 'Under what conditions is a relation or kind of relation always invariable?' This concept of an always invariable relation is of crucial importance to Hume's view of the nature of empirical reasoning because, as the above quotation makes clear, it is only when at least one relation believed to obtain among the objects of the perceptions is always invariable that empirical reasoning occurs.

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<sup>1</sup>Unless otherwise indicated, I shall use the term 'object' in the sense of 'object of perception.'

Hume never explains this notion, except by way of examples. We do know that spatial and temporal relations and the relation of identity are not always invariable and that causation is. A careful examination of Hume's arguments concerning these relations should provide the answer to the question asked in the preceding paragraph.

The reason that spatial relations are not always invariable is, quite simply, that there are some objects that are say, next to each other at a given time which are not next to each other at all times. Thus, when one of these objects makes its appearance to the senses, the mind cannot conclude that the other object exists and is next to the first.

What about temporal relations? There is every indication that Hume intends the argument quoted on page 61 to apply to both spatial and temporal relations. There is no separate argument concerning temporal relations in this section; in addition, Hume elsewhere uses the terms 'remote' and 'contiguous' to denote temporal as well as spatial relations. If the things that are temporarily related are (non-recurrent) events, this argument would not show that temporal relations are not always invariable. If event a is precedent to event b during a given time interval t, then during any time interval in which a and b occur, the former will be precedent to the latter, since the only time

period in which they occur is t.

Accordingly, I have suggested that what are temporally related are occurrences, which can recur at different times. For example, the occurrence of Jones' driving to work along a certain route may recur five days a week. On this view of what it is that is temporally related, Hume's argument quoted on page 61 makes sense. If Jones' driving to work on Monday precedes Smith's driving to work on Monday, then there is no assurance that Jones' driving to work will always occur prior to Smith's driving to work unless certain causal connections are presupposed.

In general, then, Hume's argument seems to be that there are some objects that bear a spatial or temporal relation to each other at a given time, and yet they are not so related at all other times that they exist or occur. Obviously, by implication, Hume does not think that this is true of the relation of causation. If two occurrences are causally connected at a given time, then at any time that the one occurs, the other will occur, and they will be causally connected. It is for this reason that causation gives

. . . us assurance from the existence or action of one object, that 'twas follow'd or preceded by any other existence or action.  
(T. 73-74)

It is not altogether clear how Hume might individuate

occurrences, i.e. those things that bear temporal and causal relations to each other. On the one hand, they cannot be individuated too finely or his argument will not show that temporal relations are not always invariable. On the other hand, if occurrences are individuated too coarsely, then causation will not be always invariable. At this time I am not sure just how Hume could individuate occurrences. Nonetheless, it is clear from his arguments in this section that these requirements must be met.

Returning now to the notion of an always invariable relation, the above considerations suggest the following definition:

$D_1$ : Relation R is always invariable if and only if

$$(m) (n) (t) [Rmn, t \rightarrow ((t^1) [(\exists C) (Cm, t^1) \rightarrow (\exists D) (Dn, t^1 \ \& \ Rmn, t^1)] \ \& \ (t^2) [(\exists G) (Gn, t^2) \rightarrow (\exists F) (Fm, t^2 \ \& \ Rmn, t^2)])]$$

Where m and n range over objects of perceptions (physical objects, occurrences), C, D, F, and G range over properties and t,  $t^1$  and  $t^2$  range over time intervals.

All that  $D_1$  says is that if two objects of perceptions bear an always invariable relation to each other at a given time, then if at any other time one of the objects exists or recurs, then the other will exist or recur and bear the same relation to its counterpart. It is easy to see that spatial and temporal relations are not always invariable. The relation of causation, on the other hand, satisfied  $D_1$ .

The problem with  $D_1$  is that the relation of identity also satisfies the definition. If two objects are in fact identical at a given time, then they are always identical. Identity, however, is not an always invariable relation, according to Hume. While  $D_1$  may express a necessary condition for an always invariable relation, it does not express a sufficient condition as well.

Hume's argument for the claim that identity lacks the requisite invariability should provide a clue as to how  $D_1$  can be improved. Immediately following the above quoted passage he says,

We readily suppose that an object may continue individually the same tho' several times absent from and present to the senses; and ascribe to it an identity notwithstanding the interruption of the perception, . . . But this conclusion beyond the impression of our senses can be founded only on the connexion of cause and effect nor can we otherwise have any security, that the object is not changed upon us, however much the new object may resemble that which was formerly present to the senses. (T. 74)

His argument here seems to be that the mind cannot suppose that two objects that resemble each other are in fact identical unless some causal argument can be given. Hume says (in the passage omitted by the ellipses) that this argument is to the effect that, were I to keep my eye or hand upon the object, it would have conveyed an invari-



able and interrupted impression. This is not to say that the imagination cannot make such a transition without this kind of argument; nothing is more free than that faculty. Rather, Hume implies that, under such conditions, what occurs is not an instance of empirical reasoning. Thus his claim is that the mind cannot infer simpliciter that two resembling objects of perceptions bear the relation of identity to each other.

There is, I think, another way that the mind could "operate" by means of the relation of identity. Subsequent to its having a memory idea of an object, it could suppose that that object presently exists at a certain place and in a certain manner. In this way the relation of identity could lead to an existential belief. However, just as in the other case, this transition could not be said to be an instance of reasoning unless certain causal connections were presupposed.

The failure of the relation of identity to be suitable for empirical reasoning (i.e. to be always invariable) suggests that, for a relation to be always invariable, it must be the case that if any two objects bear the relation in question to each other at a given time, then, not only do they always bear that relation to each other, but, in addition, any other objects that resemble the first two

will also bear the relation in question to each other.

How is resemblance to be understood here? The obvious move is to say that objects can resemble each other in various respects. This, in turn, can be understood in terms of shared properties. Thus, to say that two objects resemble each other with respect to being red is to say that each object has the property of being red.<sup>2</sup>

The failure of the relation of identity to be always invariable in spite of some resemblance between the objects suggests the following amended version of  $D_1$ :

$D_2$ : Relation R is always invariable if and only if

$$(i) (\forall m)(\forall n)(\forall t) [R_{mn,t} \rightarrow \{ (t^1) [(\exists C)(C_m, t^1) \rightarrow (\exists D)(D_n, t^1 \ \& \ R_{mn, t^1})] \ \& \ (t^2) [(\exists G)(G_n, t^2 \rightarrow (\exists F)(F_m, t^2 \ \& \ R_{mn, t^2})] ] ]$$

AND

$$(ii) (A)(B)(x)(y)(t^3) [(A_x, t^3 \ \& \ B_y, t^3 \ \& \ R_{xy, t^3}) \rightarrow (z)(w)(t^4) [(A_z, t^4 \ \& \ B_w, t^4) \rightarrow R_{zw, t^4}]]$$

where A, B, C, D, F, and G range over properties, m, n, x, y, z, and w range over objects of perceptions (physical objects, occurrences), and  $t, t^1, t^2, t^3$ , and  $t^4$  range over time intervals.

Although the relation of identity satisfies the first condition, it fails to satisfy the second condition.

Hence, it is not an always invariable relation. And, of

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<sup>2</sup>For a detailed argument to show that this is a reasonable interpretation of Hume, see my paper, "The Epistemological status of Moral Judgments in Hume's Treatise", unpublished, pps. 14-16.

course, this is what Hume says.

The problem with  $D_2$  is that causation also fails to satisfy the definition. If 'A' and 'B' are instantiated by two arbitrarily chosen properties that two causally connected things happen to have, it is easy to find two other things that also have those properties but are not causally connected. Many counterexamples of this sort can be found.

Obviously, the problem lies with the resemblance condition; it is too weak. To see how to suitably strengthen it, it will be helpful to take a closer intuitive look at the notion of an always invariable relation.

This notion is purely metaphysical in that whether or not a relation is always invariable will be independent of what the mind believes about it. However, Hume has introduced this concept for essentially epistemological purposes. If the mind (correctly) believes that two things bear an always invariable relation to each other, then the mind can correctly infer, upon the appearance of an object or occurrence that resembles, in the appropriate respect, one of the previously observed pair, that another object exists or an occurrence occurs--an object or occurrence that appropriately resembles the other member of the pair. The obvious question is, 'What constitutes the appropriate sort of resemblance?'

For the properties that determine the resemblance to

be of any significance for the epistemological purpose of warranting inferences, each property must empirically determine that there is another thing which has the other appropriate property and bears the relation in question to the first thing. Since these inferences are empirical, a thing's having the appropriate property need not logically guarantee that something else exists which has the appropriate property and bears the relation in question to the former object or occurrence. Rather, the guarantee need only be "as a matter of fact" or empirical.

These considerations suggest two changes that need to be made in condition (ii) of  $D_2$ : First, another condition (or conditions) needs to be added to the antecedent to insure that the properties which determine the resemblance are "appropriate". Secondly, the consequent must be altered to reflect the epistemological purposes that an always invariable relations serves.  $D_3$  accomplishes both of these tasks:

$D_3$ : Relation R is always invariable if and only if

$$(i) \quad (m) (n) (t) [R_{mn}, t \rightarrow ((t^1) [(\exists C) (C_m, t^1) \rightarrow (\exists D) (D_n, t^1 \ \& \ R_{mn}, t^1)] \ \& \ (t^2) [(\exists G) (G_n, t^2 \rightarrow (\exists F) (F_m, t^2 \ \& \ R_{mn}, t^2))]]]$$

AND

(ii) (A) (B) (x) (y) ( $t^3$ ) [[( $A_x, t^3$  &  $B_y, t^3$  &  $R_{xy}, t^3$ ) & [(x's being A empirically guarantees that y is B and that x bears R to y) & (y's being B empirically guarantees that x is A and that x bears

$$R \text{ to } y]]] \rightarrow [(z) (t^{11}) [(\lambda z, t^{11} \rightarrow (\exists w) (Bw, t^{11} \& \\ Rzw, t^{11}))] \& (q) (t^{12}) (Bq, t^{12} \rightarrow (\exists p) (\lambda p, t^{12} \& \\ Rpq, t^{12}))]]]$$

where A, B, C, D, F, and G range over properties, m, n, x, y, z, w, q, and p range over objects of perceptions (physical objects, occurrences), and  $t, t^1, t^2, t^3, t^{11}$ , and  $t^{12}$  range over time intervals.

Of course,  $D^3$  is not very helpful unless the underlined expressions can be made clear. It is to that task that I shall now turn. For the sake of simplicity, let us consider only the first clause in which this expression occurs. The explication of this clause will apply, mutatis mutandis, to the second clause.

The property A must be the kind of property that, if some x were to have it at any time, then it would determine that some y has the property B and bears the relation in question to it at that time. This can be more perspicuously expressed as follows:

$D_{3a}$ : x's being A empirically guarantees that y is B and that x bears R to y =<sub>df</sub>

$$(t^4) [Ax, t^4 \rightarrow (By, t^4 \& Rxy, t^4)]$$

where the symbol ' $\rightarrow$ ' stands for the subjunctive conditional.

The use of the subjunctive conditional here is unavoidable; Hume clearly has it in mind when he describes the special cases of the relation of identity that are suitable

for inference (cf. Treatise, p. 74). It is irrelevant whether or not  $x$  happens to be  $A$  at a given time. The important point is that, were  $x$  to be  $A$  at a given time, it would be the case that  $Y$  is  $B$  and that  $x$  bears  $R$  to  $y$ . Of course, there are a number of well-known problems with subjunctive conditionals. In particular, there is no general account of under what conditions they are true. Nonetheless, there are many such conditional statements that are clearly true and many others that are clearly false. For the purposes at hand, this is sufficient. Of course, a similar definition can be given for the other clause of  $D_3$  that contains the expression 'empirically guarantees'.

Definition  $D_3$ , suitably clarified, does indeed rule out the relation of identity as an always invariable relation.<sup>3</sup> For causation, the two kinds of cases that ruled it

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<sup>3</sup>For a counterexample for the relation of identity, let 'A' and 'B' be instantiated by properties that a given object would have at any time that it exists. The following substitutions seem to do the trick:

A= is bald or not bald  
 B= is identical to David Hume  
 x= David Hume  
 y= David Hume

If we suppose that God always loves all sentient creatures and that all and only men always have souls, we can generate another, less trivial counterexample:

A= is loved by God  
 B= has a soul  
 x= David Hume  
 y= David Hume  
 Hume would, no doubt, disapprove of this case!



out for  $D_2$  will not create problems for  $D_3$ .

Nonetheless,  $D_3-D_{3a}$  is not quite good enough. Consider the following schema for a counterexample:<sup>4</sup> Suppose that there are two individuals, call them a and b, which are such that, for any time whatever, if a were to be A then b would be B and a and b are causally connected. However, suppose that this is merely "accidental" in the following sense: There is some other (logically independent) property P such that, were a to be A at any time, it would be P at that time and it is in virtue of a's being P (and not in virtue of a's being A) that b is B and that a and b are causally connected. In such a case, the property A may aptly be called a "rider". However, other things that have the property A are not causally connected to things that have the property B. Similar considerations apply, mutatis mutandis, to the property B. Thus, under such circumstances, the antecedent is true and the consequence is false. Thus,  $D_3-D_{3a}$  fails.

The problem here is not a minor one; it concerns the circumstances under which a property will determine an always invariable relation. How are we to specify, in a general way, the kind of thing that objects must be in order

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<sup>4</sup>Suggested by Prof. Ed Gettier

that they be invariably related? This specification must be done in such a way that is neutral with respect to causation. Otherwise, it would beg the question at issue, viz. 'What is distinctive about causation that makes it, and it alone, suitable for empirical reasoning?'

The solution to this problem would seem to lie in strengthening the definition of 'empirically guarantees' to meet the challenge of the schema for a counterexample given above. It is necessary to insure that the property A (as well as the property B) is not a mere "rider". The best way to accomplish this is to require that there be no logically independent property P upon which A can "ride". That is, there must be no other property P such that, if anything were to have it at any time, then there would be something else that has the property B and is causally connected to the first thing. This can be more perspicuously stated as follows:

D<sub>3b</sub>: x's being A empirically guarantees that y is B and that x bears R to y =<sub>df</sub>

$$(1) \quad (t^5) [Ax, t^5 \rightarrow (By, t^5 \ \& \ Rxy, t^5)]$$

AND

$$(2) \quad \sim(\exists P) (t^6) [ (Ax, t^6 \rightarrow Px, t^6) \ \& \ \Diamond(i) (Ai, t^6 \ \& \ \sim Pi, t^6) \ \& \ \Diamond(j) ( \sim Aj, t^6 \ \& \ Pj, t^6) \ \& \ (r) (t^7) [Pr, t^7 \rightarrow (\exists s) (Bs, t^7 \ \& \ Rrs, t^7) ] ] ]$$

(where the ranges of the variables follow the pattern of D<sub>3</sub>)

Similarly, the same treatment can be rendered for B:

$D_{3b}$ : y's being B empirically guarantees that x is A and that x bears R to y=df

$$(1) (t^8) [By, t^8 \rightarrow (Ax, t^8 \ \& \ Rxy, t^8)]$$

AND

$$(2) \sim (\exists Q) (t^9) [(By, t^9 \rightarrow Qy, t^9) \ \& \ \diamond(k) (Bk, t^9 \ \& \ \sim Qk, t^9) \ \& \ \diamond(l) (\sim Bl, t^9 \ \& \ Ql, t^9) \ \& \ (v) (t^{10}) [Qv, t^{10} \rightarrow (\exists u) (Au, t^{10} \ \& \ Ruv, t^{10})]]$$

(where the ranges of the variables follow the pattern of  $D^3$ )

This completes the definition of an always invariable relation. The relation of identity is not always invariable (the same counterexamples that apply to  $D_3$ - $D_{3a}$  also apply to  $D_3$ - $D_{3b}$ ,  $D_{3b}$ ). Causation, on the other hand, satisfies both conditions.

Admittedly, this definition is extraordinarily complex. And, it would be unreasonable to suppose that Hume had all of these conditions in mind when he wrote the passage under discussion. However, as I've tried to show, he is nonetheless committed to something very much like  $D_3$ - $D_{3b}$ ,  $D_{3b}$ . This definition also provides the following insights about the notion of an always invariable relation and Hume's reasoning concerning it.

1. Contrary to what Hume says (cf. the last two lines of the quotation on p.61), it is not the "same reasoning" which shows that identity, as well as relations of space and

time, is not always invariable. The key difference between causation and spatial and temporal relations (embodied in condition (i) of  $D_3$ ) is that those things that are causally connected at a given time are, whenever they occur, causally connected. Such is not always the case with things that bear spatial and temporal relations. On the other hand, the key difference between causation and identity lies in the fact that occurrences that are distinct from, but appropriately resemble, two causally connected occurrences are causally connected. Such is not always the case with identity. The rather long antecedent of condition (ii) of  $D_3$  makes explicit just what sort of resemblance this must be. This antecedent also tells us something about the nature of the kind of thing that objects must be in order that they be always invariably related.

2. This definition also tells us something about the process of empirical reasoning in the following sense: If the mind knows that two things bear an always invariable relation to one another, then if one of the occurrences presents itself to the senses or memory, then the mind can infer that the other occurrence occurs and bears the relation in question to its correlate. In addition, if the mind knows that two occurrences bear an always invariable relation to one another, and that it is in virtue of their

having certain properties that this is so, then it can conclude, upon the appearance of something that has one of these properties, that there is some other occurrence which has the other property and bears the relation in question to the former. That is, this definition explains how empirical reasoning is possible. Of course, there still remain the problems of how the mind reidentifies occurrences or recognizes that something is of the appropriate kind and on what grounds this is done. All that has been solved here is the metaphysical problem of the nature of a relation that is suitable for empirical reasoning.

3. Finally, this definition allows us to do something that Hume did not do but should have done. Throughout the passage under discussion, Hume speaks of only four relations or kinds of relations that are candidates for being always invariable: spatial relations, temporal relations, identity, and causation. The force of his reasoning in these passages is exclusionary in that he tries to show how only one of these relations is suitable for reasoning, viz. causation. Notable for their absence are the other relations: proportion in quantity or number, degrees of quality, contrariety, and resemblance. Hume nowhere says why such relations are unsuitable for empirical reasoning. He might have thought that, since judgments about these relations constitute knowledge and are, therefore, incorrigible,

and since no empirical judgment is incorrigible, none of these relations are even candidates for being the basis of empirical reasoning. However, the end products of a bit of empirical reasoning are not always judgments that some relation obtains. Indeed, the kind of empirical reasoning that has been discussed here issues in a judgment that something exists or occurs. Thus, a question that we can put to Hume is, 'Why cannot the mind infer, upon the appearance of something to the senses, that something else exists or occurs which (say) resembles the first thing?' Indeed, Hume thinks that this cannot be done (witness his discussion of credulity--cf. pps. 20-23 above). However, nowhere does he provide an argument to show that resemblance is not an always invariable relation. On the basis of the above definition, it is easy to see that resemblance is not an always invariable relation; it fails to meet condition (i). If two objects resemble each other in some respect at a given time, there is no guarantee that they will always resemble each other in that respect. What about the other relations?

a. Proportion in quantity or number: Clearly this relation is not always invariable. If the number of Indians is greater than the number of cavalrymen at the Battle of the Little Big Horn, one cannot conclude that the number



of Indians will always be greater than the number of cavalrymen in a given battle. This (kind of) relation fails to meet condition (i).

b. Degrees of quality: Clearly this relation is not always invariable. If the Sun is brighter than Alpha Centauri at a given time, there is no guarantee (without some causal reasoning anyway) that it will always be that way (the latter may become a nova). This kind of relation also fails to meet condition (i).

c. Contrariety: I must confess that I find Hume's few remarks on this so-called relation quite puzzling. He emphasizes that the only things that can bear this relation are existence and non-existence. If there is such a relation (and it is not obvious that there is) it is difficult to see how it could even be a candidate for the basis for empirical reasoning. Thus Hume is vindicated; only the relation of causation is always invariable.

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It is now possible to draw together the threads of the major argument of this chapter. Hume has claimed that only transitions based on the relation of causation can produce assurance (justified belief). His argument for this claim

is that only the relation of causation always has the requisite invariability. I have tried to make explicit Hume's notion of this invariability and to show how the fact of that invariability makes empirical reasoning possible. This is independent of what the mind happens to believe about any of the relations themselves. (It is interesting to note that Hume claims in the section on the probability of causes that the Vulgar sometimes falsely suppose that causes do not always produce the same effects.)

Within the context of Hume's psychological theory and his exhaustive enumeration of the seven philosophical relations, only the relation of causation has the requisite invariability to render empirical reasoning possible. Therefore, (1a) on p. 59 (and its logical equivalent (1b)) have been established.

Nonetheless, we might well ask, 'Can the mind ever know, or at least have justified belief, that any causal connection obtain?' To answer this question, it will be helpful to consider a closely related question, 'What of the converse of (1b)?' That is, what are we to make of the following claim in the context of Hume's philosophy:

- (2) All instances of causal reasoning cause justified belief.

Though the discussion thusfar strongly suggests that Hume does indeed subscribe to (2), it is consistent

with the argument of these two chapters that Hume correctly holds that (2) is false. It would, however, be very difficult to explain why Hume would deny (2) and yet affirm the proposition that all (mediate) empirical judgments not caused by causal inference are unjustified. That Hume denied (2) is, I think, a rather widespread view. In the next chapter I shall show two things:

a. Nothing that Hume says in his discussion of the epistemological status of causal beliefs shows that (2) is false.

b. Nothing that Hume says in the relevant passages shows that Hume believed that (2) is false.

In Chapter IV I shall show that Hume believed that (2) is true.

### C H A P T E R   I I I

In this chapter and the next I shall argue that Hume believed that all beliefs caused by causal inference are justified. Perhaps at this point it would be helpful to give a preliminary characterization of the notion of justification that I have in mind. It is the rather standard notion of epistemic appraisal common in philosophical writings of at least the present era. Though, of course, there is considerable variation in the meaning that philosophers have ascribed to the term 'justification' and its cognates, there are a number of common features in this connection. The concept is not merely the psychological one of "having conviction". This concept is logically independent of the concept of truth in the following sense: It is possible that someone is justified in believing something that is in fact false. It is also possible that someone believes something that is true but is not justified in so believing. Furthermore, it is possible that someone is mistaken in his belief that he is justified in believing something.

These features are quite obvious in light of common philosophical usage. However, they are worth noting for the following reason: A significant majority of commentators on Hume (and other philosophers who are acquainted with his

work) believe that Hume held that no opinion concerning matters of fact is justified, in the aforementioned sense of the term. If the argument of these two chapters is sound, then these philosophers are seriously mistaken about some fundamental aspects of Hume's philosophy.

The most prevalent view is that Hume was a radical sceptic about most of our claims to knowledge. In one sense it would be foolish to deny this. No serious reading of Book I Part (iv) (especially Sections 1, 2, and 7) can survive any other interpretation. I have no quarrel with a radically sceptical interpretation of Hume at that juncture.

On the other hand, I shall argue that there is no such radical scepticism in Part (iii) of Book I. At one point in the process that Hume calls causal inference, the mind comes to believe that the future resembles the past in some significant respect or respects. The place where I differ with the majority of Hume's commentators is on Hume's view of the epistemic warrant of that belief (or process by which that belief arises). Quite simply, their view is that Hume held that there is no epistemic warrant, whereas my view is that Hume holds that there is an epistemic warrant for that procedure.

The focus of this debate is on Hume's argument of Section 6 Part (iii). In this argument Hume is supposed to

have posed the so-called Problem of Induction. As the preceding paragraph suggests the received opinion has it that Hume was highly sceptical about the mind's claims to knowledge about the future (or, more generally, about the unobserved). If the received opinion is correct, then on Hume's view, scientific method is epistemically no better off than enthusiasm and superstition. And, David Hume would be among those for whom this claim, if true, would be very bad news, because one of Hume's primary purposes in the Treatise is to construct a Science of Man. Thus, this argument is of considerable internal significance because, if my opponents are correct, Hume appears to have cut the ground out from under what he took to be one of his most important projects--the construction of a Science of Man.

The other feature of this argument that makes it worthy of serious consideration is that it is philosophically interesting in its own right. Though there is considerable disagreement about what this argument is intended to establish and what it does establish, there is no disagreement about the fact that it is of considerable epistemological significance. Thus, for historical and philosophical purposes, it is important to consider this argument in great detail and with considerable care and precision.

Instead of passing on immediately to a consideration of Hume's (epistemic) appraisal or evaluation of inductive



procedures, I shall first show that his account of the causes of beliefs arrived at through causal inference requires that the mind infers that the future resembles the past in certain respects (or, more generally, that what is unobserved appropriately resembles what is observed). Though causal inference is a complex process involving a number of steps, I will, for analytical purposes, not discuss Hume's epistemic appraisal of other elements of the process (e.g. the operation of the memory). Thus, my first task will be to show, quite simply, that beliefs arrived at through causal inference require that the mind makes inductions. This can be done quite quickly and easily by pointing to the appropriate psychological descriptions of the process of causal inference that Hume offers.

So as not to beg any questions against a small minority of commentators, I shall next consider and reject the view that Hume offers no epistemic appraisal of inductive procedures, and, as a consequence, of beliefs caused by causal inference.

Finally, I shall be in a position to consider the question of Hume's appraisal of inductive procedures. I shall proceed by way of a critical evaluation of my opponent's arguments on this question. Unfortunately, many of these philosophers think that the assertion that Hume was a sceptic (in some strong and interesting sense) about

induction is too obvious to require argument. Often all that one can find is a quotation from Section 6 of Part (iii) or from the corresponding passages from the Enquiries or the Abstract.

Fortunately, one of my opponents has thought that this interpretive claim and Hume's argument for scepticism are not altogether obvious. D.C. Stove, in his monograph, Probability and Hume's Inductive Scepticism, goes to great lengths to establish the following:

- (i) The exact nature of the Inductive Sceptic's claim
- (ii) A rational reconstruction of Hume's argument for Inductive Scepticism.

In a rather oblique way, he also argues for the interpretive claim that Hume was such a sceptic.

I shall agree in large measure with his assessment of (i). My representation of Hume's argument will agree, in many respects, with Stove's version.<sup>1</sup> However, I shall show that Hume's argument establishes and is only intended to establish a weaker and less controversial position than Stove and others have attributed to Hume--what Stove calls Inductive Fallibilism. To do this, I shall show that

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<sup>1</sup>My debt to Stove's monograph is too obvious and pervasive to require detailed citation. Though, as I shall argue, he is seriously mistaken about Hume's views on induction, his work has pushed the debate far beyond where it had been previously.

Stove's argument for the interpretive claim is unsound and the passages quoted by those who think that Hume's scepticism is obvious admit of another, non-sceptical interpretation.

I fear, however, that no interpretation of a handful of passages can be completely conclusive. In many cases (and in this one in particular) it is very difficult to discover a philosopher's intentions when his words can be read in two incompatible ways. Though I think that my reading of the relevant passages is correct, I admit that the evidence is not completely conclusive. To establish my case conclusively, I shall resort to more powerful interpretive and philosophical arguments. In Chapter IV I will show that a sceptical interpretation of Hume at this point cannot account for much of what he later says; I will also show that my interpretation best explains what is going on in the relevant parts of Book I of the Treatise.

\* \* \* \* \*

When we last left Hume, he had discovered that, of all the philosophical relations, only causation is suitable for empirical reasoning. Immediately thereafter he proceeds to analyze the idea of causation with a view to discovering its "components". He quickly establishes that temporal priority and spatial contiguity are necessary conditions

for a causal connection (at least as regards physical objects and events). However, these conditions are not jointly sufficient; there is necessary connection to be taken into account. He quickly concludes that there is no impression (of sensation) of necessary connection. Instead of giving up his principle "No Idea Without a Precedent Impression" he declines to "beat about the neighboring fields", presumably to force his quarry into the open. This eventually leads him to a careful consideration of the exact psychological processes involved in causal inference. In particular, he sets out to answer the following question in Sections 4, 5 and 6 of Part (iii):

Why [do] we conclude that such particular causes have such particular effects and why [do] we form an inference from one to another? (T. 82)

The 'why' here is ambiguous. It might appear to be a psychological 'why', in which case the question would read, 'What process causes us to conclude . . . ?' However, the question might be an epistemological one, viz., 'On what grounds can we conclude . . . ?' or 'What is our warrant for concluding . . . ?' Perhaps he has in mind or will provide answers to both questions.

Nonetheless, whether or not he answers the epistemological question, it is clear that he answers the psycholo-

gical question of how we are caused to believe that a cause or effect has occurred when only one event is present to the senses. In Section 4 he argues that all causal reasoning (if it is to result in belief and not be merely hypothetical) is grounded in an impression, or at least a memory idea. In Section 5 he discusses the difference between memory ideas and those of the imagination. Finally, in Section 6 he describes what occurs in the mind when it is engaged in causal inference. He says,

The nature of the experience is this. We remember to have had frequent instances of the existence of one species of objects; and also remember that the individuals of another species of objects have existed in a regular order of contiguity and succession with regard to them . . . We likewise call to mind their constant conjunction in all past instances. Without any further ceremony, we call the one the cause and the other the effect, and infer the existence of the one from that of the other. . . . in all cases, wherein we reason concerning them, there is only one perceiv'd or remembered, and the other is supply'd in conformity with our past experience.  
(T. 87)

Thus it is clear that Hume answers the psychological question. It is also clear that causal inference requires that the mind believe that the unobserved resembles the observed in some significant respect. It seems in accord with ordinary usage, then, to say that all causal inferences involve inductive inference. What is Hume's epistemic

appraisal of such inferences?

There have been three kinds of responses to this question:

- (1) Hume offers no appraisal of the epistemic warrant of beliefs arrived at via inductive inferences.
- (2) Hume held that there is no epistemic warrant for such beliefs.
- (3) Hume held that such beliefs do not have the highest possible measure of epistemic warrant. However, among these beliefs, some are epistemically better off than others.

In the remainder of this chapter I shall argue that (1) and (2) are false and that the first part of (3) is true. In Chapter IV I shall defend the second part of (3).

Interpretation I: The first interpretation supposes that Hume had no views about the epistemic warrant of inductive inferences. His only concern was to describe the operations of the human mind. Since he was merely doing psychology, he had no interest in the epistemic evaluation of such inferences. To serious students of Hume, this view might appear to be too preposterous to consider seriously. Yet, it has been proposed by two philosophers of note (though one holds the view with diffidence).

In an article entitled "Some Misunderstandings of Hume", T.E. Jessop says,



That he uses the law of causal association [i.e. causal inference] to explain the ideas of causality [i.e., necessary connection] would be a glaring petitio principii if his enquiry were an epistemological one. His inquiry is psychological; and there is plainly no impropriety whatever in the search for the idea of causality, and also . . . for the cause our belief in specific causal connections.<sup>2</sup>

Professor Passmore, in his book Hume's Intentions, sometimes expresses a similar view.<sup>3</sup>

There are a number of problems with this view.

1. It makes Hume out to be a mere psychologist who offers no evaluation (from an epistemic point of view) of men's beliefs. As John Lenz has pointed out<sup>4</sup>, this ignores Hume's famous conclusion of the Enquiries in which he condemns all but mathematical and experiential reasoning to the flames. Psychologists qua psychologists do not make such harsh critical judgments of men's beliefs (excepting perhaps for the beliefs of other psychologists).

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<sup>2</sup>T.E. Jessop, "Some Misunderstandings of Hume" reprinted in Hume: A Collection of Critical Essays, ed. by V.C. Chappell (Notre Dame, Indiana, 1966), pps. 48-49. In light of Jessop's view on this matter and others, one might conclude, to paraphrase Nelson Goodman, that this article is an instance of the topic rather than a treatment of it.

<sup>3</sup>John A. Passmore, Hume's Intentions (Cambridge, 1952), pps. 12, 41.

<sup>4</sup>John W. Lenz, "Hume's Defence of Causal Inference", reprinted in V.C. Chappell, op. cit., pps. 173-174.

2. Such a view is at wide variance with certain key passages of the Treatise, especially in the section under discussion. There Hume says,

Thus, not only our reason fails us in the discovery of the ultimate connection of causes and effects, but even after experience has inform'd us of their constant conjunction, tis impossible for us to satisfy ourselves by our reason why we should extend ourselves beyond those particular instances which have fallen under our observation. (T. 91)

If Jessop is correct, then this is merely a psychological claim with no epistemic import. Whatever its psychological content, it is surely some sort of evaluation of our beliefs or of the process by which we arrived at them.

3. Most importantly, if Jessop were to admit that Hume had philosophical--and in particular epistemic--aims with respect to some of our beliefs (e.g. the belief in the existence of the soul) there would remain the question of the justification of our beliefs concerning matters of fact. If Hume had no explicit or implicit views on this, he could be convicted of a gross philosophical oversight. Under any reasonable construal of the Principle of Charity in the interpretation of a major philosophical figure, such an interpretation can be rejected out of hand.

#### Interpretation II:

The second interpretation supposes that Hume did offer

an epistemic evaluation of inductive inference. Those who argue for this position hold in common the view that Hume's appraisal was highly sceptical--a shocking assessment of the pretensions to knowledge of both the Vulgar and the Wise. Where various commentators who adopt this general line diverge is on the consequences (if any) of this view for Hume. What exactly is this assessment on their view? Their answer is that Hume held that there is no epistemic warrant (in any standard sense<sup>5</sup>) for inductive inferences. They are all unreasonable or unjustified.

We might well ask what argument Hume offers for this rather startling claim. The answer is, of course, the famous argument of Section 6 Part (iii) of the Treatise. Ostensibly, he offers a similar argument for the same claim in the Enquiries. In some respects, the Enquiries version of this argument appears to be more strongly sceptical than the Treatise version. However, in light of the obvious similarities between the two, it would be prima facie unreasonable to suppose that Hume was arguing for a completely different conclusion in the Enquiries.

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<sup>5</sup>One of these commentators, F.C. Baylie, holds that Hume eventually does find an epistemic warrant for inductive inferences, but because it involves "extending" the customary notion of justification beyond what is usually taken to be its bounds, it is helpful for the purposes of discussion to classify Baylie's interpretation as sceptical.

Consequently, it is incumbent upon me to show that my interpretation of Hume's argument best accounts for what he says in the Enquiries as well. In the Appendix to this chapter I do just that.

I. Identification and Preliminary Interpretation of Hume's Argument

Hume is concerned to discover the foundations (in some sense) of the mind's transition from an impression or memory idea to an idea of its usual concomitant (i.e. an idea of the cause or effect of the object of the impression or memory idea). He says,

. . . the next question is, 'Whether experience produces the idea by means of the understanding or of the imagination; whether we are determined by reason to make the transition or by a certain association or relation of perceptions. If reason determin'd us, it would proceed upon that principle, that instances of which we have had no experience must resemble those of which we have had experience and that the course of nature continues always uniformly the same. (emphasis Hume's)  
(T. 88-89)

In this passage Hume clearly indicates that he is trying to discover whether or not reason will determine the transition under discussion. A transition from beliefs about what is or has been observed to a belief about what is not observed is the hallmark of inductive inference.

Hume does not use the expression 'inductive inference' or its cognates (his most common term is 'probable argument'), but there can be no doubt that the transition of which he speaks is some variety of inductive inference.

In particular, Hume's discussion is about one specific kind of inductive inference--the kind Stove calls 'predictive-inductive inferences.' These are inferences which have as their conclusion a claim about a particular event or object. To use an example of Hume's, such an inference would have among the premises the claim that all flames that have been observed in the past are hot and the claim that this is a flame. The conclusion of such an inference is the assertion that this flame is hot. There are other kinds of inductive inferences (e.g. the one whose conclusion is that all flames are hot), and there can be no doubt that Hume's argument should and does apply to all of these. Nonetheless, the focus of the present argument is on those inferences whose conclusions are singular.

It is a consequence of Hume's psychological theory that all predictive-inductive inferences are causal inferences. As Hume later discovers, the constant conjunction of two kinds of objects in past experience brings about an idea of the one when the other is present to the senses or the memory; in addition, the past constant conjunction is responsible for an impression of necessitation that is the origin of the idea of necessary connection. Thus the mind believes that



the object of the idea, which is the conclusion of the inference, is causally connected to the object of the original impression or memory idea, which initiates the predictive-inductive inference. Nowhere does Hume say that the mind believes that the connection is always one of proximate causation. As he makes clear in his discussion of the "probability of causes" (Part (iii) Section 12), one may believe that there are intermediate causes and effects of which one is unaware.

What does the passage quoted on page 94 say about predictive-inductive inferences? This question is of capital importance for reasons that will become apparent as I proceed. It is worth dealing with this question with considerable care. Hume seems to say that if the mind makes the transition on the basis of some argument (is determined by reason), then it presupposes that the future will appropriately resemble the past. Let us call the underlined passage in the preceding quotation the Resemblance Thesis (RT). Of course, as Hume states it, RT is very vague. For the present, anyway, it can be left that way because our concern is not with its content, but, rather, with its function in Hume's argument. Thus, it is safe to say that Hume believes the following:

- (1) All predictive-inductive inferences presuppose the Resemblance Thesis (RT).



What sense can be assigned to 'presuppose' here? Stove has offered the following interpretation of Hume's sense of 'presuppose':

C<sub>0</sub> Sometimes when we say of an argument from p to q, that it presupposes r, our meaning is as follows: that, as it stands, the argument from p to q is not valid, and that, in order to turn it into a valid argument it would be necessary to add to its premises the proposition r.<sup>6</sup>

The core idea of this proposal is that the addition of the presuppositum to an invalid argument turns it into a valid argument. As I shall argue later, this is basically what Hume had in mind. However, as Stove states it, this proposal cannot be correct. For any invalid argument from p to q there is no proposition r that is necessary to turn it into a valid argument. Rather, there are a number of propositions any one of which would be sufficient to make the argument valid. However, among those propositions, there is at least one which could not reasonably be construed to be a presuppositum of such an argument, viz. a contradiction. It must be at least possible that the presuppositum is true; otherwise, it is not even possible that the valid "counterpart" argument is sound. These considerations suggest the

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<sup>6</sup>Stove, D.C. Probability and Hume's Inductive Scepticism, (Oxford, 1973), p. 43.

following amended version of Stove's construal:

- $C_0'$       The argument ' $p_1 \dots p_n$ , therefore  $q$ ' presupposes  
            $r$  if and only if
- (i) ' $p_1 \dots p_n$ ; therefore  $q$ ' is invalid.
  - (ii) ' $p_1 \dots p_n$  &  $r$ , therefore  $q$ ' is valid.
  - (iii)  $r$  is not self-contradictory

Note that this construal does not require that  $r$  will be unique. However, this is not problematic. Hume's statement of what is presupposed by predictive-inductive inferences (cf. p. 94 above)--the "Uniformity of Nature" is quite ambiguous. There may be a related sense of presupposition that does guarantee uniqueness, but there does not appear to be any suggestion of it in Hume. If this is a correct interpretation of Hume, the three conditions of  $C_0'$ --the invalidity of the original argument, the validity of the subsequent argument, and the possibility that the presuppositum is true--are the most that one can legitimately extract from Hume's discussion here.

This construal of Hume's sense of presuppose is intuitively plausible, and there are good interpretive arguments for it. Before considering these arguments, I should like to consider three other interpretations of the notion of presupposition that Hume relies on in this passage. The first two have never been explicitly considered before; the third

was offered by D. Goldstick in his article entitled "Hume's 'Circularity' Charge Against Inductive Reasoning".

1. Construal 1: Hume's concern in this passage is strictly psychological. He is trying to show that the mind must have a certain belief (viz., RT) in order that it be disposed or determined to make the transition in question. Thus, 'presuppose' in Hume's sense, can be defined as follows:

C<sub>1</sub> S's argument: 'p therefore q' presupposes r iff  
 S would not make the transition from his belief  
 p to his belief q unless S believed (or were  
 disposed to believe<sup>7</sup>) r.

Thus, the presupposition in question is a psychological one that all of us as a matter of fact have, since we all make such transitions.

Objection: Whatever the truth of this psychological claim vis-à-vis the Resemblance Thesis and predictive-inductive inference, the main problem with this construal of Hume's sense of 'presuppose' is that the question of the epistemic warrant remains untouched, if Hume's aims are strictly psychological as this construal requires. And, in particular, we could ask Hume for the justification of the empirical claim that he is making in the passage under discussion.

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<sup>7</sup>Since, for Hume, belief is occurrent rather than dispositional, it is appropriate to speak of a disposition to believe here.

Recall (see quotation p. 94) that Hume is intent on discovering whether or not reason determines the mind to make the transition involved in a certain kind of inference. This may appear to be a psychological question--'Is Reason the faculty that makes this transition or is it some other faculty?' Whatever psychological content this has, there is surely an epistemological element here. Analogously, if someone asked whether the mind's "deductive faculty" makes the transition involved in an instance of modus ponens and if he answered affirmatively, we would be entitled to draw a non-psychological conclusion--the theorist believes that modus ponens is valid. Hume is notorious for framing non-psychological questions in psychological terms. This seems to be as clear a case of this tendency as one can find. There can be little doubt that Hume's claims here have some non-psychological import that is not expressed in  $C_1$ . Therefore,  $C_1$  can be rejected.

2. Construal 2: On this interpretation, Hume is concerned with the epistemic warrant of the conclusion. What Hume is saying is that the belief arrived at is unjustified unless the presupposition is true, i.e.

$C_2$  S's argument: 'p, therefore q' presupposes r iff  
Unless r is true, S's belief q on the basis  
of his belief p is unjustified.

Here the question of the epistemic warrant of the belief that  $q$  is dealt with. Thus the problem of Construal 1 does not arise in connection with this construal. Applying this definition to the passage in question, Hume is interpreted as saying that, unless RT is true, a given predictive-inductive inference results in an unjustified belief.

Objections: There are two major problems with this construal, one interpretive and one philosophical.

a) If this interpretation were correct, we should expect to find in this section a discussion of whether or not RT is true. However, Hume does not discuss the truth of RT. That matter is an open question for him in the Treatise. Though he does discuss what sorts of arguments may be offered for it, he does not affirm or deny RT. It is true that he does appear to affirm RT in the second to last paragraph of Essay V of the Enquiries. Nonetheless, if this were the sense of 'presuppose' that he had in mind in the passages from the Treatise under discussion (as well as the correlative passages in the Enquiries and the Abstract), he would have discussed the truth of RT at that juncture.

b) A more telling objection is that  $D_2$ , instantiated in a manner appropriate to the passage in question, attributes an obviously false claim to Hume. If we say that inductive inference presuppose RT in this sense, then the truth value

of RT will determine whether or not the mind's belief in a particular inductively arrived at conclusion is justified. If RT is true, then regardless of a person's beliefs about RT (even if that person has no beliefs about RT), the conclusion of an inductive argument will be justified. However, any adequate account of justification makes it relative to other beliefs (or justified beliefs) that a person holds, unless, perhaps, the belief in question is self-certifying, which is obviously not an issue here. Thus, this interpretation fails.

3. Construal 3: This interpretation avoids the pitfalls of the second construal in that there is some textual support for it and it does not commit Hume to any obviously untenable positions. D. Goldstick, in response to Stove's interpretation, has offered the following interpretation of Hume's sense of 'presuppose':

C<sub>3</sub> S's argument: 'p, therefore q' presupposes r iff it would be impossible to be justified in believing q on the basis of an inference from p unless it were to be possible independently to be justified in believing r.<sup>8</sup>

On this construal, the passage in question would be inter-

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<sup>8</sup>Donald Goldstick, "Hume's 'Circularity' Charge Against Inductive Reasoning" Dialogue, 1972, p. 259.



preted as follows: All predictive-inductive inferences presuppose RT in that it would be impossible to be justified in believing the conclusion of a predictive-inductive inference (on the basis of that inference) unless it were possible independently to be justified in believing the Resemblance Thesis.

Objections: Problems with this interpretation arise when we try to get clear about Goldstick's sense of 'justified'. He clearly does not mean that the presuppositum and the premises of an argument must logically imply the conclusion. Otherwise,  $C_3$  collapses into Stove's view (i.e.  $C_0$ ). In addition, he explicitly denies that this is his view. He tries to make clear this sense of 'presuppose' by way of examples. Let us consider one of his examples. Suppose that I infer, from the observation that the street is wet, that it rained recently. (Never mind that this example of Goldstick's is not a predictive-inductive one. It is inductive, and the point remains the same if the example is changed.) Such an inference is said to presuppose that a sprinkler truck had not just passed through the area in that one is or can be justified independently in believing that a sprinkler truck has not passed through the area recently.

The significance of the modal operators in Goldstick's construal is unclear. His construal makes perfectly good

sense without them; if I were to observe that my street is wet, I would conclude that it had rained recently. That argument might be said to presuppose that no sprinkler truck had passed through the area recently in that I actually have good reason to believe that no one operates such a truck in Florence, Massachusetts (even though I may not explicitly consider this presuppositum). So, the presuppositum is a justified belief for me--it is a well-grounded suppressed premise.

To say, on the other hand, that it is possible for me to be justified in believing this presuppositum might mean the following. (Assume that I do not in fact have any reason to believe the aforementioned presuppositum): The empirical facts are such that if I were to check a certain independent and generally reliable source, I would be told that there are no sprinkler trucks in town. Of course, another generally reliable source could in fact lead me astray. However, if the course of nature is such that there is no sanctioned and independent way for me to acquire this belief, then it would be impossible (in this sense) for me to be justified in believing the presuppositum, and as a consequence of this construal, it would be impossible to be justified in believing  $q$  on the basis of  $p$ . Admittedly, this is an odd sense of 'presuppose'. Either interpretation of Goldstick's construal,

however, is unhelpful.

To see this, consider how things stand with respect to the Resemblance Thesis. Suppose, contrary to fact, that RT were somehow "available"--perhaps by the benevolence of the Divine Artificer--for predictive-inductive inference (i.e. the mind is or could be independently justified in believing RT). How would RT, coupled with the premises of a predictive-inductive inference, justify one's belief in the conclusion? As noted previously, it could not be on the basis of a deductively valid argument. The above example of Goldstick's suggests that RT and the premises of the argument would inductively warrant the conclusion. But, so Goldstick would argue, RT is not available; thus the belief in the conclusion is not justified. However, if inductive procedures can produce justified belief, why consider RT at all? Hume's concern is with the warrant of particular inductive inferences. There seems to be no point in discussing RT unless he thinks it necessary to logically guarantee the conclusion of an argument. Goldstick might reply that the sense in which RT, if available, would justify a predictive-inductive conclusion involves neither deduction nor induction (broadly construed). Of course, in that case, the example of his cited above is particularly inappropriate. The problem now is to specify the sense of 'justification' in such a way that, RT, if available, would (together with

the premises of a predictive-inductive inference) justify the conclusion. Perhaps there is an appropriate sense here, but Goldstick does not say what it is. The upshot is that  $C_3$  fails because the intention of any construal is to make more clear what is unclear.  $C_3$  seems to be a case of explaining the obscure by the more obscure.

Are there any other construals of Hume's sense of 'presuppose' in this passage? Stove considers and rejects one other, somewhat bizarre construal. There may be other construals of Hume's sense, but I am unaware of them. More importantly, there are positive, and indeed conclusive arguments for something very much like Stove's interpretation (i.e.  $C_0$ ). Stove himself advances two arguments for this interpretive claim, but they are embedded in his particular representation of the rest of Hume's argument. Both are designed to show that the rest of Hume's argument makes a great deal of sense if his interpretation of this key passage is correct. Though my representation of Hume's argument is somewhat different. Stove's arguments have the same benefits for my representation. Nonetheless, I think that there is another argument for Stove's construal that he does not explicitly offer. It is to this argument that I shall now turn.

The centerpiece of Hume's argument in this section is

the Resemblance Thesis. He is at great pains to establish that RT is somehow "unavailable" for predictive-inductive inference. We might speculate for a moment about what would happen if, per impossible, RT somehow became available.

What would we then have?

Upon reflection, there can be no doubt that what we would have is a deductively valid argument. Thus far RT has been left unspecified. How might it be specified so as to be of some value in an argument? Consider the following inductive argument:

- (1) Flame<sub>1</sub> is (observed to be) hot.
- (2) Flame<sub>2</sub> is (observed to be) hot.
- (3) Flame<sub>3</sub> is (observed to be) hot.
- .
- .
- .
- (k) Flame<sub>k</sub> is (observed to be) hot.
- (k+1) This is a flame.

∴(k+2) This is hot. (where (k+1) but not (k+2) is an observation statement)

We can specify a Minimal Resemblance Thesis for this argument as:

(MRT) If (1) & (2) & . . . & (k+1), then (k+2).

This just says that if all observed flames have been observed to be hot and this is a flame, then this is hot-- Nature is Uniform with respect to Flame<sub>1</sub> through this flame being hot. It is minimal in that it is the weakest version

of RT that requires the use of all the other premises in the predictive-inductive inference to make it valid. The important feature of this argument is that Premises (1) through (MRT) entail (k+2). Thus, if this inductive argument "proceeds upon the principle" of MRT, then it can be transformed into a deductively valid argument. Of course, a stronger version of RT might also suffice to generate a valid argument.

Suppose, however, that RT did not entail, together with the other premises of a predictive-inductive argument, the conclusion. What might RT look like? Well, Goldstick, in the previously cited article, proposes a very, very weak version of RT that does not provide the premise of an entailment:

In any particular respect, it is more probable than not, other things being equal, that, the course of nature will continue at least approximately the same as in the past.<sup>9</sup>

It may be doubted whether this is precise enough to be anything but trivially true, or perhaps "lacking in cognitive content", but supposing that this is not the case, what could this version of RT do for an inductive argument? The only

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<sup>9</sup>Ibid., p. 260.



thing that it might do would be to render the argument inductively stronger (though perhaps not a great deal).

A more precise version of RT makes this clearer. Let us consider, as Goldstick suggests, a very general probabilistic statement of the Resemblance Thesis:

PRT: For any empirical properties A and B,

P(An instance of B will occur/An instance of A has been observed to occur and instances of A and instances of B have been observed to be conjoined k times) > .75

Of course, PRT may well be false but for logical purposes that is irrelevant. Instantiating in a manner appropriate to the predictive-inductive inference about the flame, the following more specific version of PRT can be deduced:

PRT': P(This is hot/ This is a flame and k flames have been observed to be hot) > .75

It is clear that the argument on page 107 is inductively stronger with PRT' than it is without that premise (though perhaps not a great deal stronger). Nonetheless, the argument is still not deductively valid. Yet if, at this point, inductively strong arguments are acceptable, there is no point in considering any version of RT; many arguments are inductively strong without it.

Of course, one may, by means of the probability calculus and a suitable rule of detachment, be able to get a

singular probability statement such as  $P(\text{This flame is hot}) > .75$ . That, however, is not the conclusion of a predictive-inductive inference. For Hume, the conclusion of a predictive-inductive inference from an observed uniformity is a statement such as 'This flame is hot'. In summary, then, given that Hume is in some way concerned with the warrant of predictive-inductive inferences, the only decisive role that RT can play here is to transform such inferences into deductively valid arguments.

Perhaps there are other modes of justification; C.S. Pierce has called our attention to another form of inference-- what he calls abductive inference; there may well be others. Nonetheless, since the "Epistemological Turn" was inaugurated by Descartes, philosophers of the modern era have searched for a certainty that can only be provided by deductive inference or intuition. Though as scientists (and even, perhaps, as philosophers) they might be willing to countenance inductive inferences as producing justified belief, it is reasonably clear that there were no other options. Thus, it is reasonable to believe that Hume intended that, were RT to be available as a premise, (contrary to fact), it would render a predictive-inductive inference deductively valid.

Thus, not just any version of RT will do; together with the other premises, it must be strong enough to entail the conclusion. Let the expression 'RT(V)' stand for any such

version of the Resemblance Thesis. Therefore, by adding RT(V) to the premises of a predictive-inductive inference, it will be transformed into what may be aptly termed a deductively valid counterpart inference. Consequently, Premise (1) of Hume's argument (see p. 97) can be interpreted as follows:

- (1a) All predictive-inductive inferences are invalid and all deductively valid counterpart inferences have RT(V) as a premise.

Is Premise (1a) true? Hume offers no argument for it, but it would be helpful to consider what kind of argument he might have offered. The first part of (1a) is obviously true because, as it occurs in the mind, a predictive-inductive inference is invalid. The second part is not so obvious. Why is it that the premises that transforms a predictive-inductive inference into a deductively valid counterpart inference a statement about the Uniformity of Nature (i.e. a version of RT)?

The non-ampliative nature of valid arguments guarantees that RT(V) will be some statement about the Uniformity of Nature, though perhaps in a very limited sense. The premises of a non-ampliative (valid) inference are often said to "contain" implicitly the conclusion. Since some of the premises of a deductively valid counterpart argument comprise a statement of an observed regularity and since the

conclusion of such an argument extends that regularity to something that is unobserved, it seems fair to say that the key premise, which "validates" that transition, is a statement about a resemblance between the observed and the unobserved and hence is a version of RT.

It has been necessary to go to what might appear to be inordinate lengths to establish (1a) as a clear and correct interpretation of Hume's claim in the passage under discussion. However, it has very significant consequences for the interpretation of the conclusion of Hume's argument. The interpretation of the rest of his argument is fairly straightforward. This way of interpreting the first premise will determine that there are only two possible ways to read the conclusion; one reading is highly sceptical, and the other is not. I shall show that the former is untenable and that the latter is correct. Now, for the rest of Hume's argument.

Immediately following the passage quoted on page 94

Hume says,

In order therefore to clear up this matter, let us consider all the arguments, upon which such a proposition can be founded; and as these must be derived from either knowledge or probability let us cast our eye on each of these degrees of evidence and see whether they afford any just conclusion of this nature. (T. 89)

It is clear that the question with which Hume is here con-

cerned is whether or not RT(V) can be established. That is, he wants to know whether or not RT(V) can appear as the conclusion of a rationally acceptable argument having rationally acceptable premises. Put more simply, is there a good argument for RT(V)? Hume says that if there is such an argument, it is a demonstration or what he calls "a probable argument". Thus, Premise (2) of Hume's argument can be expressed as follows:

- (2) If RT(V) can be established, then it can be established by a demonstration or by a "probable argument".

It is not obvious what Hume means by a "probable argument" in this context. However, since this notion reappears shortly in Hume's argument, a discussion of what he means by this expression can be profitably postponed.

Hume's third premise and his argument for it are quite straightforward. He says,

. . . 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. We can at least conceive a change in the course of nature; which sufficiently proves, that such a change is not absolutely impossible. (T. 89)

It is clear from this passage that Hume asserts and argues for the following proposition:

- (3) RT(V) cannot be established by demonstration.

This premise is obviously true and uncontroversial once it is understood what Hume means by a demonstration. A demonstration is not just any valid argument. Otherwise, Hume's claim that there is no demonstrative argument for  $RT(V)$  is obviously false (to take a trivial counterexample, consider the valid argument ' $RT(V)$  therefore  $RT(V)$ '). Rather, a demonstrative argument is a valid argument all of whose premises are necessary truths. Since no set of propositions, all of whose members are necessary truths, implies a contingent truth, and since the denial of  $RT(V)$  is conceivable (i.e.  $RT(V)$  is a contingent truth), there can be no demonstrative argument for  $RT(V)$ .

Hume next wants to argue that any argument from experience for  $RT(V)$  will be circular. He says,

. . . probability is founded on the presumption of a resemblance between those objects of which we have had experience, and those, of which we have had none; and therefore tis impossible this presumption can arise from probability. (T. 89)

What does Hume mean by a "probability" (probable argument) here? As a first step, it is fairly clear that the categories of demonstrative arguments and probable arguments are mutually exclusive. Thus, a probable argument will have some contingent premises, viz. some statements about experience. Are all probable arguments invalid? The answer



here must be 'No' if, as Premise 2 implies, Hume's classification of arguments as demonstrative or probable is collectively exhaustive. If having at least one contingent premise is a sufficient condition for an argument to be probable in Hume's sense, then obviously there are valid probable arguments (consider, for example, deductively valid counterpart inferences). Because the word 'probable' has connotations that make it seem incongruous to speak of valid probable arguments, let us henceforth refer to such arguments by means of a more neutral term--'arguments from experience'.

Now, in the above-quoted passage, Hume argues that there are no non-circular arguments from experience for RT(V). However, he must mean by this that there are no non-circular (deductively) valid arguments from experience. This is clear in light of the fact that if an invalid argument from experience could be used to establish (RT(V), the entire argument under consideration would be rendered superfluous. The reason for this is that the predictive-inductive inference is, as it occurs in the mind, invalid. The whole point of considering whether or not RT(V) can be used as a premise is to see whether a predictive-inductive inference can be converted into a deductively valid inference.

If there is a deductively valid argument from experience for RT(V), what would it look like? Hume leaves little doubt

about this matter. He says,

The only connexion or relation of objects, which can lead us beyond the immediate impressions of our memory and senses, is that of cause and effect; and that because 'tis the only one on which we can found a just inference from one object to another. The idea of cause and effect is derived from experience, which informs us, that such particular objects, in all past instances have been constantly conjoined with each other; And as an object similar to one is immediately present in its impression, we thence presume on the existence of one similar to its usual attendant. (T. 89-90)

As the last two sentences make clear, an argument from experience for RT(V) will be just like a predictive-inductive inference except for two things:

- 1) It must be valid for reasons cited previously.
- 2) Its conclusion (RT(V)) will not be statement (prediction) about a particular object or event. However, RT(V) will have some predictive import (see pps. 111-112).

In light of these considerations it is possible to interpret more clearly Premise (2) (and, subsequently, Premise (4)).

- (2') If RT(V) can be established, then it can be established by a demonstration or by a deductively valid argument from experience.

But, as Hume argues in the passage quoted on page 114,

- (4) Any deductively valid argument from experience for RT(V) is circular.

His reason for this is that any valid argument from experience has RT(V) as a premise. However, the expression 'RT(V)' (as well as the expressions that Hume uses, e.g. "[there is] a resemblance betwixt those objects of which we have had experience and those of which we have none") is ambiguous. There are many non-equivalent Resemblance Theses that could turn invalid arguments from experience into valid ones. In particular, consider the argument on page 108. MRT makes it valid. There could be an argument from experience whose conclusion is MRT but which fails to have MRT as a premise. One of its premises might be that all flames are hot. Thus, strictly speaking, Premise (4) is false.

Nonetheless, it seems pretty clear that Hume is onto something here. Consider arguments from past experience for MRT. No statements about past experience will entail MRT; otherwise, such statements would entail the predictive conclusion (k+2). However, a valid but non-circular argument from experience for MRT would have to have implicit in its premises a supposition of an even greater uniformity than is implied by MRT. And, as Nelson Goodman has pointed out, that is an odd and expensive way to justify a conclu-

sion about a particular object.

All this suggests the following: A non-circular valid argument for MRT (or, for that matter, for any  $RT(V)$ ) either begs the question or gets involved in an infinite regress (by supposing an even greater regularity than is stated in MRT). This way of viewing matters receives confirmation from Hume's subsequent discussion of a counter argument that an opponent might offer.

It may, perhaps, be said, that after experience of the constant conjunction of certain objects, we reason in the following manner: Such an object is always found to produce another. 'Tis impossible that it could have this effect if it were not endowed with a power of production. The power necessarily implies the effect; and therefore there is a just foundation for drawing a conclusion from the existence of one object to that of its usual attendant. (T. 90)

However, Hume replies that since the power itself is not present to the senses (otherwise one could directly (and validly) infer the existence of one object from the other), the existence of the power in one of the members of the past observed conjunction does not imply its existence in the present case.

Shou'd it be said, that we have experience, that the same power continues united with the same object, and that like objects are endowed with like powers, I wou'd renew my

question, why from this experience we form any conclusion beyond those past instances, of which we have had experience? If you answer this question in the same manner as the preceding your answer gives still occasion to a new question of the same kind, even in infinitum; which clearly proves, that the foregoing reasoning has no just foundation. (T. 91)

Hume's argument here is a good one; he says, in effect, that the kind of argument for (some version of) RT(V) either begs the question or involves an infinite regress. It is difficult to prove that any non-circular valid argument for any version of RT(V) will be question begging or involve an infinite regress, partly because it is difficult to state precisely just what a question-begging argument is. One can adopt a favorite tactic of Hume's in this connection: Faced with the task of "proving a negative", one can issue a challenge to a prospective critic to produce a non-circular valid argument from experience for RT(V) that does not beg the question or involve an infinite regress.<sup>10</sup> Having silenced potential critics in this manner, we can, with reasonable assurance, restate the fourth premise as follows:

(4') Any deductively valid argument from experience for RT(V) is circular, question-begging, or involves an infinite regress.

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<sup>10</sup>The use of this tactic here was suggested to me by Prof. Robert Paul Wolff.

The next two steps of Hume's argument are so obvious that Hume did not and need not have stated them:

- (5) If (4) is true, then RT(V) cannot be established by a deductively valid argument from experience.
- ∴(6) RT(V) cannot be established by a deductively valid argument from experience.

Premises (3) and (6) obviously entail:

- ∴(7) RT(V) cannot be established.

The whole point of the discussion of whether or not RT(V) can be established is to see if invalid predictive-inductive inferences can be "cured" of their invalidity by being transformed into acceptable deductively valid counterpart inferences. The epistemological motivation for this inquiry is not far to seek: Whatever Hume's ultimate views are on the epistemic warrantability of certain kinds of invalid inferences, because of the obvious and intimate relation between validity and certainty, valid arguments are, all else equal, epistemically better than their invalid counterparts. But, if the premise that effects the transformation from an invalid argument to its deductively valid counterpart (e.g. RT(V)) cannot be suitably supported, then for epistemological purposes, the invalid argument cannot be "cured" of its invalidity. If, as seems likely, Hume reasoned in something like this fashion, then the following obvious



and uncontroversial premise can be attributed to him:

- (8) If  $RT(V)$  cannot be established, then all predictive-inductive inferences are incurably invalid.

Premises (7) and (8) obviously imply:

... (9) All predictive-inductive inferences are incurably invalid.

A final word about Premises (2) and (8): Hume's unwillingness to use invalid arguments to establish  $RT(V)$  cannot be taken as evidence that he believed that invalid arguments are epistemically worthless. The reason for this is that if the use of invalid arguments were to be allowed in this context, the entire argument under discussion would be rendered superfluous.

What epistemological conclusion does Hume draw from this argument? This is a difficult and epistemologically significant question. One way to interpret Hume's conclusion is to see him as taking a profoundly sceptical attitude towards predictive-inductive inferences--they are epistemically worthless. The other way to interpret Hume's conclusion is to see him as holding that the conclusion of no predictive-inductive inference is or can be rendered certain relative to the premises of that inference. In the remainder of this chapter I shall lay out and evaluate

these two options.

## II. The Interpretation of Hume's Conclusion

What, then is Hume's final conclusion? As noted previously, shortly after the above-quoted passage, he considers and rejects a counter argument. This argument is designed to show that inductive inferences can be made deductively valid by introducing the notion of a power; powers are responsible for a cause having the effect that it does. He shows that this argument either begs the question or involves an infinite regress. After disposing of his opponent in this manner, he states his final conclusion:

Thus not only our reason fails in the discovery of the ultimate connexion of causes and effects, but even after experience has informed us of their constant conjunction, tis impossible for us to satisfy ourselves by our reason, why we should extend that experience beyond those particular instances which have fallen under our observation. We suppose, but are never able to prove, that there must be a resemblance betwixt those objects, of which we have had experience and those which lie beyond the reach of our discovery. (emphasis Hume's)  
(T. 91-92)

Hume's conclusion can be expressed more succinctly as follows:

- (11) Reason cannot determine the mind to make predictive-inductive inferences.

It is clear that (11) does not follow from (1) through (9). However, (9) together with a premise not explicitly stated by Hume, (call it (10)), entails (11). The missing premise is:

- (10) Reason cannot determine the mind to make incurably valid inferences.

How is Hume's conclusion (and step (10)) to be interpreted? It would be a mistake to think that this matter could be settled by a textual examination of Hume's use of the term 'reason' as a substantive. This way of talking makes Hume appear to be a faculty psychologist. His use of faculty psychology terminology is obscure and often inconsistent.<sup>11</sup> More importantly, as the development of his psychological theory makes clear, Hume was not a faculty psychologist. His principal explanatory device, the association of ideas, supersedes the appeal to various "faculties", a device frequently used by psychologists before Hume. Thus, the interpretation of Hume's conclusion will depend not on his use of the word 'reason' as a sub-

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<sup>11</sup>For example, compare his use of 'the understanding and the imagination' on pages 88 and 267. Reason is sometimes the "faculty" that discovers relations among ideas (p. 157); sometimes it is that from which causal inference springs (p. 321); sometimes, indifferently, both (p. 124).

stantive elsewhere in the Treatise; rather, it will depend on internal features of the present argument, direct clues about what he took his conclusion to be, and the systematic impact of various alternative interpretations on the rest of Hume's philosophy.

What, then, are the alternatives? D.C. Stove thinks that there is really only one. In speaking of this passage, he says,

After all, [this] is that famous sceptical conclusion which Hume came to about inductive inferences, or rather, about the only 'species' of inductive inference which he discussed both clearly and at length. (If [this] is not Hume's inductive scepticism, there is no inductive scepticism anywhere in Hume.)

I therefore suggest, as the interim translation of [Hume's conclusion]: 'All predictive-inductive inferences are unreasonable.' This captures the non-psychological, evaluative, and the unfavorable meaning of Hume's conclusion.<sup>12</sup>

As Stove readily admits, this interpretation is terribly unclear as it stands. I shall discuss below how he makes it more precise. Nonetheless, there is one thing that is clear about this interpretation. It is an epistemic appraisal of predictive-inductive inferences that is highly

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<sup>12</sup>Donald C. Stove, op. cit., pps. 33-34.

unfavorable. If Hume was a radical sceptic about inductive procedures, then he surely would assent to Stove's interpretive claim. The vagueness of Stove's interpretation here has the salutary consequence that most commentators who adopt a sceptical interpretation of Hume would assent to it.

For my purposes three minor changes in Stove's interpretation are warranted. To preserve terminological uniformity, I shall replace 'unreasonable' by 'unjustified'. Secondly, as Chapter I shows, Hume thought that the cause of a belief can determine its epistemological status. This should be reflected in his conclusion here. Thirdly, Hume's conclusion is not an assessment simpliciter of beliefs arrived at via predictive-inductive inferences. His epistemic appraisal of such beliefs is of significance in light of the fact that there are no acceptable deductively valid counterpart inferences with the same conclusion. This too should be reflected in the conclusion of Hume's argument. The following interpretation of Stove's conclusion reflects these changes:

- (11a) All beliefs that are caused by predictive-inductive inferences are (and must remain) unjustified.

Statement (11a) is clearly a sceptical assessment of predictive-inductive inference. This interpretation of (11)

requires that (10) be interpreted as follows:

- (10a) All beliefs that are caused by incurably invalid arguments are (and must remain) unjustified.

One might wonder why someone would believe (10a). Well, most philosophers believe that logical relations between premises and conclusions determine, in some sense, epistemic relations between premises and conclusions. What would best explain (from a logico-epistemic point of view) someone's adherence to (10) is the following epistemological principle:

Principle P: All beliefs caused by invalid arguments are unjustified.

If (11a) accurately represents Hume's conclusion and if, as seems reasonable, (10a) best explains how he got to (11a) from (9), then it is reasonable to believe that Hume subscribed to Principle P. This claim receives confirmation from the fact that Stove, who is the most sophisticated defender of (something like) (11a) as the correct interpretation of Hume, attributes a version of Principle P to Hume.<sup>13</sup> D.S. Miller also attributes something like Principle P to Hume.<sup>14</sup>

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<sup>13</sup>Ibid., p. 54

<sup>14</sup>Dickinson S. Miller, "Hume's Deathblow to Deductivism" Journal of Philosophy, 1949, p. 745.



Curiously, Miller argues that the entire argument of Hume's that is under consideration here is an elaborate, but wholly unintended reductio ad absurdum of Principle P. That is, since Hume's final conclusion is something like (11a), which, according to Miller is obviously(?) absurd, the questionable principle on which it rests (viz., Principle P) is mistaken. What did not occur to Miller was the possibility that Hume never subscribed to either the sceptical conclusion or the (equally implausible) Principle P!

However, if (11a) is the correct interpretation of Hume, then the above is undoubtedly a correct representation of his reasoning. But, is (11a) the correct interpretation of Hume's conclusion?

There is, I think, another way to understand Hume's reasoning. Hume could be asserting that, since all predictive-inductive inferences are incurably invalid, the conclusion of no predictive-inductive inference is or can be rendered certain relative to its premises. This, too, is an epistemic appraisal of beliefs arrived at via predictive-inductive inferences. Thus, (10) and (11) could be interpreted as follows:

- (10b) No conclusion of an incurably invalid inference is (or can be rendered) certain relative to its premises.

(11b) No conclusion of a predictive-inductive inference is (or can be rendered) certain relative to its premises.

As was the case with Stove's interpretation, it would be helpful to consider why someone would believe the suppressed premise (i.e. step 10b)). What would best explain someone's adherence to (10b) is the following epistemic principle:

Principle Q: The conclusion of no valid inference is certain relative to its premises.

If (11b) accurately represents Hume's conclusions and if, as seems reasonable, (10b) best explains how he got from (9) to (11b), then it is reasonable to believe that Hume subscribed to Principle Q.

Both (11a) and (11b) are epistemic appraisals of beliefs arrived at via predictive-inductive inferences. Though both are somewhat unclear (a problem that will be remedied shortly), there is no other obviously distinct way to understand Hume's reasoning here. In order to see which of the above is the correct way to interpret Hume, it is important to clarify the epistemic notions employed in these competing interpretations. Since, as Premises (8) and (9) imply, no deductively valid counterpart inference is rationally acceptable, we can confine our

attention to Hume's appraisal of beliefs arrived at via predictive-inductive inferences; such inferences are, by definition, invalid.

One way to get a handle on Hume's epistemic evaluation of beliefs arrived at by predictive-inductive inference is to see how he would answer the following question: 'What degree of belief in the conclusion of a predictive-inductive inference would a full and entire belief in the premises cause in a completely rational inferrer, whose belief in the conclusion was influenced only by his belief in the premises of that inference?' Admittedly, from a philosophical point of view, this might not be a terribly helpful way to proceed because it might not be possible to specify the completely rational inferrer in a way that does not presuppose what he would do in the circumstances under consideration.<sup>15</sup> The present problem, however, is an interpretative one, and this question seems to be a felicitous way to ask Hume for his epistemic appraisal of inductive inference for two reasons:

- (i) It appears to be an empirical, psychological question but is not in fact such a question. Hume asks and answers many such questions in the course of the Treatise.

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<sup>15</sup>This difficulty was pointed out to me by G. Lynn Stephens in conversation.

- (ii) A key concept here--that of degree of belief--is a familiar one for Hume. His account of belief requires that there be degrees of it, and he develops in Sections 11, 12, and 13 of Part (iii) the psychology of this in great detail.

Thus it seems reasonable to say that Hume's epistemic appraisal of inductive inference can be understood in terms of an answer to the above question. What do such answers look like? Stove suggests that what is called for here is an assessment of the conclusiveness of arguments. The conclusiveness of an argument is the measure of the degree of belief that the completely rational inferer has in the conclusion of that argument, given that he has a full and entire belief in the premises and given that his degree of belief in the conclusion is influenced only by the premises. Stove claims that this notion of the conclusiveness of an argument is a magnitude. He makes this clear when he says,

Some arguments, it is evident, have this property in the highest possible degree. A completely rational inferer, that is to say, if he knew the premises and were influenced by nothing else, would have in the conclusion the same degree of belief as he has in the premiss. All valid arguments, for example, have the highest possible degree of conclusiveness. It is equally evident that some other arguments do not have the highest possible degree of conclusiveness. A completely rational inferer who knew the premiss of such an argument would have not the same but at most a lower degree of belief in its conclusion. No invalid

arguments, for example, are of the highest degree of conclusiveness. . . . these assertions . . . suffice to establish that conclusiveness is a property of arguments which is a magnitude at least in the minimal sense that some arguments have it in the highest possible degree and others do not.<sup>16</sup>

It is clear that Stove wants to understand the degree of conclusiveness of an argument as a measure of the epistemic warrant of the conclusion of an argument relative to its premises. That is, the premises of an argument provide a measure of rational justification for the conclusion (exactly what that measure is for various arguments can be left open at this point).<sup>17</sup>

The concept of conclusiveness is an objective one; the measure is independent of what the mind happens to believe it to be. Consequently, the mind can be mistaken about this measure, and it can correctly believe that the conclusion of a given argument has a certain measure of epistemic warrant (relative to the premises) for the wrong reasons (e.g. by making a number of errors in reasoning that cancel each other out).

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<sup>16</sup>Donald C. Stove, op. cit., p. 9

<sup>17</sup>One might wonder what Stove would say about the degree of conclusiveness of a circular (and hence valid) "counterpart inference". According to the above quotation, he would say it has the highest possible degree of conclusiveness. Though this might appear odd, Stove could say that, since the establishment of RT(V) is so problematic, this argument could be rejected on other grounds.



It is not clear to me at this time what the conditions are for the degree of conclusiveness to be a measure of a given individual's epistemic warrant. It can at least be said that if someone knows what the degree of conclusiveness is, then it (the degree of conclusiveness) measures his or her epistemic warrant.

To further explain or clarify this notion of the conclusiveness of an argument, Stove claims that assessments of conclusiveness are or can be expressed by statements of Logical Probability, in Carnap's sense. Any philosopher who is concerned with arguments makes assessments of their conclusiveness. Since, on this view, such assessments can be expressed by statements of Logical Probability, such statements can be attributed to any such philosopher, including Hume.

Thus, Stove identified statements assessing the conclusiveness of arguments with statements of Logical Probability. One should be sceptical of this claim for the following reasons: It is clear that the degree of conclusiveness of an argument is an epistemic concept (a measure of epistemic warrant). Validity and invalidity, however, are logical relations. Thus, Stove's assertion that all valid arguments have the highest possible degree of conclusiveness and his assertion that all invalid arguments have less than the highest possible degree of conclu-



siveness are substantive epistemic principles. Even if they are necessary truths, they are not trivial identity claims. For Carnap, Logical Probability is a logical concept which is to be understood (roughly) as degree of entailment. Stove's identification of a logical concept, Logical Probability, and an epistemic concept, degree of conclusiveness, needs some sort of an argument, which he does not provide. Furthermore, Carnap, towards the end of his life, came to distinguish the relevant epistemic and logical concepts. In a very recent article he said,

The former [i.e. epistemic] concepts are quasi-psychological; they are assigned to an imaginary subject X supposed to be equipped with perfect rationality and an unfailing memory; the logical concepts, in contrast, have nothing to do with observers and agents, whether natural or constructed, real or imaginary.<sup>18</sup>

The exact relation between the logical and epistemic concepts is in some dispute; fortunately, for the purposes at hand, this dispute need not be resolved. Stove and I can rightly agree on the following points about the interpretation of Hume's conclusion:

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<sup>18</sup>Rudolph Carnap, "Inductive Logic and Rational Decisions" in Studies in Inductive Logic and Probability, ed. by Richard C. Jeffrey and Rudolph Carnap (Berkeley, 1971), p. 25.

- (a) His conclusion contains an epistemic assessment of predictive-inductive inferences.
- (b) His conclusion does not follow from step (9) of his argument (i.e. his claim that all such inferences are incurably invalid).
- (c) The suppressed premise, which, together with (9), entails (11) rests on an epistemic principle which states that the invalidity of an inference is a sufficient condition for its conclusion having the epistemic property (relative to the premises) that Hume assigns it.
- (d) In the passage under discussion (the last paragraph on page 88 to the top of page 92 in Selby-Bigge), Hume offers no argument for the unstated epistemic principle.

To resolve the dispute about Hume's epistemic assessment of predictive-inductive inferences, it is unnecessary to bring in the technical apparatus associated with modern inductive logic.

Stove has two major purposes in his monograph; he wants to give a clear statement of Hume's (alleged) argument for a form of scepticism, and he wants to show that this version of scepticism is false. His heavy reliance on Logical Probability is really only essential for the second task, which is of no concern for the present debate. Thus, I think that Stove's interpretation can be fairly stated and evaluated in terms of the concept of conclusiveness. Though this concept is not as clear as it might be, it is not hopelessly obscure. As I shall presently show, a number of

distinct forms of scepticism can be represented in terms of it.

What exactly is the version of scepticism that Stove attributes to Hume? The sceptic does not deny that the mind's degree of actual belief in the conclusion of a predictive-inductive inference can be increased as a result of the appropriate sort of experience. Nor does he deny that the mind does in fact make predictions. His substantive claim about predictive-inductive inference is three-fold:

- (i) All predictive-inductive inferences have less than the highest possible degree of conclusiveness.
- (ii) All predictive-inductive inferences with the same conclusion have the same degree of conclusiveness.
- (iii) The degree of conclusiveness of all predictive-inductive inferences with the same conclusion (call it 'c') is the same as the degree of conclusiveness of that argument (whose conclusion is c) which has only a tautological premise.<sup>19</sup>

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<sup>19</sup>Though conclusiveness is an epistemic property of arguments and the two interpretations of Hume's conclusion (as well as the suppressed epistemic principle) are statements about beliefs, the relation between the two is fairly obvious; (i) means the same as:

- (i') The measure of epistemic warrant of any belief, which is the conclusion of a predictive-inductive inference, relative to the premises of that inference is less than the highest possible.

A word of explanation is needed about the relation between (ii) and (iii). Consider the following three inferences:

A. (1) Flame<sub>1</sub> is hot. B (1') This is a flame.

(2) Flame<sub>2</sub> is hot. Therefore,

. (2') This is hot.

.

.  
(n) Flame<sub>n</sub> is hot.

C. (1") p or not p

(n + 1) This is a flame.

Therefore,

Therefore,

(3") This is hot.

(n+2) This is hot.

Suppose that someone assents to Statement (ii) above. That is, he asserts that Inference A has the same degree of conclusiveness as Inference B. If he were to deny (iii),

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Statement (ii) means the same things as:

(ii) The measure of epistemic warrant of any belief, which is the conclusion of a predictive-inductive inference, relative to the premises of that inference is the same as the measure of epistemic warrant of that belief relative to the premises of any other predictive-inductive inference which has that belief as a conclusion.

Statement (iii) can be similarly transformed.

he would have to say that the degree of conclusiveness of Inference B is greater than or less than that of Inference C. It would be arbitrary to say that the degree of conclusiveness of Inference B is greater than that of C for the following reason: The observational data that transforms Inference B into Inference A has no effect on the degree of conclusiveness of Inference A. The observational data that transforms Inference C into Inference B does have such an effect. Bearing in mind that Inference B really does exclude all other data, this is clearly arbitrary. Similar considerations apply if the sceptic says that the degree of conclusiveness of Inference C is greater than that of B. Thus, if someone assents to Statement (ii), he should assent to Statement (iii) as well.

Statements (ii) and (iii) proclaim the irrelevance of experience from an epistemological point of view, for the purposes of prediction. In particular, Statement (iii) asserts that all predictive-inductive inferences have the same measure of epistemic warrantability as what is, in effect, a groundless belief. Clearly, then, this is a form of scepticism about predictive-inductive inferences. Statement (iii) is the way that Stove understands (11); thus, it serves as a clarification of (11a).

Though Statements (ii) and (iii) are clearly sufficient conditions for scepticism about predictive-inductive infer-

ences, are they necessary conditions as well?<sup>20</sup>

Suppose a sceptic were to assert that (ii) is false but that his scepticism can still be maintained. He might argue for this as follows: It is true that predictive-inductive arguments have different degrees of conclusiveness. As a consequence, it is true that a completely rational inferrer would have varying degrees of belief in the conclusion of a predictive-inductive argument, depending on what the premises were. However, no predictive-inductive argument is conclusive enough to provide knowledge. Only arguments with the highest possible degree of conclusiveness can do that.

Thus the sceptic might say that the degree of conclusiveness of all predictive-inductive inferences is just insufficient. One might well ask, "Insufficient for what?" If he says that the degree of conclusiveness is insufficient for knowledge, in Hume's sense, Hume might well be such a sceptic because his conception of knowledge is highly restrictive and idiosyncratic, at least by present standards.

Knowledge, for Hume, is characterized by certainty. This certainty is absolute, if the belief is intuited or demonstrated (i.e. validly inferred from intuitive truths). If

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<sup>20</sup>This question was suggested to me by G. Lynn Stephens in conversation.



Hume is here arguing that predictive-inductive inferences never yield knowledge, then he is denying that there is any relative certainty that can be achieved by this kind of inference. To say that predictive-inductive inferences never yield relative certainty is consistent with the view that some predictive-inductive inferences are sufficiently conclusive to produce justified belief in the sense outlined on page 82. Of course, it is also consistent with the deeper and more radical scepticism that Stove attributes to him. However, if Stove were to admit that this is what Hume was up to here, it would be disastrous for his interpretation. For, as he rightly admits, if Hume is not here arguing for the radical scepticism of Statements (ii) and (iii), then nowhere (in Part (iii)) does he argue for it.

There is another form of scepticism about predictive-inductive inferences that is consistent with the denial of (ii) and (iii). A sceptic could claim that, though different predictive-inductive inferences have different degrees of conclusiveness, none of them has a degree of conclusiveness sufficiently high for it to produce justified belief. The reason for this is not that justified belief requires certainty. Rather, in order that a belief be justified (i.e. merits rational acceptance), the argument that caused it must have a degree of conclusiveness which is, while not the highest possible, higher than that of any predictive-

inductive inference. Thus, no predictive-inductive inference has a degree of conclusiveness sufficiently high to produce justified belief--a level necessary for empirical science to be rationally acceptable.

Another way of looking at this form of scepticism is this<sup>21</sup>: Someone could grant that different predictive-inductive inferences have differing measures of epistemic warrant, but these measures are more appropriately called degrees of worthlessness rather than degrees of conclusiveness. Thus, though some such arguments are less worthless than others, none has a sufficiently high measure of warrant to merit rational acceptance. Rational acceptance requires a higher measure of warrant than any such argument can have. It cannot be the case, however, that the requisite measure of warrant is the highest possible. Otherwise this form of scepticism would collapse into the form outlined on pages 137 and 138.

This is a really strange form of scepticism, but it is not worth considering in more detail here for two reasons: First, there is no suggestion anywhere in Hume's writings that he made the rather subtle distinctions that this view requires. If Hume was a sceptic about inductive inference, it was because he held that no such inference has the highest

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<sup>21</sup>This way of looking at this form of scepticism was suggested to me by Prof. Bruce Aune.

possible measure of epistemic warrant or because he held that such inferences have, in effect, no measure of epistemic warrant at all. In addition, no commentator that I am aware of ever attributed this form of scepticism to Hume (see Bibliography). Secondly, this is not a very interesting form of scepticism in the present context for the following reason: Since this kind of sceptic admits that some inductive inferences are "epistemically better off" than others, he can, in principle, distinguish between scientific method and enthusiasm. From the point of view of an interpretation of Hume's scepticism, it is this distinction which is at stake. On Stove's interpretation, Hume has cut the epistemic ground out from under natural science in the argument under consideration. If (as seems unlikely) Hume held the form of scepticism outlined in the last page and one half, he would be able to find epistemic grounds for preferring scientific method. This is the crux of the interpretive issue.

The results of this discussion may be summarized as follows: Adherence to (i), (ii), and (iii) is a sufficient condition for scepticism about predictive-inductive inferences. Thus, if Hume would assent to these propositions (and Stove claims that he does), then he was a sceptic about predictive-inductive inferences. This is a very strong form of scepticism; on this view, experience can provide no epistemic warrant for

a conclusion arrived at by predictive-inductive inference. The most important consequence of this view is that empirical science cannot have any epistemic ground in experience. Certainly this is a shocking assessment of the mind's pretensions to empirical knowledge.

There is, however, another form of scepticism about predictive-inductive inference that does not entail this shocking assessment of science. Of the three statements listed on pages 135 and 136, a sceptic may assert only (i). He would then say that the degree of epistemic warrant necessary for knowledge (in his sense of the term) is the highest possible; since no predictive-inductive inference has this degree of conclusiveness, no predictive-inductive inference can produce knowledge. He may hold that some predictive-inductive inferences do have a sufficiently high degree of conclusiveness for well-grounded opinion. Such a sceptic could also consistently deny this and subscribe to Stove's more extreme (interpretive) claim, or he may subscribe to the more mitigated scepticism outlined on pages 140 and 141. The important point is that this form of scepticism is consistent with there being a rational ground for empirical science.

The importance of this for the interpretation of Hume's conclusion is this: If Stove is correct, Hume's conclusion can be understood in terms of Statement (iii) (or perhaps

(ii) and (iii). This is a truly shocking assessment of the foundations of empirical science because a fundamental form of inference (predictive-inductive inference) provides no epistemic warrant for its conclusions. On the other hand, if I am correct, Hume is really only arguing for (i), which, given his requirements for knowledge, entails that predictive-inductive inferences can never yield knowledge. On this interpretation, the question of the more radical form of scepticism expressed by Statements (ii) and (iii) is never even raised in Part (iii) Section 6. This does not show that Hume denied (ii) and (iii) (that I will show in the next chapter).

The significance of this latter view for Humean scholarship is that most commentators believe that Stove's view either is what Hume explicitly intended to establish or what his position, if true, does establish. The following quotations provide evidence for this (probability or likelihood is here understood as an epistemic concept):

- A.H. Basson: Some have tried to save the situation by admitting that all scientific inference is probable inference. But Hume's sceptical attack applies with equal force to probable inference.
- N. Kemp Smith: Can we not, however, argue that while experience yields no certainty as to the future, it may yet instruct us as to what is likely to happen in the future? But this, too, as Hume points out, is 'no thoroughfare'.



K. Popper: In other words Hume points out that we get involved in an infinite regress if we appeal to experience in order to justify any conclusion concerning unobserved instances--even more probable conclusions . . .

G. von Wright: It deserves mention that David Hume, who was the first to see that general synthetic propositions cannot be proved a priori, also clearly apprehended that this result of the impossibility of foretelling the future cannot be 'evaded' or 'minimised' by reference to probability.<sup>22</sup>

A Note on the Term 'Justification': Hume doesn't use this term or its cognates very often or with much precision. It does not have an entry in Selby-Bigge's Analytical Index. I have given a rough characterization of the sense that I assign to the term (cf. p. 82) and some options on how it relates to the technical concept of degree of conclusiveness.

It might be objected that these concepts are quite modern and thus foreign to Hume. His conception of epistemic warrant is an all or nothing affair. That is, Hume believes that an argument's having less than the highest possible degree of conclusiveness is tantamount to saying that it is unjustified. Thus, it is mistaken and inappropriate to represent Hume as either affirming or denying (even implicitly) Statements (ii) and (iii). There are four things that strongly

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<sup>22</sup>Quoted in Donald C. Stove, op. cit. p. 129.



suggest that this is false.

First, in the Enquiries version of Hume's argument there is some direct and indirect evidence that Hume did not have this conception of epistemic warrant. The evidence will be discussed in the Appendix. Secondly, there is some clear evidence in the Treatise (though not in the argument under discussion) that Hume did not have this rather narrow view of justification. This evidence will be discussed in Chapter IV. Thirdly, in the Appendix to Chapter IV, I try to show that the conception of epistemic warrant employed here and the kind of mitigated scepticism that I attribute to Hume has clear and obvious roots in the ancient Greek scepticism of Carneades and the Academics (a form of scepticism with which Hume was undoubtedly familiar). Finally, there are some general considerations pertaining to the Modern Era that make it clear that this is not problematical to discuss Hume's appraisal of inductive inference in terms of the concepts of conclusiveness as here delineated. It is to these considerations that I shall now turn.

The concept of degree of conclusiveness that I have employed here is only a comparative concept and not a metrical one. Stove and I only attribute to Hume statements of comparative equality or comparative inequality. It probably would be inappropriate to attribute to Hume more precise metrical assessments of conclusiveness.

More importantly, I think that the idea of there being a measure of epistemic warrant that is less than that of certainty is not at all foreign to philosophers of the Modern Era. For example, Descartes, at the end of the Sixth Meditation, finds that God does not deceive him most of the time about the evidence of his senses and that he need not, from an epistemological point of view, continue to doubt even though he may be mistaken in a given instance. Locke admits that, besides intuitive and demonstrative knowledge, there is sensitive knowledge (or the existence of things without us), which, while not certain, is highly (epistemically) probable.

Most significant, however, is the fact that Hume himself at least recognizes that some philosophers think that there can be varying degrees of epistemic warrant. A clear statement of this can be found in the opening paragraphs of Part (iii) Section 11. In addition, he at least recognizes that some philosophers think that the conclusion of an argument can be less than certain relative to its premises and still result in justified belief. After discussing probable arguments based on frequent, but not constant, conjunction, he says,

All these kinds of probability are  
received by philosophers, and allowed

to be reasonable foundations of belief and opinion. (T. 143)

Hume may not have thought that this is true. It is clear, however, that he was aware of this option. In light of these considerations it is obvious that the concept of the degree of conclusiveness of an argument and the concept of justification employed here are not inappropriate to a discussion of Hume. The radical scepticism that Stove attributes to Hume states, in effect, that no opinion (concerning the unobserved) is more (epistemically) probable than it is prior to or independently of any experience. To say that experience is of no epistemic value whatever is to deny that experience can serve to rationally ground empirical science. This interpretation accurately characterizes, in large measure, the epistemological dead end to which Hume is alleged to have led philosophy of the modern era.

Let us call this version of scepticism "Strong Inductive Scepticism". What textual arguments are there for this as an interpretation of Hume? I have been able to find only two. I should now like to consider these arguments and show why they are defective.

A. Hume and Strong Inductive Scepticism:  
An Ostensive Argument

This argument which attributes (lla) (and hence, ii)

and (iii) to Hume is called 'ostensive' because it consists of pointing to certain passages in the Treatise where Hume clearly asserts something very much like (11a) (or perhaps even (ii)). Two such passages are commonly cited. One has been previously quoted (cf. page 123). The other appears in Section 12 of Part (iii). The entire passage is italicized by Hume:

. . . there is nothing in any object considered in itself, which can afford us a reason for drawing a conclusion beyond it; and, That even after the observation of the frequent or constant conjunction of objects, we have no reason to draw any inference concerning any object beyond those of which we have had experience; (T. 139)

Objections: Do these passages give conclusive evidence that Hume believed (11a)? Does Hume actually assert (11a) in either passage? I submit that an affirmative answer to either of these questions is not at all obvious. That is, I shall show that Hume's adherence to (11a) cannot be established merely by pointing to these passages.

The reason for this is that these passages admit of another interpretation that is distinct from and does not imply (11a). There is one thing that my opponents and I can agree on: These passages prove some (epistemic) assessment of predictive-inductive inferences. They state something about the degree of conclusiveness of such inferences. The

key to the interpretation of the passage quoted immediately above is how Hume's expression 'no reason' is understood. As is obvious to any reader of the Treatise, Hume does not use the word 'reason' univocally. If we read this use of the expression as "no logically conclusive reason", Hume is still making an assessment of predictive-inductive inferences. However, he is not saying that we are no more justified in believing the conclusion of such an inference after the appropriate experience than we were prior to or independently of such experience. Rather, what he is saying is that we have no (logical) guarantee, even after the appropriate experience, for the conclusion. His epistemic assessment of inductive inferences is that they all have less than the highest possible degree of conclusiveness. That is, Hume is here asserting only (11b) (or (i)), viz. that all predictive-inductive inferences have less than the highest possible degree of conclusiveness.

A close reading of the other passage makes this more plausible still. He makes two claims in this passage. They both can be read to support (11b) rather than (11a) as the correct interpretation of Hume's conclusion.

Thus, not only does our reason fail us in the discovery of the ultimate connexion of causes and effects, but even after experience has informed us of their constant conjunction, 'tis impossible for us to satisfy our-

selves by our reason, why we should extend that experience beyond those particular instances which have fallen under our observation. (emphases Hume) (T. 91)

If reason is here understood as the "faculty" that discovers relations among ideas (including, presumably, the relation of validity), then Hume is here asserting that past experience does not provide any absolutely conclusive grounds for a conclusion about the future.

We suppose, but are never able to prove, that there must be a resemblance between those objects of which we have had experience and those which lie beyond the reach of our discovery. (emphases added) (T. 92)

Here he says that we as a matter of fact believe the Resemblance Thesis--our belief in RT provides a psychological explanation for our making the transition involved in inductive inference--but it is unavailable from the point of view of reason, i.e. the Resemblance Thesis cannot be used to give the highest possible degree of assurance in the conclusion.

This interpretation of Hume's conclusion as (11b) rather than (11a) has some obvious advantages: Both Stove and I agree that there is a suppressed premise in Hume's argument here, viz., (10); it rests on a principle which states that the invalidity of an inference is a sufficient condition for its causing a belief that has a certain epistemic



property--either being unjustified or being less than certain relative to the premises which caused the belief. We can also agree that, in the passage under discussion, Hume provides no argument for this epistemic principle.

However, the Strongly Sceptical Interpretation has the rather awkward consequence of attributing a claim to Hume that is, on the face of it, wildly implausible, viz., what Stove calls "Deductivism"--the thesis that all beliefs caused by invalid arguments are unjustified. Even if the causal formulation of the Deductivist Thesis is altered, the problem remains. From an interpretive point of view, it is bad business to attribute to a major figure such as Hume an apparently implausible statement, which (as Stove rightly admits) Hume never states or argues for. Stove's claim that Hume asserts (11a) and is thus committed to (10a) and hence Principle P is of no avail here because it is Hume's alleged suscription to (11a) which is at stake.

Furthermore, if one can assume (as seems reasonable) that other philosophers believed that inferences from frequent, but not constant, conjunction are invalid, then Hume is here assuming a philosophically significant claim that other philosophers deny (at least implicitly) because these other philosophers believe that such inferences produce justified belief (see quotation on pages 146 and 147). As Stove readily admits, nowhere in the Treatise does Hume argue for Deductivism.

Surely, however, were he to go against the received opinion, he would somewhere argue for the key principle. He has, after all, produced an elaborate argument for one of the premises, viz., (9).

The same kind of difficulty does not afflict my interpretation for the following reasons: The principle on which the suppressed premise rests (that no invalid argument renders its conclusion certain relative to its premises) is pretty obviously true. Since in an invalid argument it is always logically possible that the premises are true and the conclusion false, given that one is correct in believing the premises, it is always possible (except perhaps when the conclusion is a "psychological report") that one is mistaken in believing the conclusion. Hence, there can be no relative certainty. Moreover, as I shall show shortly, it is fairly clear that Hume believed Principle Q and indeed argued for it, though not in the passage under discussion.

Though considerations adduced in the past few pages probably do not suffice to establish (11b) as the correct and (11a) as an incorrect interpretation of Hume's conclusion, they clearly do establish that some argument is needed to pin (11a) on Hume. Merely pointing to certain passages is not enough.

Is there any genuine interpretive argument to establish (11a) rather than (11b) as Hume's conclusion? Stove (and,

as far as I can tell, only Stove) offers such an argument. I should now like to examine Stove's argument. I shall show that it is defective by showing that the strategy of this argument actually establishes (11b) and not (11a) as Hume's conclusion.

B. Hume and Strong Inductive Scepticism:  
The Symmetry Argument

As Stove rightly points out, the argument of Hume's that has been under consideration thus far is actually part of a longer argument. The first part of this argument is an epistemic evaluation of another kind of inductive inference. This inference is the same as the predictive-inductive inference except for one important feature--it occurs prior to or independently of the past constant conjunction. To see clearly the contrast between the two kinds of inference, consider the following examples of each kind. Following Stove, I shall call the kind under discussion the A Priori Inductive Inference.

<u>A Priori Inductive Inference</u>	<u>Predictive-Inductive Inference</u>
(1) This is a flame.	(1') This is a flame.
Therefore,	(2') All flames that have been observed in the past have been observed to be hot.
(2) This is hot.	
	Therefore,
	(3') This flame is hot.

What Hume's assessment of the a priori inductive inference has to do with (11) is this: Stove argues that there is a symmetry between Hume's epistemic assessment of the conclusiveness of the a priori inductive inference and his evaluation of predictive-inductive inferences. Stove alleges that Hume claims that the observation that (e.g.) something is a flame renders the conclusion that it is hot no more warranted than such a conclusion is independently of any experience whatever.

For the purposes of the present discussion let us adopt the following abbreviations:

- (1) 'Con(H/E<sub>1</sub> & . . . & E<sub>n</sub>) = df 'The degree of conclusiveness of the argument whose premises are E<sub>1</sub> . . . E<sub>n</sub> and whose conclusion is H.
- (2) 'Con(H/t), where t is some tautology: This can be understood as the initial rational credibility of H.

Stove attributes the following assessment of the conclusiveness of the a priori inductive inference to Hume:

$$(*) \text{ Con(This is hot/This is a flame) = Con (This is hot/t)}$$

Obviously, Hume's conclusion is more general than this particular statement. Generalizing from (\*), Hume's conclusion can be represented as follows:

(\*\*) For any a priori inductive inference from  $E_k$  to H:

$$\text{Con}(H/E_k) = \text{Con}(H/t) \text{ where } t \text{ is some tautology.}$$

This comparative equality, then, is Hume's epistemic assessment of the conclusiveness of a priori inductive inferences.

If this is Hume's epistemic appraisal of the a priori inductive inference, and if he makes the same assessment of the predictive-inductive inference (i.e. if Stove is granted the Symmetry Thesis), then Hume subscribes to the following assessment of the conclusiveness of predictive-inductive inferences:

(\*\*\*) For any predictive-inductive inference from  $E_1 \dots E_w$  to H:  $\text{Con}(H/E_1 \dots E_w) = \text{Con}(H/t)$  where  $t$  is some tautology.

This, of course, is Statement (iii) (see page 135, which is our way of understanding (12a)). Hume is a Strong Inductive Sceptic after all.

It is unproblematic to grant Stove the following two claims:

1. Hume does make some epistemic assessment of the degree of conclusiveness of a priori inductive inferences in the passage under discussion.
2. The epistemic assessment that he makes of predictive-inductive inferences is the same as his assessment of the a priori one. The Symmetry Thesis explains

why Hume's conclusions always have the character of a one-two punch. This is vividly illustrated in the quotation on page 148.

Granting Stove these two points does not suffice for his conclusion. He needs to establish that Hume's epistemic appraisal of a priori inductive inferences is (\*\*) or something very much like it.

What does Hume actually say: In the following passage Hume offers his epistemic assessment of a priori inductive inferences:

Tis easy to observe that in tracing this relation, the inference we draw from cause to effect, is not deriv'd merely from a survey of these particular objects, and from such a penetration into their essences as may discover the dependence of one upon the other. There is no object, which implies the existence of any other if we consider these objects in themselves, and never look beyond the ideas which we form of them. Such an inference wou'd amount to knowledge and wou'd imply the absolute contradiction and impossibility of conceiving anything different. But as all distinct ideas are separable, tis evident that there can be no impossibility of that kind. (T. 86-87)

From the observation that something is a flame, the mind cannot conclude (from that alone) that it is hot. Is Hume saying here that such an observation does not raise the initial rational credibility of the conclusion one bit? I think not. Suppose, per impossible, that the mind could



make the inference on the basis of just that observation. What kind of inference would it be? From the third to last sentence of the above quotation, the answer is obvious: The inference would be deductively valid. Thus, Hume is arguing in the above passage that the a priori inductive inference is not deductively valid.

The epistemological significance of this is quite clear from the second to last sentence of this passage--No A Priori Inductive Inference Yields Knowledge. This means that the conclusion of no a priori inductive inference is certain relative to its premise. My interpretation relies heavily on there being such a thing as relative certainty for Hume. This passage clearly indicates that there is such a thing. It might be thought that knowledge, for Hume, can only be achieved by intuition or demonstration (that is, by a valid inference from intuited truths). However, if Hume were intent on establishing that no a priori inductive inference yields knowledge, in this sense, all he would have to point out is that the conclusion of such an inference, since it is factual, is conceivably false. That is not what he is saying here. He is saying that the mind can imagine that the premise is true and the conclusion is false in an a priori inductive inference. Thus, no such inference is valid and no such inference produces knowledge in the sense of relative certainty.

In this passage Hume seems to recognize clearly the truth of Principle Q and the kind of epistemological argument that establishes it. Principle Q, then, is not really suppressed; it turns up earlier in Hume's argument--before he considers predictive-inductive inferences.

Returning now to the Symmetry Argument, Hume's epistemic conclusion about a priori inductive inference can be expressed as follows:

- (+) For any a priori inductive inference from  $E_i$  to H:  
 $\text{Con}(H/E_i)$  is less than the highest possible degree  
of conclusiveness.

Statement (+) is an epistemic assessment of the conclusiveness of a priori inductive inferences. Given the Symmetry Thesis, Hume makes the same assessment of the conclusiveness of predictive-inductive inferences, viz.

- (++) For any predictive-inductive inference from  $E_1 \dots$   
 $E_j$  to H:  
 $\text{Con}(H/E. \dots E_j)$  is less than the highest possible  
degree of conclusiveness.

Statement (++) , of course, is (i) (see p. 134) which is our way of understanding (11b). Thus the Symmetry Argument established not Stove's interpretation, but mine. Hume may well have been inclined to believe that a priori inductive inferences are unreasonable. However, that is not what he says in the quotation on page 156. Nonetheless, it is just

this that Hume must have said of Stove's Symmetry Argument is to work.

The available evidence, then, suggests that Hume was intent on establishing (11b) rather than (11a) as his conclusion. Step (11) is an epistemic assessment of the conclusiveness of predictive-inductive inferences. It is not, however, the highly sceptical conclusion that most commentators think that Hume drew.

I do not think that these considerations show that a highly sceptical interpretation of Hume is completely untenable. There are three sorts of objections that my opponents could offer here:

- (i) When Hume states his conclusion, both in the Treatise and the Enquiries, he certainly appears to be stating a highly sceptical position. No systematic explanation for why this is merely an appearance has yet been offered.
- (ii) It can be granted that (11b) is an epistemic assessment (and an important one) of predictive-inductive inferences. Nonetheless, if (11b) is all that Hume was interested in establishing, then his view is seriously incomplete. On this interpretation Hume has nothing to say about the sceptic's position. Do predictive-inductive arguments produce justified

belief? On the interpretation offered here, Hume is really silent on this very important question. The failure to address this question is a gross oversight, which ought to cause us to reject this interpretation on the grounds of the Principle of Charity.

- (iii) A related problem is this: On this view, Hume came very close to but failed to discover "Hume's Problem". Hume was astute enough to see this very serious problem about the justification of induction. His failure here is like being late for one's own funeral. It is preposterous to believe that Hume failed to discover one of the most important epistemological problems, a discovery for which he is almost universally credited. Again, the Principle of Charity demands rejection of this interpretation.

It seems fair to say that these objections, if successful, would be quite telling. In the next chapter I shall show that they can all be defeated.

However, my opponents are also in an uncomfortable position. If Hume thought that predictive-inductive inferences produce unjustified belief, by what right does he continue to develop his psychological theory, since this obviously requires that he make inductions?

A particularly acute thinker on these matters puts the

problem this way:

Jurists, when speaking of rights and claims, distinguish in a legal action the question of right (quid juris) from the question of fact (quid facti); and they demand that both be proved. Proof of the former, which has to state the right or the legal claim, they entitle the deduction. Many empirical concepts are employed without question from anyone . . .<sup>23</sup>

If Hume was a sceptic, he would say that we have no right to make inductions, though as a matter of psychological necessity we do make them. But, one might ask, by what right does he make this latter psychological claim? If he were a genuine sceptic, then, after writing this passage, he should have packed his bags and left the French countryside for Scotland. In fact, however, he stayed, and he stayed to develop the psychological theory in intricate detail. If we cannot convict him of believing a contradiction, we should at least be able to condemn him for being epistemically immoral. However, independent evidence overwhelmingly establishes both Hume's acuity and his probity.

Matters are not this bleak, say Hume's commentators. Hume does provide a deduction (in the aforementioned sense) for inductive inference. In fact, herein lies the great

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<sup>23</sup>Immanuel Kant, Critique of Pure Reason (trans. by Norman Kemp Smith (New York, 1929), p. 120.

positive contribution of his sceptical philosophy.

I shall discuss these and other matters in Chapter IV. The objections sketched above will be met, and I will show that my opponents force Hume into positions that are philosophically and interpretively untenable.



## CHAPTER IV

In the last chapter I argued that Hume's argument of Part (iii) Section 6 establishes and is only intended to establish that all predictive-inductive inferences have less than the highest possible degree of conclusiveness. This can be regarded as a form of scepticism about such inferences for the following reasons: On an organic level, our behavior does not match that of the completely rational inferrer. There is no felt difference between the mind's conviction that (e.g.) the sun will rise tomorrow and the conviction that arises from a valid argument. Though Hume does not really provide a psychological account of the conviction that arises from a valid argument (except to say that the mind "sees" the necessary connection), he does provide a psychological explanation for why the mind has such a high degree of belief in the conclusion of a predictive-inductive inference; the past experience of the observed constant conjunction makes the transition from the present impression proceed quite smoothly; this is explained as the effect of custom or habit. The origin of the force and vivacity of the subsequent idea (which is the conclusion of the inference) is the impression or memory idea which initiates a given causal inference. The degree of conviction thereby generated

is quite high.

Whatever the defects of this explanation from the standpoint of psychological theory, Hume is surely correct in maintaining that a predictive-inductive inference with suitably impressive credentials does produce a felt certainty in the conclusion. To assert that, from the point of view of reason, this is not the case can rightly be viewed as a form of scepticism. The history of scientific thought shows that this natural attitude occasionally permeates science as well. Confidence in Newtonian theory reached this level in the 18th and early 19th century.<sup>1</sup>

However, from the standpoint of 20th century epistemology, this is, by itself, a quite modest form of scepticism (sometimes called Inductive Fallibilism). The more radical and perhaps more interesting form of scepticism is that which denies that past experience can provide any grounds (i.e. epistemic warrant) for beliefs about the unobserved. Thus, from our point of view, the question 'Was Hume a sceptic about induction?' is really a question about Hume's adherence to Statements (ii) and (iii) of the previous chapter

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<sup>1</sup>For a full discussion of this and a good explanation of the non-triviality of what I take to be Hume's conclusion in Section 6 see D.C. Stove's Probability and Hume's Inductive Scepticism (Oxford, 1973), Chapter 7.

(cf. p.136). It is in this sense that I shall use the term 'scepticism' and its cognates with respect to induction.

It is important to remind the speaker of a caveat entered at the beginning of the last chapter. I do not deny that Hume was a radical sceptic about all of the mind's fundamental claims to empirical knowledge by the end of Book I of the Treatise. My view is that he did not reach this sceptical conclusion with respect to arguments from experience until Part (iv). Later in this chapter I shall show just how and where Hume did reach a sceptical conclusion about causal inference. The importance of this is that it shows that Hume did not adopt this view in light of any arguments advanced in Part (iii) (and, in particular, in Section 6 of Part (iii)).

My argument is designed to establish that Part (iii) of Book I (together with the support machinery of Parts (i) and (ii)) contains a causal theory of the justification of empirical belief.

In the last chapter I argued that Hume was not arguing for scepticism in Part (iii) Section 6. The contrary view, however, has taken deep root. From T.H. Green's General Introduction to Hume's 'Treatise' (1874) through Norman Kemp Smith's The Philosophy of David Hume (1940) to D.C. Stove's Probability and Hume's Inductive Scepticism (1973), modern commentators, both sympathetic and otherwise, have agreed

that Hume held that prior experience provides no grounds for beliefs about the future. The great contribution of Stove's monograph has been to show just what this claim means.

Of course, there have been dissenters from the Green-Kemp Smith-Stove line of interpretation; indeed, as Hume's reputation has reached unprecedented heights in the 1960's and 70's these voices have become more numerous.<sup>2</sup> What has been lacking in this quarter, however, is a systematic appraisal of Hume's philosophy in light of a non-sceptical interpretation of his views on induction in Part (iii). In this chapter I shall show that Hume denies the sceptic's claim in Part (iii), and I shall show that this interpretation can account for some important things that a sceptical interpretation cannot. I will have then established that Hume held at the end of Part (iii) that, among those beliefs caused by other beliefs, a belief is justified if and only if it is caused by causal inference.

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<sup>2</sup>Three examples of this trend are:

- (i) Frank N. Harpley, "Hume's Probabilism" Australasian Journal of Philosophy, 1971, pps. 146-151.
- (ii) Thomas Beauchamp, and Thomas Mappes "Is Hume Really a Sceptic About Induction?" American Philosophical Quarterly, 1975, pps. 119-129.
- (iii) Donald C. Stove, "Hume, Probability, and Induction" Philosophical Review, 1965, pps. 160-177.

My interpretation of Hume, like all interpretations, is something of an empirical hypothesis. As such, it is conceivably false, no matter how much evidence is brought to bear. The issue between me and my opponents is not what Hume should have said; indeed, Stove argues quite persuasively that the form of scepticism under discussion is false. Rather, it concerns what Hume actually said. An interpretation is required because what he said is not unambiguous.

In effect, much of the argument in this chapter is directed back to Section 6 of Part (iii). I will show that much of what Hume goes on to do in the rest of the Treatise makes a good deal of sense if and only if Hume's argument there is understood in the way that I've suggested in Chapter III. These benefits do not accrue to my opponents' interpretation of that argument.

I shall begin by showing that there is an apparent inconsistency of considerable importance in Part (iii). I will then argue that only a non-sceptical interpretation of Hume can adequately resolve this difficulty.

#### An Interpretive Problem: Hume's Sympathy with the Wise

In Sections 11, 12 and 13 of Part (iii) Hume greatly elaborates his psychological theory of inference. In Sections 11 and 12 he explains what happens when the mind makes inferences from frequent but not constant conjunction. At the

beginning of Section 13 he says,

All these kinds of probability are receiv'd by philosophers and allowed to be reasonable foundations of belief and opinion. But there are others, that are deriv'd from the same principles tho' they have not the good fortune to obtain the same sanction. (T. 143)

It might be thought that Hume took this to be merely an empirical claim about the beliefs of certain philosophers. Two facts make this highly unlikely: A common literary device of the 18th century is to attribute to practitioners in one's field a position which you yourself hold. Hume uses this device on a number of occasions (see especially his remarks on innate ideas). More importantly, it is reasonably clear from the general tenor of these sections that Hume agrees, in some sense, with these sentiments.

One way of explaining these sentiments is to say that Hume believed that all (and, if my argument of Chapter I is correct, only) those beliefs caused by causal inference are justified. This option is not, of course, open to my opponents.

Suppose that a 20th century cosmogonist writes a long treatise on the origins of the universe. Early in the book he offers a series of devastating arguments and impressive observational evidence to show that the Steady State Theory of the origin of the universe is mistaken. It would be quite



surprising to find that, later in his book, he explains various phenomena by an appeal to the creation of hydrogen atoms ex nihilo.

Obviously, the situation is not exactly analogous in Hume's Treatise. There is, however, one important similarity: If Hume was a sceptic about induction and if he argued for it in Part (iii) Section 6, then it is surprising and more than a little puzzling that throughout Part (iii) he appears to approve of causal (and hence inductive) inferences. From an epistemological point of view, this approval seems unwarranted and in direct conflict with his official (allegedly) sceptical position.

There are numerous passages in Sections 11 through 14 where Hume states his approval of such inferences. One of the clearest and most impressive expression of these sentiments, however, is found in the Enquiries:

Tho' Experience be our only Guide in reasoning concerning Matters of Fact; it must be acknowledged, that this Guide is not altogether infallible, but in some Cases is apt to lead us into Errors and Mistakes. One, who, in our Climate, should expect better Weather in any Week of June than in one of December, would reason justly and conformable to Experience; but tis certain, that he may happen, in the Event to find himself mistaken . . . . A wise Man, therefore, proportions his belief to the Evidence. In such Conclusions as are founded upon an infallible Experience he

expects the Event with the last Degree of Assurance and regards his past Experience as a full Proof of the future Existence of that Event. In other Cases, he proceeds with more Caution; He weighs the opposite Experiments: He considers which Side is supported by the greatest Number of Experiments: To that Side he inclines with Doubt and Hesitation; and when at last he fixes his Judgment, the evidence exceeds not what we properly call Probability . . . . a hundred uniform Experiments with only one contradictory one, does reasonably beget a pretty strong Degree of Assurance.<sup>3</sup>

This is one of the clearest statements of the position that I've attributed to Hume. On the basis of this passage it is pretty clear that Hume subscribes to the following claim:

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<sup>3</sup>David Hume, An Enquiry Concerning Human Understanding, ed. by Ernest C. Mossner (N.Y., 1963), pps. 109-110.

Though in general I have eschewed the Enquiries, the use I make of it here is not really out of character. The essay from which this passage is taken is "On Miracles". This was originally slated for the Treatise but was dropped at the last minute to avoid offending Bishop Butler, whose favor Hume avidly sought. Furthermore, it is clear that Hume took this essay quite seriously. Mossner quotes the following description of the excision of that essay from a letter of Hume's to a friend:

"I am at present castrating my Work, that is cutting off its noble Parts, that is, endeavoring it shall give as little Offence as possible; before which I could not pretend to put it into the Drs hand." (p. x)

- (a) Past experience provides (varying degrees of) epistemic warrant for beliefs about the future (or, more generally, about the unobserved).

How can a sceptical interpretation account for this and expressions of similar sentiments by Hume?

However, the defenders of a sceptical interpretation can ask how this passage can be squared with such apparently sceptical passages as the following:

That there is nothing in any object, consider'd in itself, which can afford us a reason for drawing a conclusion beyond it; and, That even after the frequent or constant conjunction of objects we have no reason to draw any inference concerning any object beyond those of which we have had experience.  
(T. 139) (entire passage italicized by Hume)

In this passage Hume appears to be committed to the following:

- (b) Past experience provides no epistemic warrant for beliefs about the future (or, more generally, the unobserved).

There are three moves that a commentator can make here:<sup>4</sup>

- (1) He can say that Hume believes both (a) and (b) and has thus contradicted himself.

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<sup>4</sup> This general strategy is suggested by F.N. Harpley, op. cit.

- (2) He can say that Hume really believes only (b) and can try to reinterpret or explain away his apparent commitment to (a).
- (3) He can say that Hume really believes only (a) and can try to reinterpret or explain away his apparent commitment to (b).

A. Option (1): Hume's position self-contradictory. A number of commentators have adopted the first alternative. This would explain why Hume appears to be highly sceptical of causal inference at some places and why he apparently embraces it at others. Often supporters of this line point to other aspects of Hume's philosophy where he (appears to) contradict himself. Examples of Hume's cavalier attitude towards consistency that are commonly cited include:

- (i) The "No Impression without a Precedent Impression Principle" and the idea of the missing shade of blue in Book I Part (i) Section 1.
- (ii) The denial of the existence of an impression of the self in Part (iv) of Book I and of the affirmation of the existence of such an impression (to explain the mechanism of sympathy) in Books II and III.
- (iii) The obviously non-equivalent definitions of belief offered in various places in the Treatise.

Commentators who adopt this line usually go on to argue that these inconsistencies reveal something of great importance

about Hume's philosophy; for example, in the case of (i) they claim that this shows the inadequacy of a (the?) basic Empiricist Principle. Thus, though Hume has contradicted himself, he makes a great contribution to philosophy.

In the context of the present dilemma, Terence Penelhum seems to adopt Option (1). In his recent book, Hume, he says,

Even when inculcating his sceptical doubts about induction . . . . Hume frequently confuses us by talking as though he accepts the very beliefs that he is questioning. This is especially true when he is describing in detail those psychological mechanisms whereby nature, in spite of the absence of justifying reasons, persuades us into accepting them: he seems unable to hold fast to the contention that nature is consolidating an unjustified belief, and talks as though it is a justified one. This sometimes leads commentators to question whether he is a sceptic at all. [!]  
That there is an inconsistency in Hume's procedure cannot be doubted . . . . In his epochmaking attacks on metaphysics and religion Hume takes for granted the very standards of scientific reasoning that he has cast sceptical doubts upon in his analysis of induction. That there is an inconsistency in his procedure cannot be doubted here either.<sup>5</sup> (emphasis added)

What is objectionable about Penelhum's claims here is

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<sup>5</sup>Terence Penelhum, Hume (New York, 1975), pps. 25-26.



his assertion that Hume's inconsistency "cannot be doubted." He offers no argument whatever for this. Indeed, not only do I doubt this (which may not be particularly important or relevant), other commentators have advanced arguments to show how Hume escapes this apparent inconsistency. Penelhum does not even consider these arguments, much less show that they fail.

More importantly, however, I think there are good reasons to be reluctant to attribute a contradiction to Hume here. Such an attribution would entail that Hume made an abrupt and immediate volte-face. After allegedly arguing that the conclusions of causal inference have no epistemic warrant, he apparently completely ignores this conclusion and proceeds to agree with those who think they do. Though a defender of a "Contradiction Interpretation" might argue that Hume made this about-face because of his deep faith in the sciences, this is at best a psychological explanation; it is uncharitable and philosophically unsatisfying. Abundant textual evidence, a lack of plausible alternatives, and a good (quasi-) philosophical explanation for why Hume was led into such a contradiction may compel acceptance of such an interpretation. It is, however, a "counsel of despair." The stakes here are enormously high; as the above quotation from Penelhum indicates, Hume's Science of Man and his attacks on his rationalist opponents depend on the legitimacy of causal



inference. A contradiction at this point brings down the entire edifice of Hume's theory. A "Contradiction Interpretation" should be adopted only when other measures fail.

What, then, of Options (2) and (3)? I shall argue for Option (3) shortly. Those who adopt Option (2) usually argue roughly as follows: Hume was a sceptic about induction, but he did sympathize with the Wise because he later discovered that causal inference is necessary for the purposes of life<sup>6</sup> or springs from universal and irresistible principles of the human mind.<sup>7</sup> While that does not epistemically warrant inference, it does, nonetheless, (pragmatically) vindicate causal inference; hence Hume's sympathy with the Wise. My objection to this way of proceeding will be that all of the considerations that Hume offers in this connection are designed to handle difficulties about causal inference that Hume did not discover until Part (iv) and that the allegedly sceptical argument in Part (iii) Section 6 is never the target of these remarks. Admittedly, this does not

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<sup>6</sup>This view is defended by F.C. Baylie in his monograph, The Causes and Evidence of Beliefs: An Examination of Hume's Procedure (Mt. Hermon, Mass., 1936), Chapter 7.

<sup>7</sup>This view is defended by John Lenz in his article, "Hume's Defence of Causal Inference" Journal of the History of Ideas, 1958, pps. 559-567.

prove that Hume did not intend these remarks to apply to an unresolved dilemma in Part (iii). But if these remarks can be explained solely in terms of a response to (new) Problems that he found with causal inference in Part (iv), a sceptical interpretation of the argument in Part (iii) Section 6 becomes very unlikely. In matters such as these, this is the most that can be hoped for.

B. Option (3): Hume's denial of inductive scepticism. My position is that the propositions that Hume intended to express by the passage quoted on page 171 are consistent with an epistemic approval of the sentiments of the Wise. In Chapter III (see pps. 148-149) I argued that Hume is claiming in this and the other offending passage (see quotation on p. 159) that the experience which gives rise to a predictive-inductive inference cannot bestow upon the conclusion of that inference the highest possible degree of conclusiveness.

This, of course, is consistent with a non-sceptical position on induction. However, as I have pointed out, on my interpretation, these passages are also consistent with scepticism about induction. Thus, though by interpreting these passages in the manner suggested, I have removed the inconsistency, I have not accounted for Hume's sympathy with the Wise by showing that he adhered to Statement (a) above (p.171).

Fortunately, that explanation is easily discovered. In what seems to me to be one of the most important (but largely ignored) passages of the Treatise, Hume explicitly denies Statements (ii) and (iii) (p. 136), and thereby puts himself squarely in the camp of the non-sceptic about induction. This passage occurs at the beginning of Section 11. It is worth quoting in extenso:

Those philosophers, who have divided human reason into knowledge and probability, and have defin'd the first to be that evidence, which arises from the comparison of ideas, are oblig'd to comprehend all our arguments from causes or effects under the general term of probability. But tho' every one be free to use his terms in whatever sense he pleases; and accordingly in the precedent part of this discourse, I have follow'd this method of expression; 'tis however certain, that in common discourse we readily affirm, that many arguments from causation exceed probability, and may be receiv'd as a superior kind of evidence. One wou'd appear ridiculous, who wou'd say, that 'tis only probable the sun will rise to-morrow, or that all men must dye; tho' tis plain we have no further assurance of these facts, than what experience affords. For this reason, 'twould perhaps be more convenient, in order at once to preserve the common signification of words, and mark the several degrees of evidence, to distinguish human reason into three kinds, viz. that from knowledge, from proofs, and from probabilities. By knowledge, I mean the assurance arising from the comparison of ideas. By proofs, those arguments, which are

deriv'd from the relation of cause and effect, and which are entirely free from doubt and uncertainty. By probability, that evidence, which is still attended with uncertainty. Tis this last species of reasoning, I proceed to examine. (T. 124) (double emphases added; others are Hume's)

At first glance, this passage appears to be a mere terminological reshuffling; he is now going to conform himself to a more common use of the term 'probable' and its cognates. Three considerations make clear that something more is involved:

1. One of the clauses that I emphasized (" . . . and mark the several degrees of evidence"), if understood literally, shows that the distinction is drawn for epistemological, as well as terminological, reasons. Though it is conceivable that he merely means to mark what philosophers (mistakenly) think are "the several degrees of evidence", there is no evidence (either explicit or implicit) that this is what he meant. Admittedly, if this passage has the vast epistemological significance that I think it does, Hume is making an extremely important claim in a very off-handed manner. I shall later explain why this is so.
2. After Hume says that it would appear ridiculous to say that it is only probable that all men must die or that the sun will rise tomorrow, he says that "we have no further assurance of these facts than what experience affords." Note

that he does not say that we have no assurance whatever or that we have no entitlement, even though we have belief. That is, he does not assert that the distinction is made on psychological and not epistemological grounds.

3. Finally, the distinction between knowledge, proofs, and probabilities is drawn along epistemological and not psychological lines, though the terms 'certainty' and 'doubt' are not used in their Cartesian senses. The reason for this is that there is no difference in the felt conviction arising from a comparison of ideas and that arising from proofs.<sup>8</sup> Furthermore, on psychological grounds, the distinction between proofs and probabilities is sometimes hard to make. The compulsive gambler who places a large bet on a chance outcome often feels certain that he will win. In addition, the slow-witted or the philosopher whose brain has been tortured by sceptical doubts concerning the understanding may feel a genuine uncertainty about some claim about the future for which he has ample evidence. If the distinctions Hume draws here are epistemological, then he here implies that the degree of conclusiveness of a proof is higher than that of a

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<sup>8</sup>Anyone who has tried to explain to students the difference between logical and physical impossibility can attest to this.



probability. If he believes this, then he implicitly denies Statements (ii) and (iii) and affirms Statement (a).

That is, he denies the sceptic's claim about induction.

This passage adequately explains Hume's sympathy with the Wise throughout the middle sections of Part (iii). Admittedly, Hume's denial of this kind of scepticism is made in a rather off-handed manner and in the context of a terminological adjustment. Furthermore, he really offers no argument for his epistemological distinction between proofs and probabilities. This suggests that he never took this version of scepticism seriously--and rightly so! The version of scepticism expressed by Statements (ii) and (iii) is truly extravagant, and no practicing rational being ever actually believed it (though some claim to). Why, then, consider it? There are two reasons: First, Hume does say some things that make it appear that he subscribed to this view. Secondly, many commentators believe that Hume explicitly held or was at least committed to holding this version of scepticism. A subset of this group even maintains (though in words only) that this position and Hume's argument for it are sound (see quotations on pp. 143-144).

My interpretation is that Hume assumed that among those arguments from experience, some are epistemically better off than others. This assumption, I think, is present from the Introduction through the end of Part (iii) of Book I. Hume's



epistemological aims to that point are quite modest; the epistemological consequences of his largely metaphysical position about necessary connection are troublesome only for rationalists. His epistemological intentions can be seen as an attempt to discover the scope and limits of certainty. In addition, he is trying to systematize a commonly held but unarticulated theory of the justification of empirical belief, the bedrock of which is causal inference.

To see why this is the case, it is necessary to go back to the Introduction to the Treatise and to see what Hume took his task in the Treatise to be. Early in the Introduction he says,

Tis evident that all sciences have a relation, greater or less, to human nature. . . . .  
 Even Mathematics, Natural Philosophy, and Natural Religion are in some measure dependent on the science of MAN; . . . And as the science of man is the only solid foundation for the other sciences so the only solid foundation we can give to this science itself must be laid on experience and observation. (T. xv, xvi)

The tone of this passage is, in one significant respect, Cartesian. Hume supposes that all the sciences have a foundation and that a satisfactory account of that foundation will set aright the other sciences. However, just as Descartes did not try to doubt everything, at the beginning of the Meditations, Hume did not take experience and observations as the only solid foundations for the science of man.

Another thing that was (provisionally) taken for granted was the legitimacy of scientific inference.

Whatever philosophical aims Hume had in the Treatise, it is clear that he constructed an elaborate psychological theory of the operations of the human mind. His philosophical aims led him to examine the epistemological foundations of scientific reasoning; however, it is not surprising to find Hume taking for granted for some time the legitimacy of the canons of empirical science. For an early example of this, witness his discussion of the causal connection between impressions and ideas in Part (i). His early distinction between knowledge and probability is based on epistemological considerations dictated by his categorization of the seven philosophical relations; the motivating concern is to discover the extent to which the mind can achieve (epistemic) certainty. As I have argued previously (pps. 143-145), failure to find certainty with respect to causal inference does not, for us or for Hume, entail the epistemological rejection of that process.

What, then of the argument of Part (iii) Section 6? On rather narrow, technical grounds I have rejected a sceptical interpretation of this argument, but I have not shown how it fits in with the rest of Part (iii). Early in Chapter III I made fun of T.E. Jessop's claim that Hume was merely doing psychology here. While I think it is clear that Hume was not

merely doing psychology here, there is an important psychological aspect of this argument that must be taken into account.

The case of this crucial argument is thoroughly psychological; in fact, some of the important distinctions Hume makes are those of a faculty psychology. After showing that the mind cannot make the transition from an impression (of the cause or effect) to an idea (of the effect or cause) by a "penetration into the essence" of the former, he realizes that the transition is based on past experience. He then says,

The next question is, Whether experience produces the idea by means of the understanding or by means of the imagination; whether we are determin'd by reason to make the transition, or by a certain association and relation of perceptions. (T. 88-89)

His use of the word 'reason' here is more than a little puzzling; if reason is taken in its broadest sense as (indifferently) the faculty which grasps necessary connections (including those involved in valid arguments) or as that which generates "arguments from experience," then the answer to the above question is obvious and trivial--that reason determines the transition is true by definition. If 'reason' is understood in a narrower sense as the faculty which generates and recognizes valid arguments, the argument that

follows the above quoted passage makes much more sense. His discovery that reason does not determine the transition, but that an association or relation of perceptions is responsible, has obvious epistemological significance.<sup>9</sup> However, it also has significance from a psychological point of view. Causal inference is a causally determined transition that is explained without reference to any deliberative mental process. It is instinctual and non-reflective in a way in which other cognitive processes are not. Hume is anxious to show that the most important mental process that is used to generate a system of empirical beliefs is fundamentally different from the mind's more "rational" faculties. The epistemological consequences of this argument insure that causal inference cannot be reconstructed by such "rational" faculties.

Some commentators have claimed that this has vast philosophical significance. By proceeding in this way, Hume calls into question the warrant for or the utility of justifying causal inference. The fact that the mind cannot refrain from making such instinctual transitions provides the legitimating grounds for causal inference, even though,

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<sup>9</sup>A fuller discussion of this can be found in Harpley, op. cit., p. 218.

as the principal argument of Section 6 (allegedly) shows, there is no epistemic warrant for such transitions.

The problem with this interpretation is that there is no evidence for it in Section 6 or, indeed, in any of Part (iii)! All of the evidence for this kind of interpretation is found in Part (iv). In and of itself, this might not prove too damaging. What is problematic is that Hume advances these considerations to deal with difficulties that he found with causal inference in Part (iv)--difficulties that are independent of anything that he says in Part (iii). I shall shortly establish beyond reasonable doubt that this is the case.

First, however, I should like to point out a serious difficulty that arises in connection with a highly sceptical interpretation of Hume's argument of Section 6. If he really intended to establish that no opinion is more (epistemically) probable after the appropriate experience than it is prior to any experience, it is breathtaking that in the second paragraph following his conclusion he makes a number of empirical claims about the causes of the union among ideas. He gives a causal explanation of how the relation of causation operates. Had he believed that he just destroyed the epistemological foundations of causal inference, it is not unreasonable to expect him to have done some "back-filling" to cover himself. Without any epistemic warrant for



him to proceed, one would expect him to provide some sort of justification for his deployment of the rest of the psychological theory; if that did not fit in with the plan of this part of the Treatise, one would expect him at least to have "taken out a loan" with the reader. There is no evidence at all for this sort of thinking on Hume's part here.

In summary, then, there are some significant psychological aspects to Hume's argument in Section 6: The non-reflective, instinctual operation of the process of causal inference is insisted on by Hume; this allows him to explain how peasants, children and animals construct a system of realities by which they can regulate their lives. At this stage of his presentation, the epistemological significance of this is exhausted by the fact that, since causal inference does not operate in and through the "faculty of reason" (narrowly construed), no causal inference can have the highest possible degree of conclusiveness.

C. Option (2): Hume's response to scepticism. Those who adopt a sceptical interpretation of Part (iii) Section 6 and yet want to avoid attributing a contradiction to Hume deny that Hume had any epistemic sympathy with the Wise. However, they maintain, Hume finds a way to vindicate causal inference and can thereby pragmatically approve of the sentiments of the Wise. This has the double advantage of removing the



apparent contradiction and explaining why there appears to be a contradiction. There is, however, some disagreement on just what Hume believes provides the vindication. I shall discuss a number of possible candidates in this connection.

My objection to this procedure, and hence to Option (2), is that all of the considerations that Hume advances to vindicate causal inference are designed to handle problems with causal inference that do not arise until Part (iv)-- problems that are independent of anything in Part (iii). Let me emphasize that I recognize that this does not prove that Hume was not a sceptic in Part (iii). After all, he could have intended the considerations about to be discussed to apply to the problems raised in Part (iii). However, if my argument is correct, there is no evidence that this is the case.

Hume discovers that the mind cannot avoid making causal inferences. Causal inference springs from certain universal and irresistible principles of the human mind. He adopts the 'Ought Implies Can' Principle and concludes that, since the mind cannot refrain from making causal inferences, it ought not to refrain from that practice. Given that there is a distinction between being epistemologically justified in believing something (conclusions of causal inferences) and being pragmatically vindicated in engaging in a practice

(the practice of making causal inferences), Hume can consistently hold that beliefs produced by causal inferences are unjustified, but from a pragmatic point of view, it is permissible to engage in the practice of making such inferences. This explains his sympathy with the Wise.

Undoubtedly, Hume does argue in this fashion in a number of places. The primary evidence for this interpretation can be found in two places: at the end of Part (iv) Section 2 and at the beginning of Part (iv) Section 4. At the end of Part (iv) Section 2 he says,

'Tis impossible upon any system to defend either our understanding or our senses; and we but expose them farther when we endeavor to justify them in that manner. As the sceptical doubt arises naturally from a profound and intense reflection on those subjects, it always encreases, the farther we carry our reflections, whether in opposition or conformity to it. Carelessness and inattention alone can afford us any remedy. For this reason I rely entirely on them. (T. 218)

The "carelessness and inattention" that Hume recommends here concern sceptical doubts and not matters of everyday life, nor perhaps, of science. The mind can question causal inference but not for very long. Nature reasserts Herself and it is hopeless--and thus pointless--to resist.

This passage can be found in the last paragraph of Part (iv) Section 2. Hume is drawing his final conclusions

from the arguments of Sections 1 and 2. The first section is entitled "Of Scepticism with Regard to Reason". In this section he presents some sceptical arguments concerning the operation of the understanding, and in Section 2 he presents some sceptical arguments concerning the operation of the senses. The argument in the former section is designed to show that a reiterated examination of our reasoning faculties results in the successive diminution of the probability of any conclusion, whether the original argument is demonstrative or probable. The details of this argument, as well as its serious difficulties, are of no immediate concern. The important point is that the difficulty that Hume finds with causal reasoning in this section is independent of any epistemological argument of Part (iii). Hume's move towards a vindication of causal inference at the end of Part (iv) Section 2 is designed to meet the problems raised in Section 1. Fortunately, for us and for Hume, nothing else in Part (iv) depends on this argument of Section 1. He never refers to it again.

The other significant evidence for a vindicationist interpretation of Hume can be found at the beginning of Part (iv) Section 4, "Of Modern Philosophy". He says,

In order to justify myself, I must distinguish betwixt the principles which are permanent, irresistable and universal; such as the customary transition from causes to effects and

effects to causes: And the principles, which are changeable, weak, and irregular; . . . The former are the foundations of all our thoughts and actions, so that upon their removal human nature must immediately perish and go to ruin. . . . For this reason the former are received by philosophy. (T. 225)

The inevitability and apparent utility of causal inference recommends it to us; for parallel reasons, the changeable, weak, and irregular principles that afflict the ancient philosophers (whom he has just discussed) are not praiseworthy.

Again, however, the problems that force Hume to draw this distinction are peculiar to Part (iv). The problem is this: In Section 3 Hume has criticized the ancient philosophers' doctrines of substances, substantial forms, faculties, and occult qualities. In addition, he has offered a psychological explanation of what led them into these errors. The problem is that the explanatory principle involved in this account is roughly the same as those used to explain causal inference (cf. Treatise, p. 222). Causal inference appears to be guilty by association, and for this reason Hume draws the distinction indicated in the passage quoted above. Nowhere is there any mention of the failure of "reason" to determine the transition involved in causal inference.

It is true that Hume appears to take the universality and irresistibility of causal inference as a legitimating

consideration. If he was in fact arguing for a sceptical position in Part (iii) Section 6, this would give him a way out. However, this passage admits of another, incompatible interpretation. He might well have assumed all along<sup>10</sup> that causal inference was epistemically warranted; only at this point is he making explicit what he takes to be the epistemic grounds for this process.

Admittedly, the evidence here is equivocal and not overwhelming for my reading of this passage. On the other hand, it is not conclusive as an attempted vindication, predicated on an earlier epistemic rejection, either. The main problem here, as well as elsewhere in Parts (iii) and (iv), is that nowhere does Hume seem haunted by the sceptical doubts allegedly raised in Part (iii). As anyone who has read the last Section of Book I can attest, Hume was quite capable of being haunted--indeed, tormented--by sceptical doubts.

Another candidate for a legitimating consideration that vindicates causal inference can be found in the last section of Part (iv). The sceptical doubts that have nagged Hume throughout Part (iv) heat up in this final section. As I shall show shortly, the proposed justification or vindication offered at the beginning of Section 4 is rejected. At

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<sup>10</sup> Except for the argument of Part (iv) Section 1, which he seems to have subsequently ignored.

the end of this final section Hume is faced with a serious problem: He wants to continue to develop his psychological theory to account for the passions and morals. Important foundational difficulties, however, appear unresolved. He wants to find some sort of warrant--or at least an excuse--for moving on to Books II and III. Towards the very end of this section he makes the following observation:

Since, therefore, 'tis almost impossible for the mind of man to rest, like those of beasts, in that narrow circle of objects which are the subject of daily conversation and action, we ought only to deliberate concerning the choice of our guide, and ought to prefer that which is safest and most agreeable And in this respect I make bold to recommend [natural] philosophy and shall not scruple to give it the preference to superstition of every kind or denomination.  
(T. 271)

Inclination and sentiment, in the final analysis, are what allow Hume to move on.

The reason that Hume was pushed into this rather feeble justification or vindication lies in Part (iv) Section 7 (approximately five pages before this passage). He draws some obvious conclusions from some arguments advanced earlier in Part (iv), and it is these conclusions that raise the difficulty which the above quoted passage is supposed to handle.



The problem is that Hume has continued to trace the causes of some of the more important processes of the mind (i.e. causal reasoning and the belief in the confined and distinct existence of matter). He finds that they both spring from the imagination. This is problematic because

. . . tho' these two operations be equally natural and necessary in the human mind, yet in some circumstances they are directly contrary, nor is it possible for us to reason justly and regularly from causes and effects, and at the same time believe the continued existence of matter. (T. 266)

A footnote in this passage refers back to Part (iv) Section 4 where Hume advances Berkelian arguments to show that both primary and secondary qualities are mind-dependent. Thus, the conflict of what Norman Kemp Smith calls the "Natural Beliefs" is Hume's final argument for scepticism. Arising from the same faculty, these natural and unavoidable beliefs ultimately conflict. Because of this conflict, the imagination is not entitled to be the final arbiter on matters of truth and falsehood. Here again, however, there is no reference to any arguments of Part (iii). This is a new and independent development that has arisen in Part (iv).

It is clear that Hume believed that this conflict seriously undermines the legitimacy of causal inference. In

a striking passage which occurs shortly after he discovers this difficulty, he briefly falls into the scepticism that Stove and others attributed to him in Part (iii) Section 6. The following statement is so clear and unequivocal, it is a wonder that Hume does not use similar language if he was in fact arguing for a radical form of scepticism there.

The intense view of these manifold contradictions and imperfections in human reason has so wrought upon me, and heated my brain, that I am ready to reject all belief and reasoning, and can look upon no opinion even as more probable or likely than another. Where am I or what? From what causes do I derive my existence? Whose favor shall I court and whose anger must I dread? (T. 268-269)  
(second emphasis added)

It is this deep scepticism, brought on by what Hume takes to be the conflict of the Natural Beliefs, that he tries to escape by following the course which is "safest and most agreeable."

In conclusion, it is clear that every move that Hume makes to avoid scepticism about causal inference is motivated by problems that he finds in Part (iv). No specters of the argument of Part (iii) Section 6 follow Hume into the depths of scepticism that he reaches at the close of Book I. This, coupled with Hume's explicit epistemological distinctions between proofs and probabilities, strongly supports the view that, through the end of Part (iii), Hume believed

that causal inferences lead to epistemically warranted belief. If justification is understood as 'having a sufficiently high measure of epistemic warrant', it is clear from the arguments that I have advanced in Chapters I, III, and this chapter that Hume held that, among those beliefs that are caused by other beliefs, such beliefs are justified if and only if they are caused by causal inference.

Thusfar in this chapter my concerns have been primarily interpretive. However, there are large philosophical issues at stake here. Hume has undoubtedly made a large contribution to epistemological debates about the mind's knowledge of what is unobserved. There are a number of relevant questions in this regard: What challenges does Hume raise, either explicitly or implicitly, about the mind's claims to knowledge about the future? Does he offer a satisfactory resolution of these challenges? In particular, how does all this relate to the so-called Problem of Induction?

Thusfar I have said little about this problem. There are three relevant questions in this connection:

- (i) What is the Problem of Induction?
- (ii) How does or can Hume respond to this problem?
- (iii) How satisfactory is this response?

In the next chapter I shall discuss these and other matters.

## CHAPTER V

What is the Problem of Induction? As a first approximation, we can say that the Problem of Induction is a sceptical challenge about the mind's claims to knowledge about the future (or, more generally, about the unobserved). In the context of Hume's philosophy, this challenge can be seen as a question: "From an epistemological point of view, why approve of causal inference?"

Before discussing answers to this question, it would be helpful to understand what kinds of considerations motivate it. There are in fact a variety of reasons why this challenge can arise. From Hume's point of view at the end of Part (iv) of Book I, the answer is clear: causal (and hence inductive) inference cannot be trusted because it conflicts with the basic and unshakeable (natural) belief in the continued and distinct existence of bodies. Because of this conflict, Hume is prepared (at least temporarily) to question the ability of causal inference to deliver even merely probable opinion. (cf. quotation p. 194).

Nonetheless, this is not the motivation that has been historically important for generating the Problem of Induction. The relevant arguments of Part (iv) are parochial and peculiar to Hume's philosophy. Besides, these arguments may not be as

strong as Hume thinks they are.

What is commonly cited as the source of the Problem of Induction is the argument of Part (iii) Section 6. Now, I have argued in great detail that Hume did not conclude in that argument that past experience provides no epistemic warrant for beliefs about the future. All that he was trying to establish there is that this warrant cannot be the highest possible. The incurable invalidity of such inferences guarantees that.

Pre-analytically, this creates no problems. Not only is the mind convinced by invalid "arguments from experience", ever so little reflection convinces it of the rationality of such arguments. Deeper philosophical reflection, however, appears to reveal that there is a significant epistemological gap between valid and invalid arguments. Because of the intimate relationship between certainty and validity, valid arguments are epistemologically less problematical than invalid ones. The warrant for the conclusions of valid arguments is the certainty (relative to the premises) that the validity of the argument bestows--at least in cases where a person knows that the argument is valid. Since the conclusion of no invalid argument can be certain relative to its premises<sup>1</sup>,

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<sup>1</sup>I ignore here arguments whose premises and conclusions are all "psychological reports".

is there, nonetheless a significant epistemological relation between the premises and conclusion? Put another way, what is the epistemic warrant for the conclusions of the incurably invalid arguments from experience that Hume calls "causal inference"?

Though Hume did not see it as such in Part (iii), this is the Problem of Induction. It is a question, a sceptical challenge to show that the conclusions of such inferences have some measure of epistemic warrant. It is not the substantive philosophical position that there is no such warrant. As a positive position, scepticism has little to recommend it; to the extent that it depends on a Stovean interpretation of Hume's argument of Part (iii) Section 6, it requires the dubious Premise (10b) (and Principle P), or something similar.

The legacy of Hume's argument in that section is an implicit challenge to produce a philosophical theory that epistemically legitimates causal or inductive inference. Failure here can result in a triumph for scepticism only if scepticism is construed as a suspension of belief (and not disbelief) about the legitimacy of such inferences. It is important in this connection to distinguish between belief in the conclusions of an inductive inference and belief in the legitimacy of those conclusions. A sceptical attitude about the latter may not require a sceptical attitude about the former. Indeed, Hume argues that the mind cannot refrain



from believing the conclusions of causal inferences. Whatever the truth of that claim, it does not preclude a sceptical attitude about the legitimacy of such inferences.

How can this challenge be met? It is beyond the scope of this dissertation to discuss all of the solutions, resolutions, and dissolutions of the Problem of Induction; instead, I shall focus on those responses that can be legitimately called "Humean." In various places in Book I of the Treatise Hume hints at or clearly states a number of positions that can be viewed as responses to the sceptic's challenge. Some commentators with philosophical axes to grind have claimed to find implicit in Hume's work a way to meet this challenge. A critical evaluation of these proposals seems in order here. Aside from its intrinsic philosophical interest, such a discussion is of some value for those interested in the "rational reconstruction" of the philosophy of a major historical figure. The aim of rational reconstruction is to render a philosopher's views consistent and coherent. This in turn allows for a more exact appreciation of that figure's contribution to outstanding philosophical debates.

#### Humean Responses to the Problem of Induction

Let me emphasize at the outset that this discussion is not strictly historical and interpretive. The Problem of

Induction is only implicit in Hume's argument of Part (iii) Section 6. There, and in the rest of Part (iii), he merely assumes that invalid arguments from experience can provide some measure of epistemic warrant. The responses that he offers in Part (iv) are designed to meet scepticism as a substantive position, the arguments for which occur in Part (iv). My statement and evaluation of Humean responses to the implicit challenge of Part (iii) Section 6 do not represent a recanting of the interpretation offered in Chapters III and IV. The discussion here is undertaken for philosophical, and not strictly historical or interpretive, reasons.

Faced with the sceptic's challenge about induction, there are two kinds of responses that can be made:

- (i) It can be met head on by constructing and justifying a philosophical theory that shows the epistemological legitimacy of inductive inference.

or

- (ii) It can be met indirectly by showing that inductive inference can be approved of on other, non-epistemic grounds. In this way legitimate philosophical aims that motivate this challenge can be met, even though the question of the epistemic legitimacy of such inferences remains unanswered.

The second kind of move is not the one adopted by those who claim to "dissolve" the Problem of Induction. In its crudest form, the dissolution of the problem is effected by asserting that it is part of the meaning of the relevant epistemic terms

that certain kinds of non-deductive inference provides a measure of epistemic warrant.<sup>2</sup> It asserts that some kinds of non-deductive inference were epistemically legitimate.

The second option outlined above adopts a quite different strategy: It avoids the question of the epistemic legitimacy of certain kinds of non-deductive inference (whose conclusions are empirical claims) by showing that such inferences can be approved of on other, non-epistemic (e.g. pragmatic) grounds. The concept of "vindication" employed by those who adopt this second option is analogous to the concept of justification in the following sense: To say that a kind of inference is justified is to say that it is worthy of epistemic approval. On this construal, to say that a kind of inference is vindicated is to say that it is worthy of some other kind of approval. If it can be shown that certain kinds of non-deductive inference can be approved of on non-epistemic grounds, then legitimate philosophical aims that motivate a "head-on" approach would be met.

What are these aims? It is reasonably clear that certain kinds of non-deductive inference form the backbone of the empirical sciences. It is a legitimate philosophical

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<sup>2</sup>See Chapter 2 of Bryan Skyrms' Choice and Chance (Belmont, Ca, 1966) for a good discussion of this point.

task to give a satisfactory account of the foundations of empirical science. Also, among characteristically inductive arguments, some appear to be "better off" than others, and some merit no approval at all. A good theory should account for this. Finally, perhaps the most important aim is this: Pre-analytically, most philosophers (and certainly Hume) believe that science and the scientific method alone merit an approval that, e.g. enthusiasm and superstition do not. An adequate philosophical theory will show that this broadly based sentiment is well-grounded. Failure to meet these aims need not result in the triumph of scepticism as a substantive position. It would, however, leave the legitimacy of these pre-systematic beliefs--to say nothing of inductive inference itself--in serious doubt. And surely that would be a serious failure of philosophy.

The second option outlined above seeks to satisfy these aims but on non-epistemic grounds. If this sort of move is successful, the epistemological questions remain unanswered; however, this is not too serious or troublesome because the philosophical aims that motivate the questions are met. It is in this sense that the sceptic's (epistemic) challenge can be successfully avoided. It is important to note that someone who adopts this position need not eschew all epistemic aims. His only concern is to avoid (epistemically) justifying empirical claims by means of non-deductive

inferences.<sup>3</sup> There is nothing to prevent him from (epistemically) justifying non-empirical claims by means of deductively valid arguments.

The actual motivations for adopting this second option can be quite varied: A theorist might think that a substantive sceptical position is correct and that all beliefs arrived at via non-deductive inference are epistemically worthless; he may think that all positive attempts to meet the challenge head on have failed; for this latter reason especially, he may think that this sort of move is desirable because he can avoid a rather thorny challenge and still satisfy legitimate and important philosophical desiderata.

In the remainder of this chapter I should like to discuss seven responses to the sceptic's challenge that are "Humean" in character; they are either clearly stated by him or inspired by things that he says in Book I of the Treatise. Since Hume adopts a number of positions at different places, it is not surprising to find such a variety of responses suggested in the Treatise. These responses are naturally subsumable under the two broad options outlined above. I shall first discuss three attempts to avoid the sceptic's

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<sup>3</sup>That there are no acceptable deductive inferences whose conclusion is an empirical claim is shown by Hume's argument of Part (iii) Section 6 (see Chapter III).



challenge. The first two have been discussed in the secondary literature, and they were briefly outlined in Chapter IV as interpretations of Hume. The third position is apparently the final one adopted by Hume in Book I (see quotation p.192). In light of its obvious weakness, a brief discussion of it is warranted only because this is Hume's final position and this dissertation concerns Hume's epistemology. These positions may aptly be termed "pragmatic vindications"--as opposed to validations-- of inductive inference.

It is important to distinguish this kind of vindication from that advocated by such writers as Reichenbach and Salmon. They attempt to show that inductive inference is epistemically legitimate by showing that if any method of inference is successful, the one that is in fact employed (i.e. the "straight rule", which tells us to project observed frequencies to the unobserved) is and will be successful. The kind of vindicationism under consideration is silent on the question of the epistemic legitimacy of these inferences.

A Pragmatic Vindication of Induction:  
Legitimizing Consideration I

This view is proposed and argued for as an interpretation of Hume by F.C. Baylic in his monograph, The Causes and Evidence of Beliefs: An Examination of Hume's Method. Baylic's view is that Hume originally attempted to distinguish the



worthy from the unworthy beliefs on the basis of their causal antecedents. Although he does not consider causal inference as a candidate, he does consider and (rightly) reject a number of other candidates (e.g. whether a belief was caused by an impression of sensation or one of reflection). Finally, towards the end of his monograph he offers what he takes to be Hume's ultimate position:

The change in Hume's emphasis is from the causes of a belief to the consequences of a belief. Hume appears to point towards a functional test for the validity of a belief and away from a test in terms of its origins. Hume's procedure indicates that his ultimate distinction between beliefs is in terms of their necessity for rational science and living, . . . The beliefs which are justified are those which are necessary, necessary for the purpose of drawing inferences from our experience and for the purpose of a biological existence. Hume seems to be suggesting a biological justification for some of our beliefs.<sup>4</sup>

I take it that what Baylie means by a "biological justification" is what I have called a pragmatic vindication. In the case of causal inference, he is saying that such inferences are necessary for the purposes of living

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<sup>4</sup>Frank C. Baylie, The Causes and Evidence of Belief: An Examination of Hume's Method (Mount Hermon, 1936), p. 79.

and doing science, and this vindicates the practice of making them. Baylie does not clearly distinguish the concept of an epistemological justification from that of a pragmatic vindication. Consequently, it would be worthwhile to consider what he offers here as a sufficient condition for the (epistemic) justification of a belief as well. Later in this chapter I shall do this.

By realizing that causal inference is necessary for the purposes of living and doing science, the problem of epistemically justifying such beliefs can be effectively bypassed. What evolves is something like a doctrine of "as if". If one acts as if (e.g.) it is virtually certain that winter will come next year, then, by acting accordingly, it can be survived. The necessity of such inferences for the purposes of living vindicates our organic and instinctual confidence in conclusions reached by these inferences. Thus there are non-epistemic reasons for approving of causal inferences and disapproving of empirical beliefs arrived at through other means (e.g. superstition).

Let us consider the argument here a little more closely. It is not clear whether or not Baylie believes that these purposes are singly sufficient or singly necessary but jointly sufficient. I shall first consider them separately. The following seems to be a fair representation of one construal of Baylie's reasoning:

- (1) If causal inference is necessary for the purposes of living, then it is vindicated.
- (2) Causal inference is necessary for the purposes of living.
- ∴ (3) Causal inference is vindicated.

It is unproblematic to grant Baylie Premise (1). In this context, our desire to go on living needs no justification or vindication. Consequently, it seems true to say that if a process is necessary for that purpose, it is worthy of approval.

In order to evaluate Premise (2), however, it is necessary to get clear about the meaning of this claim. Certainly not every belief arrived at via causal inference is necessary for the purposes of living. It must be the general practice of making such inferences or the tendency to make such inferences that is necessary for living. Individual causal judgments are vindicated because they are instances of that general practice or manifestations of that general tendency. Thus, it is the "institution" of causal inference which is necessary for the purposes of living.

It is probably correct to say that causal inferences are necessary for the purposes of living. If one did not make such inferences, one might walk off the edge of cliffs, be suspicious of the ability of bread to nourish the body, etc. In short, were one to stop making causal inferences, one would shortly perish. Hume is fond of pointing out just

how much we depend on causal inference.

Problems arise when the defender of this position tries to show that this claim is true. It is a high-level empirical assertion about the effects of making or not making causal inferences. Its truth is by no means self-evident. The defender of this view would have to offer an argument for this premise that merits epistemic approval. Put more simply, he would have to justify an empirical claim by a non-deductive argument to show that the argument on page 207 is sound. This task, however, is just what he has sought to avoid. Thus, it appears that this vindication fails in its attempt to avoid the justification of empirical belief.

Baylie might respond by saying that the empirical argument for Premise (2) is designed to and results in a vindication of that premise. Its vindication legitimates the premise and thus recommends it to us. The problem with this response is that it begs the question at issue. That is, it assumes the truth of the conclusion in order to establish one of the premises.

With respect to the other condition, a similar argument emerges.

- (1) If causal inference is necessary for the purposes of doing science, then it is vindicated.
- (2) Causal inference is necessary for the purposes of doing science.

..(3) Causal inference is vindicated.

It may be that Premise (2) is not an empirical claim and can be established in some non-circular way by an a priori argument. Premise (1), however, is problematic. It says that satisfying a certain aim or purpose legitimates causal inference. This seems to require that the purpose (engaging in the practice of doing science) is itself a legitimate one. The legitimacy of that purpose may be self-evident, or it may be established by showing that the fulfilling of that purpose serves some other purpose(s). These ends may be "ultimate", and, as Mill has argued in Utilitarianism, incapable of justification, or their legitimacy may be self-evident.

The legitimacy of doing science is not self-evident. Whether or not we should do science is an "open question" in that it is possible to understand the question without knowing the answer. Engaging in the practice of doing science is not "ultimate" because reasons can be given for doing it. What are these reasons or purposes? Commonly cited purposes for doing science are explanation, prediction, and the practical (e.g. technological) benefits that are derived from engaging in the practice. Let us grant, for the sake of argument, that the legitimacy of these purposes is self-evident or that these ends are ultimate. The following ar-

gument then emerges for Premise (1):

- (1a) If science yields explanations, predictions, and practical benefits, then it is vindicated.
- (1b) If science is vindicated, then if any practice is necessary for the purposes of doing science, then it is vindicated.
- (1c) Science yields explanations, predictions and practical benefits.

Premises (1a), (1b), and (1c), together with Premise (2), imply Premise (1). The argument seems to be a good one, but a close examination of Premise (1c) reveals a fatal flaw. Tacit in Premises (1a) and (1c) is the qualification that the explanations and predictions are reasonable to believe. Otherwise, there is no way to distinguish science from superstition; the latter can also offer explanations and prediction. However, since this theorist has sought to avoid recommending the conclusions of scientific reasoning (i.e. explanations and predictions) on epistemic grounds, it is difficult to see how he could appeal to explanation or prediction unless that appeal is parasitic on the practical benefits of doing science. Beliefs about those facts, if indeed they are facts, require some (epistemic) justification in order that Premise (1c) can be established. It will not do to say that (1c) can be vindicated--that begs the question at issue. This vindication of causal inference fails to avoid the epistemic justification of empirical belief and can,



therefore, be rejected.

A Pragmatic Vindication of Induction:  
Legitimizing Consideration II

This account can be found in a number of commentaries on Hume. I suspect that this is the final view of Norman Kemp Smith in The Philosophy of David Hume, though this is not completely clear. The clearest statement of it can be found in John Lenz' article, "Hume's Defence of Causal Inference".<sup>5</sup> Lenz claims that Hume discovers that the mind cannot help making causal inferences; such inferences spring from universal and irresistible principles of human nature. Since the mind cannot refrain from engaging in the practice of making causal inferences, it is not the case that it ought to so refrain. This vindicates the practice of making causal inferences. Lenz puts the matter this way:

This defense is based on a crucial characteristic of causal beliefs. All men, because of their common human nature, are compelled to have them. Hume holds, that is, that it is impossible for men not to make causal inferences. . . His

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<sup>5</sup>John Lenz, "Hume's Defence of Causal Inference" in Hume: A Collection of Critical Essays, ed. by Vere C. Chappell (1966, Notre Dame, Indiana), pps. 169-186.

essential point is that the epistemic question, "Ought we to make causal inferences?" is "blocked" by the unavoidability of our having to make them. Apparently presupposing the principle (which he explicitly adopts in his moral philosophy) that ought not implies able not to, he simply argues that inasmuch as we cannot help but make causal inferences, there is no point in anyone's saying that we ought not to.<sup>6</sup>

The principle that Lenz attributes to Hume is somewhat ambiguous. It seems to be a form of the "Ought Implies Can" formula. If so, this principle can be less misleadingly expressed as follows:

- (1) If the mind ought to refrain from engaging in practice P, then it is able to refrain from engaging in practice P.

Instantiating in the appropriate way, the following argument emerges:

- (1a) If the mind ought to refrain from making causal inferences, then it is able to refrain from making such inferences.
- (2) The mind cannot refrain from making causal inferences.
- ∴ (3) It is not the case that the mind ought to refrain from making causal inferences (i.e. it is permissible to make causal inferences).

In order to evaluate this argument, it is important to

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<sup>6</sup>Ibid., pps. 183,184.

get clear about the sense of the two key terms: 'ought' and 'permissible'. It is doubtful that Lenz intends that these are terms of epistemic appraisal. The whole motivation for this argument is to avoid (in his words, "to block") the question of the epistemic warrant of these inferences. Besides, it seems that, on this construal, Principle (1) may indeed be false. It certainly seems possible that the mind could be compelled to believe propositions which are unjustified (perhaps by the machinations of a Cartesian demon or even the blind forces of Nature).

Rather, the parenthetical remark in the above quotation suggests that the intended sense of these terms is a moral one. Thus the conclusion asserts that it is morally permissible to make causal inferences. If the bulk of Hume's psychological theory is granted, it seems to me, anyway, that this claim is indeed true.

Nevertheless, this conclusion does not, by itself, satisfy the aim of this approach. It needs to be shown that the moral permissibility of making such inferences vindicates the mind's making them. This suggests the following argument:

- (4) If it is morally permissible to make causal inferences, then the practice of making causal inferences is vindicated.
- ∴ (5) The practice of making causal inferences is vindicated.

Statement (5) is implied by (4) and (3), and the argument is valid. Let us consider Premise (4) first. It is by no means self-evidently true. In order to evaluate it, however, one must recall what a vindication is and how this concept can be used here. As noted previously (cf. p.200), in connection with the philosophical aims of this kind of project, a vindication of causal inference will have to provide some grounds for approving of the practice. That is, causal inference will have to be shown to be worthy of approval.

Now, on the face of it, it seems very unlikely that the fact that causal inference is morally permissible makes it worthy of approval. Certainly it does not make it worthy of moral approval (i.e. morally praiseworthy). It is highly doubtful that its moral permissibility makes it worthy of aesthetic approval. It also does not seem that the moral permissibility is a sufficient condition for pragmatic approval. There are many things that are morally permissible yet quite unwise from a practical point of view. There may be other kinds of approval, but it does not seem that the moral permissibility of causal inference is a sufficient condition for any kind of approval. Premise (4), therefore, is probably false.

It may happen that there are many non-epistemic grounds for approving of causal inference. For example, causal

inference does serve some worthy prudential or pragmatic aims. However, that this is the case is a contingent fact that needs to be justified. A vindication of that claim begs the very question at issue.

This leads to a parallel problem with Premise (2). This premise states that the mind cannot refrain from making causal inferences. This is a high-level statement of psychological theory. Any argument for it must be designed to justify this empirical proposition. Of course, this is just what the vindicationist wants to avoid. As was the case with Premise (2) of Baylie's argument, an attempt to vindicate this premise would beg the question.

Lenz' position, therefore, is ultimately untenable. Although I cannot demonstrate it, it seems to me that any attempt to avoid the question of the epistemic justification causal inference will fail because it will require an empirical claim that needs to be justified at some point in the argument. Thus, prospects for a non-epistemic vindication of causal inference appear bleak. Maybe the key premise could be a synthetic proposition, knowable a priori. I am sceptical of this, but it is reasonably clear that there is no suggestion of that sort of move anywhere in Hume.

This proposal is the one that Hume finally adopts at the end of Section 7 (the last section) of Part (iv). After discovering that the two Natural Beliefs (the belief in the continued and distinct existence of bodies and the belief in causal reasoning) ultimately conflict, Hume is moved to make the following observation:

Since, therefore, 'tis almost impossible for the mind of man to rest, like those of beasts, in that narrow circle of objects, which are the subject of daily conversation and action, we ought only to deliberate concerning the choice of our guide, and ought to prefer that which is safest and most agreeable. And in this respect I make bold to recommend [natural] philosophy and shall not scruple to give it the preference to superstition of every kind or denomination. (T. 271)

Shorn of all its trappings, Hume's claim is that the method of natural philosophy (causal inference) is worthy of approval because it is safest and most agreeable. That it is safest and most agreeable is an empirical claim that needs an epistemic justification. Thus, this view suffers the same defect that plagued Baylie's and Lenz' criterion. In addition, what is most agreeable to Hume may not be what is most agreeable to an enthusiast.

The weakness of this view is quite obvious; it is more an expression of despair than a serious proposal. A brief discussion of it is warranted, however, because it does appear



to be Hume's final position.

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This completes my discussion of Humean attempts to avoid the sceptic's challenge to show that beliefs arrived at via causal (inductive) inference have some measure of epistemic warrant. I have not been able to discover any other proposals in the secondary literature that are designed to avoid the sceptic's challenge. Some theorists, however, have claimed to find some suggestion in the Treatise of a way to meet this challenge head on. I have been able to isolate four proposals in this connection. In the remainder of this chapter, I should like to discuss these proposals.

1. Since Professor Baylic does not sharply distinguish the concept of a pragmatic vindication from that of an epistemic justification, it would be useful to consider his criterion as a sufficient condition for the justification of an empirical belief.
2. Lenz suggests that his criterion was first employed by Hume as a sufficient condition for the epistemic justification of a belief; Hume's realization that causal inference ultimately conflicts with the belief in the continued and distinct existence of bodies forced him to the vindicationist position that Lenz attributes to him. Putting to one side the alleged conflict of the

Natural Beliefs, Lenz' criterion deserves careful consideration as a sufficient condition for the justification of empirical belief.

3. In a brief but penetrating discussion of Hume and the Problem of Induction in Fact, Fiction, and Forecast Nelson Goodman argues that this problem has been largely misconceived and that Hume's description of the process of inductive inference is highly relevant to the justification of that process. By drawing attention to how deductive inferences are justified, Goodman claims that there is no special problem with respect to induction. It is not clear to what extent Goodman thinks that this accurately characterizes Hume's intentions, but there can be little doubt that some suggestion of this view can be found in the Treatise.
4. Finally, I outline what I take to be the correct view of the matter. My evaluation of Goodman's proposal will show that he is mistaken about the justification of deductive inference. However, the correct account of the justification of deductive inference will suggest the way that inductive inference is to be justified. I shall argue that both ultimately depend on intuition. That some inductive arguments can be intuited to be "better than" others (in a yet to be specified sense) is suggested by Hume's distinction, made without argument,

between proofs and probabilities.

An Epistemic Justification of Induction:  
Legitimizing Consideration I

Baylie claims that Hume's discovery of the necessity of causal inference for the purposes of living and doing science legitimates beliefs arrived at in that manner. Let us construe this legitimacy as epistemic justification. Thus one might construe Baylie as asserting that a belief's being necessary for the purposes of living is a sufficient condition for its being justified. Some obvious counter-examples show that this cannot be true and that perhaps Baylie's criterion ought to be more charitably construed.

Comrade Ivan Ivanov has been sentenced to the most wretched labor camp in Stalinist Russia for an indefinite period of time. In order for him to survive, he must be firmly convinced that he will eventually be released. He may not even be aware that his survival depends on this belief. However, he has no evidence to support this belief. In fact, he has evidence to the contrary: He was branded a Trotskyite; he was sentenced "without right of correspondence" (a common and widely known device used when the Soviets wanted to shoot the prisoner eventually). Only by a curious but not uncommon practice of self-deception can Comrade Ivanov stay alive. In short, he may have an un-

system of belief that is necessary for the purposes of living is justified. Nonetheless, it would be easy to defeat this proposal by reconstruing Comrade Kirov's system of belief in such a way that causal inference is restricted to apply to just those areas that do not impinge on the economic dogma. Attempts to further amend the criterion (e.g. by requiring that the system of beliefs be the simplest among competing systems) are problematic because the rationale for such conditions will either beg the question (by assuming that systems that meet these conditions are the most reasonable) or be as difficult to produce as an independent argument for the conclusion that causal inference alone merits epistemic approval.

What of the other part of Baylie's criterion? On this view, the epistemic legitimacy of causal inference is guaranteed by its necessity for doing science. Does that justify causal inference? Part of the difficulty involved in evaluating this criterion is that it is not at all clear what it means. If it just means that were one not to hold the belief or kind of belief in question one would not be able to engage in the practice of doing science, it would be easy to find counterexamples. In a given Marxist-Leninist society, one might have to believe some absurd

political or even scientific doctrine<sup>7</sup> in order to practice science. Such counterexamples, however, seem like "cheap shots". Besides, they require that the relevant sense of necessity is causal necessity. Any contingent relation between causal inference and doing science will be subject to this kind of difficulty. What if the relation between causal beliefs and science was a logical one? If the connection is of this sort, however, it is a little misleading to speak of causal inference standing in a means/end relation to science. The argument then seems to be that, since beliefs arrived at via causal inference are "scientific" (i.e. since science consists of such beliefs), they are justified. This argument can be expressed more formally as follows:

- (1) If causal beliefs are scientific (in the aforementioned sense), then they are justified.
- (2) Causal beliefs are scientific.
- ∴ (3) Causal beliefs are justified.

Problems with this argument arise when the defender of this view is pressed to provide an argument for Premise (1).

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<sup>7</sup>Something like this actually happened in the USSR in the 30's. For some time, Trofim Lysenko's absurd theory of genetics was de rigueur for Soviet scientists.

The question raised by Premise (1) is an old (and recalcitrant) one: "Why is science epistemically preferable to any competing system?" The obvious answer--that scientific beliefs are reasonable--begs the question at issue. It seems that a non-question begging argument for Premise (1) (or even, for that matter, Premise (2)) would be at least as difficult as an independent argument for (3). Anyway, it is reasonably clear that there is no suggestion of any independent argument for Premise (1) in Hume; Baylie certainly offers none, and I am aware of no other commentator who has tried this tack. However, the principal problem with this argument is that it does not offer any insight into the reason why causal inference is worthy of epistemic approval.

This also indicates the futility of construing Baylie's entire proposal as a pair of singly necessary but jointly sufficient conditions for the justification of empirical beliefs. Since the epistemological significance of the scientific method is as unclear as the epistemological significance of causal inference, a proposal such as this does not really advance our understanding of the relevant issues.

An Epistemic Justification of Induction:  
Legitimizing Consideration II

Another proposal that has obvious roots in Hume is



considered by John Lenz (op. cit.). Lenz' interpretive argument is that Hume discovered that causal inference springs from universal and irresistible principles of human nature. Originally, Hume believed that this justified causal inference, but he later realized that beliefs arrived at via causal inference conflict with the belief in the continued and distinct existence of bodies. This leads him to give up this criterion as a justification of causal inference; according to Lenz, he does hang on to it as a sufficient condition for the vindication of causal beliefs. Qua vindication, this condition has already been discussed. However, by putting aside the alleged conflict of the Natural Beliefs and its epistemological significance (if any), it is possible to discuss this criterion as a sufficient condition for the justification of beliefs arrived at via causal inference. Roughly, the argument states that, since this form of inference is so fundamental and basic to human nature, beliefs arrived at by this means merit epistemic approval. More formally, this argument can be expressed as follows:

- (1) If causal inference springs from universal and irresistible principles of human nature, then causal beliefs are justified.
- (2) Causal inference springs from universal and irresistible principles of human nature.
- ∴ (3) Causal beliefs are justified.

At first glance, this argument appears to be open to an objection that parallels objections raised against the first two Vindicationist arguments: Premise (2) is a high-level theoretical assertion of empirical psychology. As such, it needs an empirical argument, the efficacy of which presupposes the truth of (3); hence the argument is question-begging.

A defender of this view, however, may want to argue that (2) is not an empirical claim; rather, it is a necessary truth, knowable a priori. Perhaps there is a Kantian argument for Premise (2). From a Humean point of view, however, the above argument clearly begs the question. Hume's argument for (2) is a complex empirical argument. He appeals to the association of ideas, the effects of repeated concomitant variation, and the effects of resemblance in constructing this argument. Thus, to the extent that this argument is "found in" or "inspired by" Hume, it begs the question. Nonetheless, for the moment, let us assume that there is a Kantian argument for Premise (2). What about Premise (1)?

Premise (1) seems suspicious. There is no obvious relation between the epistemic warrant of causal inference and the fact that it arises from universal and irresistible principles of human nature. Following Lenz, one might argue that, since the mind cannot refrain from making such in-

ferences, it is not the case that it ought to so refrain. Even if one interprets the 'ought' and 'can' here as epistemic terms (and the sanction for that is by no means clear), one can only conclude that such inferences are epistemically permissible. What is needed, however, are grounds to show that causal inference is worthy of epistemic approval. Pushing the analogy a little further, it seems that a belief may be epistemically permissible (not unjustified) without being epistemically praiseworthy (justified).

On an intuitive, pre-analytic level, this objection makes a good deal of sense. Someone such as Hume might argue that belief in the existence of God is just this kind of belief--not justified but unavoidable. Even if this particular example is not correct, there is nothing self-contradictory about the notion of a belief that is unavoidable but not justified.

None of the criteria discussed thusfar has been intended to be a "legitimizing consideration" for deductive inference. Perhaps a closer examination of the epistemic legitimacy of deductive inference will shed some light on the problem of the epistemic legitimacy of inductive inference. The last two proposals to be discussed take just this tack.

An Epistemic Justification of Induction  
Legitimizing Consideration III

In Chapter 3 of Fact, Fiction and Forecast Nelson Goodman argues that the old Problem of Induction can be dissolved and that this problem was something of a pseudo-problem all along. He credits Hume with the basic insight in this connection; Goodman's position is an elaboration of this basic insight that he claims is implicit in Hume's discussion of these issues.

Goodman points out that when Hume is faced with the problem of the justification of inductive inference, the latter proceeds to describe how the mind makes such inferences. Others criticize this by pointing out that a psychological description of the process is irrelevant to the justification of that process. Goodman believes that this is seriously mistaken; the description of the process is relevant to the question of the justification of that process. To illustrate this, Goodman asks us to consider how deductive inferences are (to be) justified.

How do we justify a deduction?  
 Plainly, by showing that it  
 conforms to the general rules  
 of deductive inference . . . .  
 Moreover, when a deductive  
 argument has been shown to  
 conform to the rules of  
 logical inference, we usually  
 consider it justified without

going on to ask what justifies the rules.<sup>8</sup>

As a description of actual practice, this is basically correct. Obviously, however, this only postpones the important question of the justification of the rules themselves.

Yet, of course, the rules themselves must eventually be justified. The validity of a deduction depends not upon conformity to any purely arbitrary rules we may contrive, but upon conformity to valid rules. . . . But how is the validity of the rules to be determined? . . . Principles of deductive inferences are justified by their conformity with accepted deductive practice. . . . If a rule yields unacceptable inferences, we drop it as invalid. . .<sup>9</sup>

Now, obviously, this procedure appears to be circular, but Goodman claims that this circle is virtuous and not vicious. He says,

The point is that rules and particular inferences alike are justified by being brought into agreement with each other. A rule is amended if it yields an inference we are unwilling to accept; an inference is rejected if it violates a rule we are unwilling to amend. The process

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<sup>8</sup>Nelson Goodman, Fact, Fiction, and Forecast, (2nd edition; N.Y., 1965), p. 63.

<sup>9</sup>Ibid., pps. 63-64.

of justification is the delicate one of making mutual adjustments between rules and accepted inferences.<sup>10</sup> (emphases are Goodman's)

Goodman says that the same kind of process applies to inductive inference. Of course, the process of the justification of inductive inference is much more complex and formidable because the principles of inductive inference are in a much sorer state than their deductive counterparts. However, for the purposes of this discussion, we can assume that these principles will have been worked out in the Carnapian millenium.

This approach is interestingly different from all those previously discussed in this chapter in at least one important respect: The justification of inductive inference is in principle no different from the justification of deductive inference. In this sense there is no "problem" of induction per se. Put another way, there is a Problem of Deduction in the same sense that there is a Problem of Induction. In principle, there is no significant difference between the two. The systematic unity that this approach would bestow on epistemological theory is significant and impressive. Before accepting it, however, a closer scrutiny

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<sup>10</sup>Ibid., p. 64



of it seems called for.

In particular, there seem to be two relevant questions that can be asked of Goodman:

- a) Is the above a correct description of the justification of deductive inference?
- b) If so, does a parallel account hold true of inductive inference?

The motivation for Goodman's way of proceeding is clear and reasonable enough--the logical and epistemological issues surrounding deductive inference are much better understood and less in dispute than correlative issues surrounding inductive inference. If the two problems are essentially the same, a close examination of the relevant aspects of deductive inference will suggest an answer to our queries about inductive inference.

Let us assume, for the sake of argument, that Goodman has accurately characterized the process involved in the justification of deductive inference. It is reasonably clear that the process being described here is what Carnap has called explication.<sup>11</sup> A brief review of the nature of

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<sup>11</sup>Explication has been and is widely employed by philosophers. I have chosen to state and evaluate Goodman's argument in terms of this concept as specified by Carnap (see Logical Foundations of Probability, Chapter 1) because he has developed the notion in greater detail and with more precision than other theorists. Goodman's esoteric and technical variant--constructional definition--is apparently not applicable here, since he has made no attempt to apply it to

that process would be in order here.

An explication involves the replacement of a commonly employed, but vague or obscure concept (the explicandum) by a clear and precise one (the explicatum). The two concepts are distinct because they are not co-extensional. Preliminary to the actual explication, one must provide an informal clarification and explanation of the nature and functions of the explicandum. This includes a specification of certain contexts in which the use of the explicandum is clear and unproblematic; it also includes a description of the purposes for which the concept is used. Finally, in this preliminary stage, one gives rough synonyms for the term that customarily expresses the explicandum (or perhaps rough characterizations of meaning), which while often as vague as the explicandum, serve to indicate what concept is under discussion.

If the explicandum cannot be clarified in this preliminary way, then it is not really a candidate for explication after all because it is too obscure to be of any value (for Carnap's Scientific Philosophy, anyway!). Assuming that this task is successfully completed, the next step is the actual explication wherein the explicatum is proposed.

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the issue at hand. As will become apparent, the features of explication upon which my objections depend are common to the less precise and exacting concepts of explication that others, including Goodman, employ.

The justification of an explication is a complex affair; we need not consider all the details of this task here. The important thing for present purposes is that there must be a considerable overlap in the explicandum and the explicatum. A systematic deviation of the extensions of the concepts is permissible only if it is theoretically fruitful. In particular, the explicatum must apply to all, or nearly all, of the things to which the explicandum clearly and unambiguously applies; that is, one must be able to substitute, salva veritate, the explicatum for the explicandum in certain favored (extensional) contexts. These will include, but may not be limited to, the contexts specified in the preliminary clarification.

How does all of this relate to inductive inference? Presumably, the explicandum is the concept of a strong inductive inference or argument. Since the rules for the application of the explicandum are not clear and well-specified, an explication seems appropriate. One of the interesting features of Goodman's proposal is that it tells us, in a general way, how to arrive at the explicatum, viz. by a mutual adjustment between the rules (such as they are) and the favored contexts of the explicandum. There are rules for the correct use of explicandum though they may be few and ill-specified. They can be discovered by tentative abstraction from a number of clear and obviously related cases.

These instructions for producing the explicatum should not be confused with its justification. Goodman has not justified a yet-to-be-produced explicatum; he has, however, told us something about how to construct one. If the explicatum is justified, then it will preserve truth value in favored contexts (with perhaps some systematic deviation). Though this is a necessary condition for a successful explication, it is not a sufficient one.

Aside from preserving truth value in favored contexts, a (justified) explicatum can serve most of the important purposes for which the explicandum was used; it is also theoretically fruitful in that it makes possible the construction of a simple yet systematic theory (in this case an epistemological theory) that can account for a wide range of phenomena. Admittedly, this description of what constitutes a successful explication is somewhat vague, but it is serviceable enough for present purposes. The important point is that Goodman's description of the way the explicatum is to be produced is not open to a charge of circularity. The actual justification of the explicatum can only be completed when the explicatum is produced (Embarrassingly, it has yet to be found!).

Unfortunately, this procedure is open to a deeper and more fundamental charge of begging the question. Consider the position of our benighted sceptic. His question, which

will arise at the preliminary clarification stage, is, 'Are there any strong inductive arguments?'<sup>12</sup> He wants to know if the explicandum has a non-empty extension. It is not helpful or reassuring just to answer this by merely asserting that there are such arguments (i.e. by reciting favored contexts). He will need an argument<sup>13</sup> to show that there are some strong inductive arguments. By the very nature of his task, one who is in the process of constructing an explication (which, after all, is what Goodman is up to) is not meeting this demand. Explications are of value only to those duplicitous souls who believe that the explicandum has a non-empty extension. Put another way, explications are useful and indeed necessary, but (in the face of sceptical doubts) only when it has been established that the explicandum has a non-empty extension.

What might Goodman say about this objection? Goodman suggests<sup>14</sup> that a quick appeal to the usage of the explicandum would show that this objection is completely spurious.

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<sup>12</sup>The relation of this form of inductive scepticism to the inductive scepticism considered in Chapter III is by no means obvious. I shall discuss this relation below.

<sup>13</sup>I use 'argument' here in a somewhat loose sense to mean roughly 'some (rational) considerations'. Indeed, I shall later argue that one must just "see" that there are some strong inductive arguments. However, that this is true needs some discussion and argument.

<sup>14</sup>Nelson Goodman, op. cit., p. 66.



Let us consider a parallel case to see how this would work. Suppose someone proposes to explicate the concept Tree. It has many clear and uncontroversial applications and yet is fuzzy enough so that an explication could be carried out. Suppose an explicator is confronted by an "arboreal sceptic" who is in doubt about whether or not the concept has a non-empty extension. I suppose the former would suspect that this alleged sceptic does not really understand the meaning of the word 'tree'. Perhaps he believes that the term 'tree' means the same thing as 'tree within which elves live'. This is where the preliminary clarification becomes very important. The explicator gives a rough and perhaps imprecise characterization of the meaning of the term 'tree'; suppose the arboreal sceptic clearly indicates (perhaps by giving rough synonyms himself) that he is "onto the concept". Is it still meaningful for him to question the non-nullity of the extension of the concept?

This question is of considerable importance, but I think there can be no doubt about the answer. It is meaningful for him to ask the question. The reason for this is that it is possible and indeed quite easy to give him a satisfactory reply. What would this reply be? It would not, as Goodman suggests, be an appeal to the common usage of the term. The truth of the statements containing the favored contexts is just what is at issue. Rather, the reply would



be an empirical argument to show that there are trees. One would show him a tree and demonstrate that what he sees is not artificial; that he is not hallucinating, etc. (we can assume that he subscribes to the canons of scientific inference, etc.; otherwise, he would not be an arboreal sceptic.) Why he would ask such a question is somewhat mysterious--perhaps he has lived all his life on the moon, or he is almost incredibly stupid or suspicious. However, that is of no moment here. The important point is that an appeal to common usage is not to the point here (unless one loudly proclaims and proceeds to demonstrate that the favored context statements are true); what is necessary is an appeal to the (non-linguistic) facts.

With regard to the explication of the concept of a strong inductive argument, a similar situation obtains. It is of no value to tell the inductive sceptic how people use the term 'strong inductive argument'. In addition, merely producing for him (what one believes to be) a strong inductive argument is, by itself, unhelpful. One must show (in some manner) that there are such things.

Of course, there are some disanalogies here, too. No straightforward empirical argument can establish that there are strong inductive arguments. Aside from the fact that such arguments are "on the block" in this discussion, it is

doubtful that this kind of argument would be appropriate here anyway.

The fatal flaw in Goodman's argument is that he pays too much attention to how people in fact behave. Since the class of accepted inferences and the class of accepted rules are fixed by a mutual adjustment process fueled by our pre-analytic beliefs, it is ruled out from the start that we could be seriously mistaken about both. Since the concept of justification is an objective one, it seems to be an open question as to whether or not we are seriously mistaken about what (if any) arguments are inductively strong. This is where the sceptic offers his challenge; he wants to know if there are any such arguments. Goodman's failure to answer this challenge can be correctly characterized as begging the question against the sceptic.

Even if this objection could be avoided, there is another problem with this approach. Over a period of time, the actual criteria for what constitutes a strong inductive argument could drastically change. What was once a strong inductive argument may later be a weak one (Note that this is not merely a claim about what people believe to be a strong or weak inductive argument.) All that would be required is a change in word usage and perhaps certain beliefs. Now I suspect that Goodman would not be too troubled by this. But he ought to be.

Pragmatists such as Goodman, Quine and White have argued against the distinction between contingent and necessary truths. The concepts of necessary truth and contingent truths presuppose a clear and sharp distinction which does not in fact obtain. However, matters are not this simple, say the Pragmatists. The relevant concept is "give-upability". Some beliefs are (and ought to be) more easily given up than others, though any belief can, in principle, be abandoned. The rules of evidence are not inalterable fixtures of the world that cannot be revised. The course of nature might change dramatically; not only would we have to give up previously well-founded empirical beliefs, but we may have to give up some previously useful (but no longer so) rules of evidence as well.

While it may be that a dramatic change in the course of nature would lead to a change in the rules of evidence (this is not at all obvious), one could imagine the relinquishment of these rules for other than the kind of epistemological reasons envisioned by Goodman and his colleagues. Consider the case of the People's Revolutionary Epistemology Brigade. This is a very powerful group who wants to change the way that science is done to conform to the goals of the Gang of Four. By making certain key changes in textbooks and by encouraging scientists to undergo appropriate "self-criticism", they are able to alter perceptibly word usage

and scientists' beliefs so that what counts as a strong inductive argument includes some obviously weak arguments. The change need not be so fundamental that the fact of scientific thought is unrecognizably altered; nonetheless, when senior members of the P.R.E.B. explicate the concept of a strong inductive argument, many obviously worthless arguments become sanctioned. Any reason for not adopting this course (e.g. the subsequent lack of theoretical simplicity) can be seen as just another belief that ought to be given up.

These considerations show that any attempt to explicate the concept of a strong inductive argument requires, at the earliest stage, an argument that shows that there are some strong inductive arguments. This argument will require something more than or different from mere appeals to people's beliefs and their usage of the appropriate words.

These objections suggest that perhaps Goodman's characterization of the justification of deductive inference is also incorrect. Indeed, I think a case for that can be made. Goodman says that an argument is judged to be deductively valid if it conforms to a rule that more or less accurately codifies accepted deductive practice. Again, the process involved here is clearly one of explication. Indeed, it could be plausibly argued that Aristotle made the first attempt to carry out this explication and that Frege (in the

Begriffsschrift) brought it to final fruition.

Now it might be objected that no sceptic can seriously doubt that there are deductively valid arguments. Thus there are no steps that need to be taken for the sceptic's benefit prior to the preliminary clarification of the explicandum. This in turn would cast doubt on whether or not such doubts can be seriously maintained about the existence of strong inductive arguments. This appears to be a significant objection. If this objection can be successfully met, however, Goodman's characterization of the justification of deductive inference can be rejected, and the cloud of suspicion hanging over the foregoing objection to his account of the justification of inductive inference can also be removed. These tasks are the burden of the fourth view on the epistemic legitimacy of inductive inference that I shall discuss. The primary task will be to show that there are independent arguments that can establish the fact that there are deductively valid arguments and the fact that there are inductively strong arguments.

An Epistemic Justification of Induction:  
Legitimizing Consideration IV

I have argued that, during the preliminary clarification of a given explicandum, one needs (in the face of sceptical doubts) an independent argument to establish the fact that

there are things to which the explicandum applies. As a matter of historical fact, fewer sceptical doubts have been entertained about deductive inference than have been entertained about inductive inference. It would be helpful, however, to see just how such doubts could be met.

Let us employ a common tactic used by Quine: let us look at how deductive logic is learned. What appears to go on in this process can be seen as an explication; one is confronted with an adolescent or adult of normal intelligence and reasoning capabilities. The goal is to teach him or her a system of formal logic that is roughly based on Frege's Begriffsschrift. One starts with an informal explanation of the concept of a conclusion "following from" some premises. In addition to giving some examples, one points out that, when a conclusion follows from the premises, the truth of the premises guarantees the truth of the conclusion. That is, necessarily, if the premises are assumed to be true, then the conclusion is also true. Suppose that the student accepts this informal clarification but demurs about the examples. This is not so far-fetched as it might seem; this individual may have just completed many years of study in a progressive school of Education and as a result of some study of cultural anthropology, he or she may be in some doubt about whether there are any valid arguments. However, the student can understand the meaning of the term 'deductively



valid argument'; he or she is just in doubt about whether or not there is anything answering to the concept. (The student need not maintain that there are no such things.)

How does the teacher proceed? Obviously, with great patience and with every effort to suppress contempt. The best strategy would seem to be this: The teacher concentrates on one example of a valid argument that is as transparent as possible. Many instructors start with instances of modus ponens or modus tollens, but with the deductively dim-witted, an even simpler example would probably be better, e.g.:

- A.       (1) This is a ball.  
           (2) That is a hat.  
       ∴(3) This is a ball and that is a hat.

The instructor points to this example and asserts, in as many ways as possible (using terms invoked in the preliminary clarification) that this is a valid argument. The instructor will ask the student the following kind of question: "Do you see that if the premises are true the conclusion must be true?" One might regard a negative answer here as a good reason to believe (barring the intrusion of emotional factors or evidence of drug intoxication, etc.) that the person did not really understand the concept of validity after all. Most likely, however, the answer will be 'Yes'. What has happened here?

situation in deductive logic is exactly the same.<sup>15</sup> (emphasis is Carnap's)

The fundamental insight here is that our knowledge of deductive and inductive relations is on the same footing. However, what Carnap means by the word 'intuition' is significantly different from the sense that I attach to it. I should now like to clarify these two senses and show that, on Carnap's construal, this appeal to intuition does not defeat the sceptic but that my construal shows that scepticism is untenable.

The term 'intuition' as it is commonly employed in contemporary philosophy, means roughly the same thing as 'firmly held pre-analytic belief' or 'firmly held pre-systematic belief'.<sup>16</sup> On this construal, an important philosophical task is to sharpen and systematize some theoretically significant group of intuitions. Explication

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<sup>15</sup>Rudolf Carnap, "Inductive Logic and Inductive Intuition" in The Problem of Inductive Logic: Proceedings of the International Colloquium in the Philosophy of Science, ed. by I. Lakatos (North Holland Publishing Co., Amsterdam, Holland), p. 265.

<sup>16</sup>It may be thought that these synonyms are too weak in that intuitions are known and not merely believed. However, while many intuitions may be known, not all of them are. The reason for this is that the development of a powerful and systematic philosophical theory, either by means of analysis or explication, may show us that some intuitions are just mistaken. We are (and ought to be) willing to relinquish these intuitions for the same reasons that established scientific theories are given up, viz., a better theory can take its place.

and perhaps analysis are the most important tools for accomplishing this task. Now, an important feature of explication is that it allows us to deviate from at least some of our intuitions in the following sense: An explicatum may not be (truly) attributable to a thing which, intuitively (and clearly) the explicandum is (and vice-versa). Thus the explicandum designated by the term 'Fish' is intuitively attributable to whales and dolphins, but the explicatum designated by the term 'Fish' (member of the class Pisces) is not so attributable. Systematic deviations of this sort are justified on grounds of theoretical fruitfulness and simplicity that the explicatum (and the conceptual network into which it fits) provides. The point is that the theory can force us to give up some of our intuitive beliefs as mistaken. It is for this reason that one can correctly say that whales really are not fish. If it is objected that questions of truth and falsehood are not really at stake here, it is easy to point to other kinds of situations which we are willing to maintain that some intuitive beliefs are false (e.g. the Axiom of Specification in Set Theory). It may happen that we have intuitive beliefs that lead to contradiction or imply the denial of beliefs that we are unwilling to reject (the latter may not be intuitive). The point is that, on the basis of customary philosophical usage, an intuitive belief can be mistaken or false.

On the other construal, this is logically impossible. If a given individual intuits a proposition at a given time, then that proposition is a necessary truth; intuitions are, in this sense, something akin to Cartesian clear and distinct ideas. Such beliefs are the result of an immediate intellectual apprehension of their objects. This appears to be and is in fact flaming rationalism! And, as Carnap might say, my empiricist friends might here demur. This view does not require that there is a "faculty" of intuition, any more than the existence of memories requires a "faculty" of memory. In fact, as I shall later argue, it is only a contingent fact that the mind intuits certain truths. The main arguments against the existence of intuitions concern their alleged variability and their irreducibly subjective character. I shall consider some of these arguments shortly. First, I should like to show that, on Carnap's construal of the sense of 'intuition', the sceptic's challenge cannot be successfully met; I shall later argue that on my construal, this challenge can be met.

To avoid confusion, hereafter I shall use the term 'pre-systematic belief' to designate Carnap's construal of the meaning of the term 'intuition'; the term 'intuition' will be retained for my sense of the term.

Carnap is really in exactly the same position as Goodman. The sceptic can claim that he is uncertain and has suspended

belief about the propositions that the explicator has claimed are obviously true from a pre-systematic point of view.

Carnap's response to this kind of challenge goes one step further than Goodman's: Carnap asserts that he must conclude that the sceptic is inductively blind.<sup>17</sup> (Who is supposing the existence of faculties here?) The sceptic is excused from the room, and Carnap continues his lecture for the benefit of his sighted colleagues. The problem is that Carnap has not really met the sceptic's challenge.<sup>18</sup>

Actually, there are two forms of scepticism about induction: The "substantive sceptic" says that there are no strong inductive arguments. The other kind of sceptic suspends belief about both this proposition and its denial. The problem with Carnap's position is that nowhere has he asserted that substantive scepticism is false. A simple appeal to pre-

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<sup>17</sup>Rudolf Carnap, "Inductive Logic and Inductive Intuition", op. cit., p. 265.

<sup>18</sup>Professor Heidelberger has suggested to me that Carnap's appeal to intuition may not be designed to justify inductive beliefs but, rather, to explain how we know. This, of course, assumes that we do know. By reading Carnap in this manner, it is possible to absolve him of the charge of failing to meet the sceptic's challenge but only because, in the present article, he was not trying to meet that challenge. Whether or not he should be read that way here is not too important. A check of his relevant writings reveals no other place where he comes as close to addressing the question of justification as he does here.



systematic beliefs and word usage fails to show that this is the case because our pre-systematic beliefs could be false, and the sceptic wants to know whether or not they are, or he believes that they are in fact false. If it could be shown that substantive scepticism is false, then not only would that position be untenable, but the sceptic who suspends belief would have to retract his sceptical challenge.

As a guiding thread, let us return to the case of the deductive sceptic. He has a fairly clear idea of what a deductively valid argument is but is unsure whether or not there are any valid arguments. After much patient explanation, however, he comes to see that (e.g.) Argument A (p. 242) is valid. That is, he intuits the proposition that argument A is valid. By this act of intuition, then, he comes to know a certain proposition. Since he knows that a certain argument is deductively valid, he can no longer suspend belief about the proposition that there are some deductively valid arguments.<sup>19</sup>

There are five objections to this refutation of this form of deductive scepticism. One objection is that it has not been shown that what is here called an intuition is a

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<sup>19</sup>In general, if S knows p and p entails q, one cannot conclude that S knows q. However, in this case p= Argument A is valid and q= There are some deductively valid arguments. The entailment is so obvious and transparent (an instance of Existential Generalization) that it seems acceptable to say that S knows q here.



form of knowledge.<sup>20</sup> Another objection is that it begs the very question at issue. A related objection is this: That the sceptic goes along here seems to be an empirical claim. How can one be certain that he will assent to this? The fourth objection is that it has not been shown that the sceptic, upon "conversion", has had a genuine intuition and not merely a psychologically necessitated belief. Finally, the irreducibly subjective and private nature of what one claims to be an intuition seems to be a suspicious foundation for the systematic construction of an objective system of deductive logic. More specifically, how can one be certain that what one claims to be an intuition is in fact intuition? I shall consider each of these in turn.

It has been pointed out to me that, even if the sceptic goes along here, it has not been shown that he has come to know that Argument A is valid. That is, it has not been shown that what I have called 'intuition' is a form of knowledge. A satisfactory response to this objection would require an elaboration and defense of a theory of (logical) intuition as an adequate account of our knowledge of logical truths. Even though the solution to the Problem of Induction proposed herein requires it, it would go far beyond the scope of what can be accomplished in this dissertation to give an

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<sup>20</sup>This objection was pointed out to me by Professors Feldman and Heidelberger.

adequate account of this theory and its defence. It is important to note, however, that this objection does not defeat this proposal; it only shows that more is needed to establish it than is provided here. Indeed, there is another such "gap" in my proposal (see pps. 251ff); at the end of this chapter I shall offer some considerations to show that these "gaps" are actually healthy signs.

Let us return to the other objections outlined above. Suppose a sceptic fails to go along here and claims that we are asking him to assume what is to be proved, viz. that there are deductively valid arguments. I do not think that this objection can be sustained for the following reason: That some argument or other is deductively valid is not open to proof in one important sense: A proof of the validity of, say, argument A would be a demonstration that the conditional whose antecedent is the conjunction of the premises and whose consequent is the conclusion is a theorem of some axiomatic system which includes axioms and rules of transformation. However, an axiomatic system of this sort that comprises the propositional calculus is really the support machinery that is offered in the course of giving an explication of the concept of validity. At this stage, the explicatum is not yet available because we are only at the preliminary clarification (which, in this case, includes the assuaging of sceptical doubts) of the explicandum. The sceptic who argues that we

are begging the question is asking for proof where proof is, at this stage, in principle unattainable.

With regard to the third objection, if the sceptic understands the pre-systematic (i.e. unexplicated) sense of the term 'deductively valid argument' and understands, with respect to one or another of a small group of obviously valid arguments<sup>21</sup> the proposition that such an argument is valid, then it is impossible for him not to be disposed to believe<sup>22</sup> (occurrently) that proposition. This is not an empirical claim. Obviously, however, this presupposes a certain theory about the nature of belief. A full elaboration and defense of that theory would clinch this argument. Unfortunately, I

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<sup>21</sup>Arguments that have the following logical form would be included in this list:

- |    |                                   |    |                                    |    |                                            |
|----|-----------------------------------|----|------------------------------------|----|--------------------------------------------|
| A. | (1) A<br>(2) B<br>∴(3) A and B    | B. | (1) A & B<br>∴(2) A                | C. | (1) A<br>∴(2) A or B                       |
| D. | (1) A or B<br>(2) Not-A<br>∴(3) B | E. | (1) If A then B<br>(2) A<br>∴(3) B | F. | (1) If A then B<br>(2) Not-B<br>∴(3) Not-A |

This list may not be exhaustive. Also, my claim is not that any argument of one of these forms would be recognized as valid; rather, it is that some instance of one of these argument-forms would be recognized as valid. The reason for this is the fact that validity is a matter of logical form is not immediately obvious. It seems that someone could "grasp" the concept of validity without being explicitly and clearly aware of this fact.

<sup>22</sup>Hereafter, I shall, following Hume, use the term 'believe' in its occurrent rather than its dispositional sense. When it is necessary to speak of belief dispositionally, I shall use expressions such as 'disposition to believe'.

do not have such a theory. Nonetheless, this assertion need not stand completely naked and undefended (or at least it need not stand naked and undefended alone!) because there are some analogous cases that seem a little clearer. Now it seems clear that the relation between two dispositions to believe need not always be contingent. That Jones is disposed to believe that Smith is a brother entails that he is disposed to believe that Smith is male. That this is true does not follow from the mere fact that one proposition entails the other; it is something about the obviousness of the entailment that makes it true. At this time, I do not know how to make this relation clearer and more precise.

However, the relation under discussion is not between two dispositions to believe; rather what is related is understanding a proposition (the proposition that a certain argument is valid) and being disposed to believe something (the same proposition). Are there any cases of this that are clearer than the one under discussion? Suppose that Jones understands the proposition that Smith is a brother. It seems clear that Smith is disposed to believe that, if Jones is a brother, then he is male. Thus, his understanding a proposition entails his being disposed to believe a proposition.

However, they are not the same proposition. Are there any clear cases of this? Well, I suppose some obvious

identities or tautologies would qualify here. If Jones understands the proposition that this table is identical to this table, then he is disposed to believe it. Perhaps instances of the Law of Non-Contradiction or the Law of Excluded Middle would also be of this sort.

Obviously, these examples don't constitute much of an argument for the assertion made on page 251. However, the last of these examples does suggest the outlines of an appropriate argument. Consider some simple and obviously tautology such as 'The moon is identical to the moon'. If I am correct, then it is impossible that someone understands this proposition and yet is not disposed to assent to it. "Serious" scepticism about such propositions, then, is in principle impossible. But, if it is not even possible that human beings disbelieve a proposition, it is not at all clear how sense can be made out of saying that this statement could be false. For there to be a difference between what we believe to be the case and what is true, it must somehow make a difference.

Although this line of defense is surely contentious, it does, nonetheless, have a certain measure of "initial rational credibility". Of course, even if this is correct, it only shows that such beliefs are true and not that they are known to be true. That such intuitions constitute knowledge needs further argument (see p. 250).



The fourth objection is that it has not been shown that the belief that the sceptic comes to have is a genuine intuition and not merely a psychologically necessitated belief. A key logical feature of intuitions (their phenomenological features are unclear to me, anyway, perhaps because they last for such a brief period of time!) is the immediacy with which their objects are apprehended and believed. Now, it may be that there are a number of things that humans as a matter of fact are disposed to believe immediately and without argument. However, it is at least logically possible that someone understand one of these propositions (e.g. This is a tree) and yet is not disposed to assent to it. It may be, as Hume has argued, that humans cannot in fact fail to be disposed to believe certain empirical propositions. But scepticism about those propositions is "theoretically" if not in fact (natural law) possible. Scepticism about the validity of certain simple arguments is not even "in theory" possible for someone who understands the meaning of certain terms. Yet, this seems to render impossible a view (deductive scepticism) that has just been given serious and careful attention! How is this so? This paradox is resolved by distinguishing occurrent from dispositional belief. It is impossible for someone who understands the meaning of the appropriate logical terms not to believe the proposition that Argument A (or one of the other simple valid arguments)



is a valid argument, in the dispositional sense of 'believe'. But the disposition, through the "irruption of other causes" (e.g. emotional factors, a pig-headed penchant for scepticism, etc.) may not be activated. In this sense it can be said that deductive scepticism can be maintained (to paraphrase Hume) in words only.

It might be objected that this distinction is problematical because there is no real difference between the resolution of (specious) sceptical doubts about deduction and certain kinds of empirical doubts (e.g. arboreal scepticism). In both cases the sceptic refuses to assent to certain assertions and in both cases his sceptical doubts can be easily overcome almost ostensively (This is an empirical claim.). Can the difference be specified in a non-question begging way?

Let us return to the case of the arboreal sceptic. He may, when shown a tree, immediately and without argument assent to the assertion that there are trees (or that that particular thing is a tree). However, if he does not go along here, one need not conclude that he does not understand the meaning of the term 'Tree'. The reason for this is that it is possible to produce an argument to show him that there are trees. (If it is impossible for him not to be disposed to assent then, this may show that inductive scepticism is also untenable; but that is another story.)

The situation is quite different with respect to someone

who claims to be in doubt about deductively valid arguments. After showing him certain simple examples, if he does not go along, there is no (rationally persuasive) argument to convince him. One ought to conclude that one (or more) of three things are true: (a) that he did not understand the meaning of the terms after all; (b) that the examples were not simple or obvious enough; or, (c) other factors (e.g. emotional ones) have prevented the disposition from being activated. Therefore, it is possible to distinguish intuition from psychologically necessitated belief.

It is also possible to distinguish intuitable propositions from necessary truths that are not intuitable. Consider Goldbach's Conjecture. It is possible (and indeed it is as a matter of fact true that) one can understand both Goldbach's Conjecture and its denial without being disposed to assent to either.<sup>23</sup>

The fifth objection is that the irreducibly private and subjective nature of what one claims to be an intuition seems to make it publicly unavailable for the systematic and objective construction of an explication of deductive validity. Furthermore, how can one be certain that what one claims to be an intuition is in fact an intuition? The

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<sup>23</sup>Unless, of course, one includes in the specification of the "initial conditions" necessary for the activation of the belief, a clear and detailed specification of the proof of Goldbach's Conjecture or its denial.

theory espoused here provides answers to both of these queries. If this view is correct, then each and every person (who understands the language) is capable of "seeing" the truth of one or another intuitable propositions. Let me extend an invitation to the reader to see for himself or herself that Argument A on page 242 is valid. The truth of such propositions is open to immediate public inspection. This points to the correct answer to the second question. It is important to distinguish the following propositions:

- (1) Argument A is valid.
- (2) S intuits that argument A is valid.

Statement (1) is a necessary truth that can be known immediately and with certainty. Statement (2), on the other hand, is an empirical proposition and is conceivably false. Even though (1) may be knowable intuitively, S may not actually have had an intuition. He may just have a firmly held pre-systematic belief. Such beliefs are often insidiously implanted in the course of one's philosophical education. I suspect (but am not sure) that intuitions are phenomenologically similar to pre-systematic beliefs. This might explain, by the way, that the distinction between pre-systematic beliefs and genuine intuitions is often blurred.

A proper argument for (2) would be an empirical argument which appeals to (among other things) certain phenomenological features of S's experience at a given time. The point is

that, while one can be sure of the truth of what is in fact intuited, one cannot be certain that one is having or has had an intuition. It would be unreasonable to demand that, in order to know that argument A is valid, one must know that one is having an intuition because it is unreasonable to demand that one must know that one knows.

The distinction between (1) and (2) allows us to retain a valuable insight of the Quine-Goodman approach to these matters. They maintain that any belief is subject to revision or retraction. In one sense this is true and in another sense this is false. No proposition that is actually intuited ought to be given up. However, from our point of view, we cannot be certain about what is actually intuited and what is not. Thus, from a practical point of view, any belief is subject to withdrawal or revision.

On what grounds should one be willing to give up a proposition such as (2)? Consider the original set theoretic axiom of class abstraction. One might think that it can be intuited that, for any property P, there exists a set  $\{x/x \text{ is } P\}$ . The Russell Paradox shows through a series of self-evident steps that a contradiction can be derived from this axiom. The reason that one in fact gives up the axiom and not one of the self-evident steps that leads to the contradiction is that all of the latter are such that one is more certain that they are intuited than one is about the

original claim that the Axiom of Specification is intuited. The reason that one ought to give up this axiom is that the derivation of the contradiction is valid. And in fact the Axiom of Specification is not intuited because it is possible (and indeed it actually happens after one sees the derivation of the contradiction) that one understands the axiom without being disposed to assent to it.

These considerations render harmless a number of objections raised against intuitions on grounds of their alleged variability. Where one man claims to have an intuition, another may demur. There are two possible explanations for this. Either the first person did not really have an intuition at all (it may be merely a firmly-held presystematic belief) or the one who demurs really is disposed to intuit the proposition, but the disposition has not been activated (perhaps because of a general penchant for scepticism). The fact is that, under the appropriate conditions (what those conditions are, by the way, is an empirical matter) everyone who understands the appropriate terms immediately and without need of argument assents to an intuitable proposition. What people believe to be an intuitable proposition varies, as might be expected. As noted previously, one explanation for this might be that the phenomenological features of intuition may be quite similar to those of a firmly held pre-systematic belief.

This completes the refutation of this form of deductive

scepticism. There may be other forms of deductive scepticism, but I have argued that when one claims to understand what a deductively valid argument is, one cannot fail to be disposed to believe occurrently that there are such arguments. Thus it can be said that this form of deductive scepticism is literally untenable.

Let us now turn to a consideration of inductive scepticism. Suppose that one is going to explicate the concept of a strong inductive argument. What happens in the preliminary clarification stage and how can a sceptical challenge be met here?

As a rough characterization of the meaning of the term 'strong inductive argument', consider the following (equivalent) statements:

- a) An argument is inductively strong just in case the truth of the premises renders highly probable or likely the truth of conclusion.
- b) An argument is inductively strong just in case it is highly improbable that the conclusion is false, given that the premises are true.

What is the sense of the term 'probable' here? I think that the most appropriate way to understand this relation is to view it as a degree of entailment.

It is a logical relation between the premises and conclusion of certain arguments. This is essentially Carnap's view. Just exactly what this means and why it is



true is unclear to me at this time.<sup>24</sup> Part of the difficulty involved here is that, at this stage of the exposition, what is at stake is only a preliminary clarification of the explicandum. How much clarification and argument can be required here is by no means obvious. It seems to me, anyway, that the basic concept is "there" and is not so hopelessly obscure that it cannot be explicated. It is, of course, another question whether or not anything answers to that concept. There are, however, two features of the concept of inductive strength (as I understand the term) that suggest that it is a logical relation (like validity) that actually does obtain between the premises and conclusion of some invalid arguments.

One thing that suggests that inductive strength, like deductive validity, is a logical relation is the fact that inductive strength, like deductive validity is independent of the actual truth value of the premises. In both cases one assumes that the premises are true and then asks whether it is possible (probable) that the conclusion is false.

Another reason for this is that there is no way to argue for the claim that a given argument is inductively

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<sup>24</sup>The apparent obscurities involved in the exact nature of the explicandum were pointed out to me by Professors Aune and Feldman.

strong without a well-defined conceptual network that arises with the completion of the explicatum. Of course one may be able to argue on a pre-explicative level that a given argument is inductively strong by showing that it is analogous in certain ways to some other argument which is known independently to be inductively strong. This only postpones the need for an intuitive judgment. In any event, (just as in the case of deductively valid arguments) one must, at some point, intuit that a given example of an inductively strong argument is in fact inductively strong. If an alleged sceptic demurs about a number of simple and obvious examples but claims to understand the concept, one must conclude that the examples were not simple or obvious enough or that the alleged sceptic does not really understand the meaning of the term 'inductively strong argument', or he is very upset and confused.

Thus inductive scepticism is as untenable as deductive scepticism. However, it is not at all clear that this shows that the form of inductive scepticism considered in Chapter III is false. Recall that this form of scepticism involved a statement about the rational credibility or conclusiveness of arguments, viz.

- (iii) The degree of conclusiveness of all predictive-inductive inferences with the same conclusion (call it 'c') is the same as the degree of conclusiveness of that argument (whose conclusion is c) which has only a tautological premise.

In order for the foregoing discussion to be of any value here, there must be a theoretically fruitful relation between the logical concept of inductive strength and the epistemic concept of degree of conclusiveness. It must be shown that there is a comparative inequality with respect to the inductive strength of two predictive-inductive inferences and that this comparative inequality entails a corresponding comparative inequality with respect to the respective degrees of conclusiveness of the arguments.

Recall that the degree of conclusiveness of an argument is a measure of the degree of belief that a completely rational inferrer would have in the conclusion of an argument given that he has a full and entire belief in the premises and that his belief in the conclusion is influenced only by his belief in the premises. Stove believes that the degree of conclusiveness of an argument is identical to the logical relation that I have called inductive strength and that Carnap has called logical probability. I have pointed out that this identity is by no means obvious and that Carnap has abandoned it. I now believe that there are some good reasons to think that this identity does not obtain but that there is an obvious and important relation between the two.

One problem with identifying the logical relation of inductive strength and rational credibility arises in connec-

tion with the following two arguments.

- I. (1) Many reputable textbooks in set theory assert in the preface that they contain a proof of the logical independence of the Axiom of Choice of the other axioms of set theory.
- (2) Prof. Michael Jubien, a respected and acute logician, has told me that the Axiom of Choice is logically independent of the other axioms of set theory.
- (3) Prof. Terry Parsons, another respected and acute logician, has told me that the Axiom of Choice is logically independent of the other axioms of set theory.
- (4) Both Professors Jubien and Parsons have told me that they have worked through the proof, and they assure me that they are not joking or lying.

Therefore

- (5) The Axiom of Choice is logically independent of the other axioms of set theory.

- II. (1') Madame Blavatsky asserts that her crystal ball tells her that the Axiom of Choice is logically independent of the other axioms of set theory.

Therefore

- (5) The Axiom of Choice is logically independent of the other axioms of set theory.

To be perfectly frank, Argument I virtually exhausts my relevant information about the independence of the Axiom of Choice. Argument II might be offered by a gypsy logician.

One interesting feature of these arguments is that they are both valid! Any proposition or set of propositions entails a necessary truth; since the conclusion of these arguments is a necessary truth, (1) & (2) & (3) & (4) entail

(5), as does (1').

What of the completely rational inferrer? Since he never makes any mistakes in reasoning, he would never believe that either of these arguments is anything but valid. However, this concept of an idealized inferrer becomes epistemologically unhelpful and perhaps useless because one cannot express what appears to be an important epistemological distinction in terms of it. In fact, it seems that an idealized rational being would make a distinction here; from an epistemic point of view, Argument I is a strong one; Argument II is weak. It seems that, for the completely rational inferrer, his degree of belief in the conclusion based on Argument I would be greater than his degree of belief in the conclusion based on Argument II and that in both cases his degree of belief in the conclusion would be less than his degree of belief in the premises.

The point of all this is that it does not appear that the logical relation between the premises and the conclusion is identical to the rational credibility of the conclusion, based on the premises and that there is more to the measure of epistemic warrant than strictly logical relations (or perhaps the logical relations with which we are familiar).

On the other hand, it seems that, if someone intuitively that a certain logical relation obtains between the premises and conclusion of an argument, then his measure of epistemic

warrant is measured by this logical relation. Under these circumstances (assuming that his belief in the conclusion is influenced only by his belief in the premises and this intuition (or perhaps his disposition to have this intuition)), the person is being completely rational and his measure of epistemic warrant is identical to the degree of conclusiveness of the argument. Though as the above example about the Axiom of Choice suggests, the degree of conclusiveness of the argument is not always measured by the logical relation that obtains between the premises and the conclusion, it sometimes is--at least in those cases where it can be intuited that the relation obtains.

My only argument for this involves an appeal to the reader's pre-systematic beliefs about the convergence and divergence of logical and epistemic relations. Consider the case of a number of simple and obviously valid arguments which are such that one can intuit that they are valid. It does not seem that the degree of conclusiveness of any of these arguments can be anything but the highest possible--unlike the two arguments concerning the Axiom of Choice. The completely rational inferrer--and the rest of us insofar as we are rational and capable of having the intuitions--can, in each case, be certain of the conclusion, relative to the premises.

The relation of all of this to the version of scepticism



considered in Chapter III is this: If it can be shown that one can intuit, with respect to two predictive-inductive inferences with the same conclusion, that one is inductively stronger than the other, than the degree of conclusiveness of the two arguments will be unequal, i.e. (iii) on page 138 will be false.

The obvious move to make here is to give an example of two predictive-inductive inferences with the same conclusion which are such that one can intuit that one is stronger than the other. Consider the following situation: There are two giant urns, each containing 10,000 balls at least some of which are black. Now consider the following two arguments that might arise after 1000 drawings with replacement from each urn<sup>25</sup>:

Urn A

Argument III:

- (1) Urn A is thoroughly shaken after each of the 1000 drawings.
- (2) The drawings are carried out by an independent testing agency of known integrity.
- (3) Ball<sub>1</sub> is black
- (4) Ball<sub>2</sub> is black

Urn B

Argument IV:

- (1) Urn B is thoroughly shaken after each of the 1000 drawings.
- (2) The drawings are carried out by an independent testing agency of known integrity.
- (3) Ball<sub>1</sub> is white.
- (4) Ball<sub>2</sub> is white.

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<sup>25</sup>It might be thought that it would be better to consider a non-random situation (e.g. sunrises). However, since unspoken theoretical presuppositions might here interfere, the chances (!) for a non-intuitive judgment are increased.

(5) Ball<sub>3</sub> is black.

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·  
·  
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(1002) Ball<sub>1000</sub> is black.

Therefore,

(1003) Ball<sub>1001</sub> is black.

(5) Ball<sub>3</sub> is white.

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(1002) Ball<sub>1000</sub> is white.

Therefore,

(1003) Ball<sub>1001</sub> is black.

Now consider the following statement:

(iv) Argument III is inductively stronger than Argument IV.

Statement (iv) is an assertion of a comparative inequality with respect to the logical relation that obtains between the premises and conclusion of the two arguments. Since Statement (iv) can be intuited (the reader is hereby invited to have an intuition), the following is true:

(v) The degree of conclusiveness of Argument III is greater than the degree of conclusiveness of Argument IV.

Statement (v) entails the denial of Statement (ii) (p. 138). If (ii) is false, then (iii) is untenable for the reasons cited on page 138. Since (iii) is false, this form of scepticism is false. If a potential sceptic demurs about (iv), the example can be changed--increase the number of premises of the relevant kind to 10,000.

Someone might object that this judgment of comparative inequality presupposes that all of the balls in the first

urn are black. Now I have argued in Chapter III (cf. pps. 97ff) that if that which is presupposed is to be of any value, it must, together with the other premises, render the argument deductively valid. That, however, begs the question because it assumes that the only differential in degrees of conclusiveness is that which obtains between valid and invalid arguments.

It is important to note just how little this example assumes. There are a variety of judgments that one can make in cases like this. Carnap distinguishes three kinds of concepts employed in logical and empirical inquiry--qualitative, comparative, and quantitative. There are three corresponding kinds of judgments that can be made here. Comparative judgments of inequality are very cautions. They do not presuppose that judgments of inductive strength can be quantitized. Thus it is not necessary that one be able to intuit the exact inductive strength of either argument. All that must be intuited is that the inductive strength of the two arguments is different. Such judgments do not even tell us very much about the actual strength of each argument.

Nonetheless, some comparative judgments of inequality do entail that one form of scepticism is false.

What of a charge of begging the question? Well, of course one cannot prove that what has occurred is an intuition. That claim is not open to proof. Moreover, it is

very hard to see how this charge could be sustained. The (alleged) intuited statement is not the denial of (iii); there are a number of clear and self-evident steps from the inductive intuition to the denial of Scepticism.

One might feel a bit uneasy about this refutation of scepticism because the two most important concepts--inductive strength and degree of conclusiveness--are not very clear or well-specified. However, this is just what one should expect because, at this stage, we are only giving a preliminary clarification of the explicandum (and assuaging (specious) sceptical doubts). A more detailed and precise refutation of scepticism that employs the explicatum (the concept of logical probability?) is unavailable because, prior to offering an explicatum, one must show (in the face of the relevant challenge) that there are things to which the explicandum applies.

It should be noted that this refutation explains why there have been few, if any, sceptics about both induction and deduction in the sense specified. It is hard to see how anyone who thinks calmly and seriously about these matters can maintain what really are specious sceptical doubts about either deduction or induction. Inductive and deductive scepticism, even though they are specious, are worthy of serious consideration because why they are specious is by no means obvious. Something like arboreal scepticism

is much more reasonable. "Empirical scepticism" is a hallmark of scientific judiciousness.

There may be other forms of scepticism about inductive inference not refuted by this example. As Prof. Aune has pointed out (see p. 140), these differing degrees of epistemic warrant may be viewed as degrees of worthlessness. On such a view, no inductive inference has a high enough degree of conclusiveness to warrant rational acceptance. This form of scepticism is not as important as the form that has just been considered because, if the latter is false, it is possible to show that beliefs arrived at by means of the scientific method (in the form of inductive inference) have an epistemic ground in past experience (unlike, e.g. superstition and enthusiasm).

It is tempting to think that a qualitative intuitive judgment of inductive strength (e.g. 'This is a strong inductive argument') would suffice to show that this other form of scepticism about induction is false. This would allow us to devise, via explication, a rule of (rational) acceptance. Indeed, Carnap thinks<sup>26</sup> that the issues surrounding a rule of (rational) acceptance are superseded by the substantive

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<sup>26</sup>Rudolf Carnap, "Inductive Logic and Inductive Intuition", op. cit., p. 265.

problems of quantitative confirmation theory. His reason for holding this is that he believes acceptance to be a qualitative concept, which, with the development of the science of confirmation theory is superseded by a comparative concept (greater or lesser degree of conclusiveness); this concept is in turn superseded by the quantitative concept of degree of confirmation. Others have argued, however, that there is more at stake here than Carnap thinks. The correct resolution of this debate is not a pressing concern in the present context because, as I have argued previously, it is consistent with this form of scepticism that science has an epistemic ground in past experience.

Thusfar in this dissertation the main thrust has been towards predictive-inductive arguments and scepticism concerning such inferences. I do not wish to suggest that all inductive arguments are reducible to (in some sense) such arguments. Predictive-inductive arguments have been considered largely because of their important historical position in the philosophy of David Hume. However, I suspect (though I do not have an argument for it) that the important logical relation of inductive strength is common to all invalid arguments from experience. If the sceptic maintains a broader position by claiming that no inductive argument is any more conclusive than any other (with the same conclusion), it is easier to produce a refutation. Consider the following



two arguments:

- V. (1') Lee Harvey Oswald was in the Texas School Book Depository at the time that Kennedy was shot.
- (2') Oswald had Communist sympathies.
- (3') The autopsy revealed that Kennedy was shot from the direction of the Texas School Book Depository.

Therefore

- (4') Lee Harvey Oswald shot Kennedy.

- VI. (1) Walter Cronkite testified under oath that he saw a man he knew to be Lee Harvey Oswald shoot in the direction of the Kennedy motorcade at 12:32 P.M. on November 23, 1963.
- (2) The Pope testified to the same thing.
- (3) Many reliable witnesses independently testified that they saw a man who closely resembled Oswald shoot at the motorcade.
- (4) Oswald owned the murder weapon.
- (5) Oswald had recently received one million dollars.
- (6) Oswald confessed to shooting at Kennedy.
- (7) His confession was taken while he was on a polygraph, and the polygraph indicated that he was not lying.

Therefore

- (8) Oswald shot Kennedy.

Both arguments are invalid but that one of them is inductively stronger than the other is intuitively obvious. Argument VI does not presuppose that there was no fantastic conspiracy

which included Walter Cronkite and the Pope. If a premise or premises were added to that effect, it would either render the argument deductively valid or inductively stronger. A requirement that the argument be deductively valid begs the question; that it be inductively stronger is either unnecessary (Argument VI is already stronger than Argument V) or it establishes the falsity of inductive scepticism. Of course not all of the premises are true, much less known to be true. However, that is irrelevant. Just as in the case of deductively valid arguments, one assumes that the premises are true. Then one asks the question, "Is it more likely or probable that the conclusion of Argument VI is true based on premises (1) through (7) than that the conclusion of Argument V is true based on premises (1') through (3')?" That the answer is 'Yes' is open to immediate inspection (intuition). This in turn entails that the conclusiveness of the arguments differs. Thus, scepticism, more broadly construed, is false.

What is the relevance of all of this to Hume? Admittedly, not much. However, at one point (see quotation p. 177) Hume assumes that the conclusiveness of proofs is greater than that of probabilities. Proofs are predictive-inductive inferences from observed uniform concomitance; probabilities are just like proofs except that one or more of the observational premises state that, in a particular case, the concomi-

tance did not obtain. Now it is doubtful that Hume thought that any proof is more conclusive than any probability. But if we consider two arguments with a large number of premises and the same conclusion, and the premises of one state that there has been an observed constant conjunction but the premises of the other state that there has been a frequent but not constant concomitance, it may be that the conclusiveness of the one argument is greater than that of the other, I am not sure if this is intuitively obvious. The point is that, at one point Hume assumed that some invalid arguments are epistemically better than others. If the argument of the past twenty-five pages is correct, that might not have been a bad assumption to make. Once the nature and function of logical intuition is understood, that assumption does not need much of an argument.

\* \* \* \* \*

Obviously the outline to the solution of the Problem of Induction proposed herein presupposes a number of epistemological doctrines that I have made little or no effort to defend. Among other things, I have presupposed throughout a Platonistic theory of meaning and certain doctrines about the nature of belief and of our knowledge of logical truths. At this time it is unclear to me whether or not my proposal can be formulated in terms agreeable to those with leaner

ontologies. Perhaps more importantly, I have adopted an essentially Carnapian view of the nature of probability. Without much argument I have claimed that the relation of inductive strength is a logical one. A fuller defence of this claim would involve, among other things, a critical evaluation of alternative interpretations of probability.

Nonetheless, all of these presuppositions can be seen in one light as a strength rather than a weakness. The amazing recalcitrance of the Problem of Induction would seem to indicate that the problem goes pretty deep. It is prima facie implausible that an undiscovered solution lies close to the surface and is largely independent of a wider and more systematic epistemological theory. Thus a final evaluation of this proposal awaits the deployment and defense of a more elaborate theory of knowledge; but this is as we should expect.

There are, however, some additional benefits to be derived from this proposal that I have not yet brought to the reader's attentions. These can be best appreciated by recalling the problem faced by those who adopt what I have called the Carneadean standpoint (see Appendix, Chapter IV).

Recall that Carneades had successfully argued that there is no mark by which the mind can distinguish (at least some of) those impressions which accurately represent their objects. That is, contrary to the Stoics' claim, there are

no cataleptic impressions that both compel and (unconditionally) authorize our assent; certainty is unattainable. Nonetheless, Carneades did not conclude that all impressions were equally dubious. Some are more worthy of our assent than others. Now Carneades believed that the criterion (or criteria) of truth (i.e. rational acceptance) "lies within us"; his task was to make this more explicit. However, someone might well ask, "Is it not possible, Carneades, that we are radically mistaken about what impressions are acceptable?" It is not at all clear if Carneades can, on his principles, answer this question.

Let us now consider how matters stand with regard to inductive inference. Hume has successfully argued that there is no mark or nota in past experience that can guarantee our claims about the future. No such claim is certain relative to our knowledge of the past. However, Hume did not conclude that all beliefs about the future are equally dubious, regardless of past experience. Some of them are more worthy of belief than others. Just as Carneades believed that the criteria for acceptable impressions "lie within us", so too Hume thought (at least until Part (iv)) that the criteria for acceptable beliefs<sup>27</sup> about the future lie within us.

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<sup>27</sup>For the sake of simplicity and ease of exposition, I here gloss over the problem of a rule of acceptance. It would be more cumbersome, but nonetheless feasible, to employ here a comparative concept of epistemic worth.

However, it is at this point that one can raise a question that parallels that asked of Carneades: "Is it not possible that we are radically mistaken about what arguments from experience are acceptable?"

Actually, this question that the challenger asks is ambiguous. There really are two questions that he might have in mind:

- a) Is it possible for us to hold mistaken beliefs about what rules are correct?
- b) Is it possible that the beliefs that we actually hold (implicitly) about what rules are correct or mistaken?

It is difficult to see how someone could give a negative answer to the first question. It would suppose an infallibility appropriate only to the Author of our being. However, a positive answer to a) does not entail a positive answer to b). On my proposal the rules of evidence are intimately connected with logical relations. Our knowledge of these depends ultimately on (logical) intuition. Actually, it is a bit grandiose to speak of rules of evidence here. They have yet to be explicated. However, if my argument is correct, they are "there" to be explicated. The point is that the answer to question (b) above is a negative one on my proposal. This provides us with an answer to the sceptical challenge that is directed at the Carneadean standpoint.



One might well wonder why it is that we happen to operate (implicitly) on the basis of more or less correct rules of inference. It would be appropriate to let Hume have the last word here:

Here is a kind of pre-established Harmony betwixt the Course of Nature and the Succession of our Ideas; and though the Powers and Forces, by which the former is govern'd, be wholly unknown to us, yet our Thoughts and Conceptions have still, we find, gone on in the same Train with the other Works of Nature. Custom is that admirable Principle, by which this Correspondence has been effected; so necessary to the Subsistence of our Species, and the Regulation of our Conduct, in every Circumstance and Occurrence of human Life. . . . Those who delight in the Discovery and Contemplation of final Causes have here ample Subject to employ their Wonder and Admiration.<sup>28</sup>

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<sup>28</sup>David Hume, Enquiries, op. cit., p. 62.

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### APPENDIX TO CHAPTER III

Though the focus of this dissertation is on Hume's Treatise, it would be appropriate to take a brief look at the Enquiries with regard to a matter of such signal importance as Hume's argument concerning inductive inference. An examination of this argument as it appears in the Enquiries further strengthens the interpretive hypothesis advanced in this chapter viz. that Hume only intended to establish that inductive arguments have less than the highest possible degree of conclusiveness and that such arguments are not, on that account, epistemically worthless.

This argument takes up most of Essay IV "Sceptical Doubts Concerning the Operation of the Understanding". Though it is stated in a more forceful and lively fashion here, it is inferior, in a number of respects, to the Treatise version. The main problem is that the psychological theory has not been fully<sup>ly</sup> enough developed for Hume to establish the priority of and thereby focus his attention on predictive-inductive inferences. He speaks more generally about arguments from the observed to the unobserved. Another problem is that his argument concerning the A Priori inductive inference, which is compactly expressed in one paragraph in the Treatise, is here spread over several pages. It is more difficult to

determine what his epistemic assessment is of such inferences. If we take Stove's Symmetry Thesis seriously, this makes it more difficult to determine what Hume's epistemic assessment of other inductive inferences is.

Nevertheless, there are some direct and indirect clues about the nature of Hume's final conclusion that make it fairly clear that he is concerned to show that the mind cannot achieve (epistemic) certainty with respect to arguments from experience. Of course, then it becomes important to show that Hume did not believe that a lack of certainty in this connection is equivalent to epistemic worthlessness. Fortunately, there is some direct and indirect evidence here to suggest that Hume did not think that this was the case.

One of the features of Hume's argument of the Enquiries that makes it appear to be much more strongly sceptical than it in fact is, is his use of the terms reason and 'reasoning'. Consider the following two statements of this final conclusion:

I say, then, that even after we have Experience of the Operations of Cause and Effect, our Conclusions from that Experience are not founded on Reasoning or any Process of the understanding.<sup>1</sup>

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<sup>1</sup>David Hume, An Enquiry Concerning Human Understanding, ed. by Ernest C. Mossner (N.Y., 1963), pps. 42-43.

It is not Reasoning, which engages us to suppose the past resembles the future and to expect similar Effects from Causes, which are, to Appearance, similar. This is the Proposition, which I intended to enforce by the present Essay.<sup>2</sup>

My purpose in the remainder of this Appendix is two-fold: First I shall argue that what Hume means by 'reasoning' in this Essay is what we mean by the expression 'deductively valid reasoning from acceptable premises' and that the epistemic content of Hume's conclusion is that the conclusion of no instance of causal inference is or can be rendered certain relative to its premises. Secondly, I shall argue that Hume did not believe that a lack of certainty in this connection means that the argument is epistemically worthless.

Turning now to Hume's argument of Essay IV Part 2, it is easy to see that he offers essentially the same argument twice. The first version occupies roughly the first three paragraphs of Part 2. He concludes by saying that the inference from the observed to the unobserved is not made by any chain of reasoning, of which he is aware. He issues an implicit challenge to anyone to produce such a chain of reasoning. Such "negative tactics" are often employed by Hume. However, he feels that he can carry the war into his opponents' camp. He gives an exhaustive enumeration of the kinds of arguments that there are and shows, with respect to

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<sup>2</sup>Ibid., p. 49.

each one, that it cannot be used to bridge the logical gap between statements about the observed and statements made about the unobserved. This constitutes his second statement of the argument. After dealing with the likeliest moves that an opponent might make, he brings the essay to a close.

Let us take a closer look at the first version of the argument. Hume proceeds by way of an example.

If a Body of like Colour and Consistence with that Bread, which we hav formerly eat, be presented to us, we make no Scruple of repeating the Experiment, and expect, with Certainty, like Nourishment and Support. Now this is a Process of Mind or Thought, of which I would willingly know the Foundation (emphasis added).<sup>3</sup>

He then points out that there is nothing in the sensible qualities of the object that justifies that certainty. This point was argued more thoroughly in Part 1 of Essay IV, which concerns the A Priori Inductive Inference. The only other alternative is past experience.

"As to past Experience, it can be allowed to give direct and certain Information only of those precise Objects, and that precise Period Of Time, which fell under its Cognizance. But why this Experience should be extended to future Times and to

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<sup>3</sup>Ibid., p. 43.

other Objects, which, for aught we know, may be only in Appearance similar;<sup>4</sup>

The standpoint here is naturalistic in that Hume is discussing inductive inferences as they occur in the mind and how the premises are related to the conclusion. Later, he will examine in more detail just how such inferences might be augmented. Notice, however, the (logical) limits of the epistemic certainty that past experience can grant. It is clear that he is not talking about psychological certainty here (contrast the above quotation with the preceding quotation).

Shortly thereafter he restates this same point more clearly and forcefully and draws his final conclusion

But does it follow, that other Bread must also nourish me at another time . . . ? The Consequence seems no way Necessary . . . . There is a certain Step taken . . . , an Inference which wants to be Explained . . . if you insist, that the Inference is made by a Chain of Reasoning, I desire you may produce that Reasoning.<sup>5</sup>

From this conclusion, offered as a challenge, much confusion can arise; for what does Hume mean by a "chain of reasoning"? Heretofore he has spoken of causal reason-

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<sup>4</sup>Ibid., pps. 43-44

<sup>5</sup>Ibid., p. 44.

ing and reasoning from the observed to the unobserved. The implication that the inference is not an instance of reasoning is, on one construal, self-contradictory. Obviously he has a very special sense of the term in mind.

To see just what he means here let us look at the second version of the argument. Here he enumerates the various kinds of "reasoning" and argues, with respect to each one, that it cannot be used to generate the conclusion of an inductive argument.

Here the argument parallels almost exactly the Treatise version. There are no demonstrative arguments here because it is always logically possible that the course of nature may change. A demonstrative argument is a valid argument all of whose premises are necessary truths. He then says that all arguments from experience proceed on the supposition that the future resembles the past. Thus any such argument for this proposition must be circular. However, as I have pointed out, since the principle of the uniformity of nature can be formulated in many non-equivalent ways, an argument from experience for this proposition need not be circular in that the conclusion appears as one of the premises. Nonetheless, for reasons cited previously (see pps. 116-119), it is fair to say that any such argument for this proposition would be circular, question-begging or involve an infinite



regress and hence is unacceptable.

Or would it? The claim that any argument from experience for the Resemblance Thesis has one of these defects is true only if we restrict ourselves to deductively valid arguments from experience. If we allow invalid arguments to be used to substantiate the Resemblance Thesis, it would be clearly false to say that all arguments from experience for RT have one of these defects. This suggests that what Hume means by a "chain of reasoning" is an acceptable valid argument. Only on this construal is Hume correct in saying that there is no chain of reasoning from experience for the Resemblance Thesis.

Now what is the epistemological significance of this? Defenders of Stove's interpretation of this argument would conclude that Hume believes that only valid arguments have epistemic merit. However, this conclusion is in no way forced upon us. The reason for this is that, in the context of the present argument, an appeal to invalid arguments would be pointless. Inductive inferences, as they occur in the mind are invalid. Any attempt to establish the premise that turns them into valid arguments would have to arise from another valid argument. Otherwise, there is no point in trying to see whether or not the Resemblance Thesis can be established.

Hume might have believed that only valid arguments have

epistemic merit. However, the fact that he allows only valid arguments from experience cannot be construed as evidence for this claim because, in the context of this argument of Hume's, only valid arguments can be of any help.

A defender of Stove's interpretation might well ask at this point why Hume wants to see if the Resemblance Thesis can be established. If some invalid arguments are epistemically acceptable, why even bother discussing the Resemblance Thesis?

There are two reasons for Hume's concern with the Resemblance Thesis: one is epistemological and the other is psychological. Let us consider the latter first. Recall that belief, for Hume, is occurrent and not dispositional. In the course of making a particular transition from beliefs about the observed to beliefs about the unobserved, the mind may not actually have before it some version of the Resemblance Thesis. Hume maintains, nonetheless, that as a matter of fact the mind is always disposed to believe (some version of) the Resemblance Thesis. This psychological hypothesis is necessary to explain why the mind makes the transition that it does.

If there be any Suspicion that  
the Course of Nature may change  
and that the past may be no Rule  
for the future, all Experience  
becomes useless and can give rise  
to no Inferences or Conclusions.<sup>6</sup>

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<sup>6</sup>Ibid., p. 47

Thus all arguments from experience are "covertly valid" in that there is an unstated premise which the mind is disposed to assent to. Having made this psychological discovery, Hume is interested both in tracing its origin (which turns out to be custom or habit) and determining its logical and epistemological significance.

As to the epistemological significance of the Resemblance Thesis, one might speculate what would be the case if, per impossible, RT could be established by an acceptable valid argument. The conclusion of (what was) an inductive inference would be certain relative to its premises. Whatever one thinks of the epistemic efficacy of invalid arguments, it is clear that valid arguments are, all else equal, epistemically preferable to their invalid counterparts. Thus, from an epistemological point of view, Hume's attempt to see whether or not inductive arguments can be "improved upon" so as to render their conclusions certain relative to their premises. Is there, however, any evidence to suggest that Hume's only concern here is to see if the conclusion of such inferences can be rendered certain relative to their premises?

There are two passages that support this contention directly. One has been previously quoted (cf. p. ). There Hume says that the mind expects with certainty that bread will nourish after it has experienced that fact in the past. However,

past experience can only provide certainty with respect to what has been previously experienced. This suggests that arguments from past experience cannot render certain conclusions about what is not observed. From a psychological point of view Hume can explain why the mind believes with certainty that the future resembles the past. The epistemological point is that there really cannot be any epistemic certainty here because it is possible that the course of nature may change.

The other piece of direct evidence occurs a few pages later. Hume says,

Their secret Nature, and consequently, all their Effects and Influence may change, without any Change in their sensible Qualities. This happens sometimes and with regard to some Objects; Why may it not happen always, and with Regard to all Objects? What Logic, what Process of Argument secures you against this Supposition?<sup>7</sup>

Again, the point here seems to be that since the course of nature could change, one cannot be sure, in any given case, that it will not change. If, per impossible, there was some "logic or process of argument" here, then we could be guaranteed

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<sup>7</sup>Ibid.

that the sensible qualities would not change. However much we are naturally inclined to believe with certainty that the course of nature will remain the same, there is always room for some doubt. Hume does not say here, or elsewhere in Essay IV that this doubt must, from an epistemological point of view, be total.

Indirect evidence for the claim that Hume only attempted to establish that the mind cannot achieve (epistemic) certainty about the unobserved (relative to the observed) is scattered throughout Essays IV and V. In a number of places Hume states or clearly implies that arguments from experience are not lacking in epistemic merit. If this is so, the only plausible interpretation of the conclusion of Hume's primary argument of Essay IV is the interpretation that I have suggested. This also shows that Hume did not identify a lack of certainty with a lack of epistemic value. There are primarily two passages where Hume voices epistemic approval of arguments from experience. Let us consider each of these in turn.

In Part 1 of Essay IV Hume argues that the mind cannot discover the cause (effect) merely by examining the effect (cause). He then makes the following observation:

Hence we may discover the Reason  
why no Philosopher, that has been  
rational and modest has ever  
pretended to assign the ultimate  
Cause of any of the Operations of

Nature . . . . Tis confess'd, that the utmost Effort of human Reason is, to reduce the Principles, productive of natural Phenomena, to a greater Simplicity and to resolve the many Particular Effects into a few general Causes by Means of Reasonings from Analogy, Experience, and Observation. But as to the Causes of these general Causes we should in vain attempt their Discovery . . . . These ultimate Springs and Principles are totally shut up from Human Curiosity and Enquiry.<sup>8</sup>

What Hume is saying here is that Reason, in what might be called its synthetic employment seeks to unify and systematize its knowledge of natural phenomena. However, it can never reach universal and necessary first principles. If this be reason's goal, it must inevitably fail to achieve it. However, if the mind is more modest in its demands, it may achieve its goals.<sup>9</sup>

Elasticity, Gravity, Cohesion of Parts, Communication of Motion by Impulse; these are probably the ultimate Causes and Principles we shall ever discover in Nature; and we may esteem ourselves sufficiently happy, if by accurate Enquiry and

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<sup>8</sup> Ibid., pps. 40-41.

<sup>9</sup> There is an astonishing parallel between Hume's reasoning here and Kant's discussion (in the Critique of Pure Reason) of the difference between reason in its hypothetical or regulative employment, and reason in its apodeictic or constructive employment. (cf. Critique of Pure Reason A644-649)



Reasoning, we can trace up the particular Phenomena to, or near to, these general Principles.<sup>10</sup>

In light of these passages it is difficult to see how someone like Stove can maintain that Hume believed that no argument from experience is epistemically better off than any other. The general rules by which the mind effects this systematization are conclusions of arguments from experience. Though their universality cannot be proved, they are not, upon that account to be scorned as a sham or mere psychologically necessitated illusion.

The only way that Stove could accommodate these pronouncements of Hume's would be to argue that, since these passages occur prior to Hume's discussion of inferences from past experience, his subsequent argument commits him to renouncing even these more modest aims. Quite the contrary is true, however.

In Essay V Hume discovers that it is custom or habit that is responsible for the mind's transition from beliefs about the observed to beliefs about the unobserved. Regarding this discovery he says,

Perhaps we can push our Enquiries no farther, or pretend to give the Cause

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<sup>10</sup>David Hume, Enquiries, op. cit., p. 41.

of this Cause; but must rest contented with it as the ultimate Principle, which we can assign of all our Conclusions from Experience. 'Tis sufficient Satisfaction, that we can go so far; without repining at the Narrowness of Faculties, because they will carry us no farther.<sup>11</sup>

These two passages, as endpieces of Hume's famous argument of Essay IV, suggest that Hume never doubted the epistemic efficacy of arguments from experience. The important question of that argument is only, "How much?"

Indeed, there is even a passage within the argument of Essay IV Part 2 that indicates that Hume never doubted that arguments from experience are, in some measure, epistemologically acceptable.

These two propositions are far from being the same, I have found that such an Object has always been attended with such an Effect and, I foresee, that other Objects, which are, to Appearance, similar, will be attended with similar Effects. I shall allow, if you please that one Proposition may justly be infer'd from the other: I know in fact that it always is infer'd. But if you insist that, the Inference is made by a chain of Reasoning, I desire you may produce that reasoning.<sup>12</sup>  
(double emphasis added)

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<sup>11</sup>Ibid., p. 52.

<sup>12</sup>Ibid., p. 44.

Now if it is only "chains of reasoning" that produce justified belief, then Hume in a very short space has flatly contradicted himself! Of course Stove might say that what Hume means in the offending sentence is what others (falsely) believe to be a just inference. The problem with this move is that there is just no evidence to suggest that Hume thought this way.

In sum, then, the argument of the Enquiries is best explained by the interpretive hypothesis of Chapter III, viz. that Hume only intended to establish that no argument from experience can have the highest possible measure of conclusiveness and that Hume did not believe that, in light of this fact, such arguments are epistemically worthless.

## APPENDIX TO CHAPTER IV

In a discussion of the nature and extent of Hume's scepticism about induction, it would be helpful to take a brief look at Hume's relation to some of the Ancient Sceptics. He was undoubtedly acquainted with the various schools of ancient scepticism, and his occasional remarks, both critical and otherwise, should shed some light on his epistemological position about inductive inference. It is not my purpose here to give a final assessment of Hume's scepticism. The evidence adduced in Chapter IV suggests (and most commentators agree, though perhaps for different reasons) that Hume's views on scepticism changed over the course of Book I. Consequently, it may not be possible to give a consistent and coherent account of Hume's scepticism. In addition, an adequate discussion of Hume's scepticism would go far beyond the scope of this dissertation. Instead, my purpose here will be to show that my interpretation of Hume's scepticism in Part (iii) has a clear historical precedent in the scepticism of Carneades and the Academic Sceptics and that Hume's discussion of Pyrrhonian scepticism is best understood against the background of an earlier, more mitigated (Carneadean) scepticism.

The two main schools of Greek scepticism were the Pyrrhonian and the Academic. Let us first consider the major tenets of the latter, as expounded by Carneades. The Stoics maintained that true impressions were exact copies of the objects which caused them. This copy relation specifies the truth conditions for impressions. This part of the Stoic doctrine was accepted by Carneades. The obvious epistemological question that arises is, 'How are we to distinguish the true impressions from the false impressions?' The Stoic answer was that, among the true impressions, there were some that both compel and authorize our assent. They "drag us down by the hair." Carneades, however, objected to the Stoics' claim that there are such perceptions (kateleptike phantasia). As Charlotte Stough says in Greek Scepticism:

That is, a cateleptic impression "generates" a proposition that is immediately evident and certain requiring no supporting evidence beyond the unquestionable experience of the subject himself. The role of the cateleptic impression is therefore apparent. In addition to defining the conditions of truth, it authorizes claim to knowledge.<sup>1</sup>

Briefly, Carneades objection was that there is no nota or mark by which the (alleged) cateleptic impression can be distinguished from the non-cateleptic impression, which, by

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<sup>1</sup>Charlotte Stough, Greek Scepticism: A Study in Epistemology (Berkeley, 1969), p. 54.

definition, may be false. Thus, no impression carries with it a guarantee that its "correspondent" proposition (see above quotation) is true. Since, then, there really is no cataleptic impression, there is no way for us to distinguish the true from the false because it is the cataleptic impression that gives us access to an independently existing reality. Without the cataleptic impression, the Stoic is left with no criterion of truth. If epistemic (and not merely psychological) certainty is a necessary condition for knowledge, then it is a consequence of Carneades' argument that there can be no knowledge of external things.

Although Carneades has shown that the Stoics' criterion of truth was unacceptable, he did not conclude that all perceptual statements were equally dubious. To discover the criterion of truth, he turned to an examination of the relation between a perception and its perceiver. Not all perceptions are equally compelling or convincing. Sometimes, as Alcmaeon has said, "But my mind agrees in no way with the vision of my eyes."<sup>2</sup> On the other hand, some perceptions are apparently true or credible. It is among the credible perceptions that Carneades searched for the criterion of truth. It is unnecessary for present purposes to follow

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<sup>2</sup> Ibid., p. 48



Carneades any further. It is important to notice, however, that an important shift has been made in the conception of the criterion of truth. Strictly speaking, the criterion (or actually, as Carneades developed it, the criteria) does not tell us what is true; rather it is a criterion of acceptance or of what is apparently true. As Stough says,

The criterion of truth coincides with the apparently true. It follows, therefore, that to ask, "What is the criterion of truth?" is not to inquire when a statement . . . is true, but to inquire, "When are we justified in making an assertion . . .?" And Carneades' response would be, "When the assertion is supported by our most credible experience." Nevertheless, it is also clear that though the criterion tells us what counts as an acceptable ground for an assertion, it cannot guarantee that the assertion is true. That is, it allows the uncomfortable possibility that a statement may be justifiably made even though it is in fact false.<sup>3</sup>

By making apparently true the criterion of truth, Carneades could be asked, 'Why ought we to accept the apparently true?' Carneades' reply would be that his criterion more or less accurately codifies and systematizes accepted practice. If part of the goal of the epistemological enterprise is to bring us into harmony with the practices and

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<sup>3</sup> Ibid., p. 58.

conventions of ordinary life, then Carneades has met with some measure of success. However, if we allow that it is at least possible that our common sense beliefs about what we ought to accept are radically mistaken, Carneades would have to show that the apparently true has something else to recommend it. For example, if he could show that the apparently true is often (though not always) true, his criterion would be acceptable on the grounds that it leads us to truth more often than not. On the basis of his epistemological principles it is difficult to see how he could do this.

What does all of this have to do with Hume's argument about induction? It is quite natural to see Hume as carrying on the tradition of Carneades' scepticism. Recall that Carneades argued that there is no nota or mark by which the (alleged) cataleptic impression, which compels and authorizes assent, can be recognized. Hume argues, in effect, that though we may be compelled to believe things about the unobserved, past experience only unconditionally authorizes belief about the observed. That is, there is no nota or mark in past experience that guarantees the mind's projections about the future. He further argues that any attempt to gain that authorization by supposing a resemblance between the observed and the unobserved is doomed to failure. Thus, no beliefs about the unobserved are or can be rendered certain

relative to the mind's beliefs about the observed. That this conclusion is sceptical is shown by the fact that the mind does believe with certainty that the unobserved resembles the observed. Hume even has a psychological explanation for why this is the case.

It by no means follows, nor did Hume conclude that, that all beliefs about the unobserved are equally dubious. If the argument of this chapter and the last is correct, Hume followed Carneades in that he located the criterion of rational acceptance in that which is accepted. That is, past experience provides some measure of warrant (though not the highest possible) for beliefs about the unobserved. We are justified in accepting some of these beliefs, even though they may in fact be false. Of course, Hume did not believe that all accepted beliefs were acceptable. As the quotation on pages 189 and 190 indicates, the acceptable beliefs are those that spring from universal and irresistible principles of human nature. The unacceptable beliefs are those that spring from weak and irregular principles. This recalls Carneades' distinction between the credible perceptions and those which do not compel our assent.

However, just as was the case with Carneades' proposal, one might well ask, 'Why ought we to make past experience the criterion for (rational) acceptance?' Hume might reply that

his criterion (which is worked out in some detail in Part (iii) Section 15: "Rules by which to Judge Causes and Effects") more or less accurately codifies and systematizes accepted practice. If part of the goal of the epistemological enterprise is to bring us into harmony with accepted (everyday and scientific) practice, then Hume's positive proposals of Section 15 have something to recommend them. However, if we allow that it is at least possible that we are radically mistaken about what beliefs (about the unobserved) we ought to accept, then one might ask Hume why accepted practice is, in effect, acceptable practice. Clearly, this is a deep question. It is not at all obvious that Hume had a satisfactory answer to this question. In Chapter V I shall discuss some Humean approaches to this problem. For the present, it is sufficient to note the striking similarities between Carneades' and Hume's approach to closely related epistemological problems. Not only is this similarity evident on the basis of general philosophical considerations, but in addition, Hume explicitly endorses the Carneadean approach in the last Essay of the Enquiries:

There is, indeed, a more mitigated Scepticism or academical Philosophy which may be both durable and useful, and which may, in Part, be the Result of this Pyrrhonism or excessive scepticism, when its undistinguished

Doubts are, in some measure, corrected by common Sense and Reflection.<sup>4</sup>

Those who have a Propensity to Philosophy, will still continue their Researches; because they reflect, that, besides the immediate Pleasure, attending to such an Occupation, Philosophical Decisions are nothing but the Reflections of common Life methodiz'd and corrected.<sup>5</sup>

Hume's discussions of a more extreme form of scepticism constitute further evidence that throughout most of Book I of the Treatise Hume adopted primarily a Carneadean standpoint. This more extreme form of scepticism is often called "Pyrrhonian". Let us turn to Sextus Empiricus, the chronicler of Ancient Scepticism, for a definition of this version of scepticism:

[Pyrrhonian] Scepticism is an ability or mental attitude, which opposes appearances to judgments in any way whatsoever, with the result that, owing to the equipollence of the objects and reasons thus opposed are brought firstly to a state of mental suspense and next to a state of "unperturbedness" or quietude.<sup>6</sup> (ataraxia)

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<sup>4</sup>David Hume, Enquiries, op. cit., p. 154.

<sup>5</sup>Ibid. p. 155.

<sup>6</sup>Sextus Empiricus, Outlines of Pyrrhonism in Greek and Roman Philosophy Following Aristotle, ed. by Jason L. Saunders (N.Y., 1966), p. 153.

Sextus proceeds to define all of the key expressions in this definition. For present purposes, one of these is worth quoting.

'Equipollence' we use of equality in respect of probability and improbability, to indicate that no one of the conflicting judgments takes precedence of any other as being more probable.<sup>7</sup>

There can be little doubt that Pyrrhonian Scepticism, as defined by Sextus, is very similar to the version of scepticism that Stove has (falsely) attributed to Hume's argument of Part (iii) Section 6.

Now Hume argues in various places in Part (iv) (and in the latter essays of the Enquiries) that the Pyrrhonians' ataraxia is unattainable. He has primarily two arguments for this. Briefly, they are: (i) He claims that the mind is unable to suspend judgment as the Pyrrhonians recommend. This is just a matter of psychological fact. (ii) Secondly, if someone could adopt this suspensive attitude, Nature would shortly put an end to that individual's miserable existence. Hume's characterization of the nature and extent of the Pyrrhonian's suspensive attitude is probably inaccurate.<sup>8</sup>

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<sup>7</sup>Ibid., p. 154.

<sup>8</sup>See Richard Popkin, "David Hume: His Pyrrhonism and His Critique of Pyrrhonism" reprinted in Hume: A Collection of Critical Essays. Vere C. Chappell, editor. (Notre Dame, Indiana, 1968) pages 54-57.



In addition, Hume's objections are clearly based on empirical arguments; those arguments may well beg the question against the Pyrrhonian. However, both of these issues are not important for present purposes. What I should like to call attention to is the placement of Hume's Objections to Pyrrhonism.

Hume feels obliged to disassociate himself from Pyrrhonism by means of these objections only when he sees that his own principles appear to draw him towards that position. The two places where this occurs in the Treatise are at the end of Part (iv) Section 2 and in Part (iv) Section 7, the last section of Book I. As I have argued previously in this chapter, the arguments that lead Hume towards the Pyrrhonic suspension of judgment are distinct from and independent of the arguments of Part (iii), notably the argument of Part (iii) Section 6. Thus the location of Hume's objections to Pyrrhonism suggests that he did not believe that, prior to these new arguments, there was any reason to suspend judgment regarding matters of fact. This is difficult to understand on Stove's interpretation of the argument of Part (iii) Section 6; it makes sense, however, if Hume had adopted a Carneadean standpoint up until Part (iv).

Let us consider the argument of Part (iii) Section 6 in light of these distinctions between the various forms of

scepticism. Does Hume remain, in the words of John Laird, "a complete Pyrrhonian regarding all ultimate principles"?<sup>9</sup> The Pyrrhonian Sceptic offers (what he takes to be) equally good conflicting arguments. They are supposed to result in the suspension of judgment. Obviously, that is not what Hume is doing here. He asserts unequivocally that the ultimate reason for beliefs about the future cannot be known. The Academics were sceptics in that they abjured from dogmatic assertions about the world. They were not, however, sceptics about the mind's claims of (certain and incontrovertible) knowledge about the world.

My purpose in this brief Appendix has not been to offer a systematic appraisal of Hume's scepticism in the Treatise. Rather I have only tried to show that, once we distinguish between Carneadean and Pyrrhonian scepticism, Hume's position through the end of Book I Part (iii) is best interpreted as a kind of Carneadean scepticism. This entails that beliefs about the future (or, more generally, about the unobserved) can have differing measures of epistemic warrant, even if none of them can have the highest possible such measure. Since Hume was undoubtedly aware of the writings of Sextus and Cicero, this Appendix further shows that the conception of epistemic warrant employed in these chapters was not foreign to Hume.

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<sup>9</sup>John Laird, Hume's Philosophy of Human Nature (London, 1932), p. 180.



