OXFORD

HUME'S REASON

DAVID OWEN

Hume's Reason

This page intentionally left blank

Hume's Reason

David Owen

OXFORD
UNIVERSITY PRESS

OXFORD
UNIVERSITY PRESS

Great Clarendon Street, Oxford OX2 6DP
Oxford University Press is a department of the University of Oxford
It furthers the University's objective of excellence in research, scholarship,
and education by publishing worldwide in
Oxford New York
Auckland Bangkok Buenos Aires Cape Town Chennai
Dar es Salaam Delhi Hong Kong Istanbul Karachi Kolkata
Kuala Lumpur Madrid Melbourne Mexico City Mumbai Nairobi
São Paulo Shanghai Taipei Tokyo Toronto
Oxford is a registered trade mark of Oxford University Press
in the UK and in certain other countries
Published in the United States by
Oxford University Press Inc., New York
Published in the United States by Oxford University Press Inc., New York

First published 1999
First published new in paperback 2002

British Library Cataloguing in Publication Data
Data available
Library of Congress Cataloging in Publication Data
Owen, David, 1948–Hume's reason / David Owen
p. cm.
Includes bibliographical references (p.) and index.
1. Hume, David, 1711–1776—Contributions in concept of reason.
2. Reason—History—18th century. I. Title.
B1499.R4 O94 1999 128'.33'092—dc21 99–051897
ISBN 0–19–823831–2 (hbk)
ISBN 0–19–925260–2 (pbk)

FOR JULIA

sine qua non

But Hume suffered the usual misfortune of metaphysicians, of not being understood. It is positively painful to see how utterly his opponents, Reid, Oswald, Beattie, and lastly Priestley, missed the point of the problem; for while they were ever taking for granted that which he doubted, and demonstrating with zeal and often impudence that which he never thought of doubting, they so misconstrued his valuable suggestion that everything remained in its old condition, as if nothing had happened. The question was not whether the concept of cause was right, useful, and even indispensable for our knowledge of nature, for this Hume had never doubted; but whether that concept could be thought by reason *a priori,* and consequently whether it possessed an inner truth, independent of all experience, implying a perhaps more extended use not restricted merely to objects of experience. This was Hume's problem. It was solely a question concerning the *origin,* not concerning the *indispensable* need of using the concept. Were the former decided, the conditions of the use and sphere of its valid application would have been determined as a matter of course.

Immanuel Kant, *Prolegomena to any Future Metaphysics,* pp. 6–7,

trans. Lewis White Beck

Preface and Acknowledgements

Hume's account of reason and reasoning is a topic that has interested me since I first read Book 1 of the *Treatise,* in an undergraduate seminar at Trent University conducted by Jim McAdam in the autumn of 1969. For various reasons, I did not return to serious work on Hume until 1984, when I wrote my first substantial article on Hume, concerning his argument about miracles and testimony. Other articles closer to the theme of this book followed, and although it was in those articles that the material presented in this book was first worked out, little if any of the original presentations remain. The articles are: 'Hume and the Lockean Background: Induction and the Uniformity Principle', *Hume Studies* 17 (1992), 179–207; 'Hume's Doubts about Probable Reasoning: Was Locke the Target?', *Hume and Hume's Connexions* (Edinburgh University Press/ Penn State University Press, 1994); 'Locke on Reason, Probable Reasoning and Opinion', *Locke Newsletter* 24 (1993), 35–79; 'Inference, Reason and Reasoning in Hume's *Treatise,* Book I', *Southwest Philosophy Review* 10 (1994), 17–27; 'Reason, Reflection and *Reductios*', *Hume Studies* 20 (1994), 195–210; 'Philosophy and the Good Life: Hume's Defence of Probable Reasoning', *Dialogue* 35 (1996), 485–503; 'Hume on Demonstration', in Patricia Easton (ed.), *Logic and the Workings of the Mind: The Logic of Ideas and Faculty Psychology in Early Modern Philosophy,* North American Kant Society Studies in Philosophy (Atascadero, Calif.: Ridgeview, 1997).

I have so many people to thank for help with the work that went into this book that I fear some, through inadvertence, will not here be mentioned. To these, I both apologize and give thanks. The others, in no particular order, are as follows. Michael Ayers introduced to me to Locke's thought and has been an unfailing help through the years. His comments on the first three chapters of this book saved me from many egregious errors. John Thorp, who was a fellow student in the Hume seminar in 1969, provided invaluable advice. Amy Schmitter helped with some difficult problems about Descartes. Wayne Waxman, with whom I carried on an extensive e-mail correspondence, forced me to clarify many arguments. Ted Morris, Charlotte Brown, Sandy Stewart, Lorne Falkenstein, Vere Chappell, Ty Lightner, Charles Kahn, Dave Schmidtz, Rob Cummins,

Shaughan Lavine, Houston Smit, Gideon Yaffe, Ed McCann, and Peter Millican have all helped, not only through their conversations, comments, and suggestions, but through their work. The Hume Society, and its convivial members, provided an ideal forum where much of the material in this book was first presented. Most of the first draft was written in 1994–5 while I was a Scholar Associate at the Getty Center, which then was in Santa Monica, California. It is difficult to imagine a better environment for scholarly work. Some of that material was presented at a Hume and Reid seminar which I conducted with Keith Lehrer. I owe thanks to Keith, and all of the students in the seminar, especially Jack Lyons and Dave Truncellito. The penultimate draft was written in the spring of 1997 while on sabbatical, kindly granted by the College of Social and Behavioral Sciences, University of Arizona. Holly Smith, the dean of the college, and Chris Maloney, the head of the philosophy department, have each provided invaluable support in many ways. David Fate Norton, John Biro, and Don Garrett all read an early version of the book and provided detailed comments, as well as much other help over the years. I would like to thank the anonymous referees, not just for OUP but for other presses and journals, who have provided apt criticism and good advice. A different sort of thanks goes to the providers of HUMETEXT, and to InteLex Corporation, whose electronic versions of Hume's texts are invaluable. And thanks to Tim Bayne for help with the index and proofreading. Many thanks also to Angela Blackburn for all her work in the production of this book. Finally, thanks to my daughter Laura, and especially to my wife Julia Annas, for her support, encouragement, example, and love. Without her, it is all inconceivable.

Tucson, December 1998

D.O.

Contents

Abbreviations

Descartes, *Meditations*	Rene Descartes, *Meditations on First Philosophy.*
Descartes, *Rules*	Rene Descartes, *Rules for the Direction of the Mind,* followed by Rule number and page in Descartes (1984–91), vol. i, e.g. '*Rules* 7, p. 26'
Descartes, *Discourse*	Rene Descartes, *Discourse on the Method,* followed by Part number and page in Descartes (1984–91), vol. i, e.g. *Discourse* 2, p. 121.
Leibniz, *New Essays*	G. W. Leibniz, *New Essays on Human Understanding.* Page references are to Leibniz (1982).
Locke, *Essay*	John Locke, *An Essay Concerning Human Understanding.* References to particular passages are given in terms of Book, chapter, paragraph, e.g. 'IV. xiii. 2'. Page references where given are to Locke (1975).
Hume, *Treatise*	David Hume, *A Treatise of Human Nature.* Page references are to Hume (1987*b*), in the form '*T* 102'. Sections are referred to either by name, or by Book, part, section, e.g. '1. 3. 6'.
Hume, *Abstract*	David Hume, *An Abstract of A Treatise of Human Nature.* Page references are to Hume (1987*a*), e.g. '*A* 657'.
Hume, *Enquiry*	David Hume, *Enquiry Concerning Human Understanding.* Page references are to Hume (1970), e.g. '*EHU* 96'.

1 Introduction

This book will explore Hume's account of reason and its associated modes of reasoning: demonstrative and probable. Many of the most famous problems Hume discusses, and the positions he advocates, are couched in terms of reason: whether probable reasoning or causal inference is founded on reason, scepticism with regard to reason, reason and the passions, whether moral distinctions are based on reason. To understand what Hume has to say about these issues, we must understand what his account of reason and reasoning is. In this work, I concentrate mainly on those issues that arise in Book One of Hume's *Treatise,* although in the last chapter I make use of the first *Enquiry,* where Hume's views on the warrant of reason are further developed.

In the early modern period, reason was one of the cognitive faculties; others included the understanding (or the intellect), judgement, the imagination, memory, and the senses.[1] The higher cognitive faculties were related in the following way: the understanding was primarily concerned with the formation of concepts, judgement with the perception of the relation of concepts, and reason with the inference from one judgement to another. Different thinkers not only had different theories of the workings of these faculties (different faculty psychologies), but also, not surprisingly, did not use these terms univocally. Hume, for instance, sometimes uses the terms 'reason' and 'the understanding' interchangeably.[2] Inference or reasoning is the typical activity of the faculty of reason, and, at least in Hume and Locke, it comes in two forms: demonstrative

[1] For the relevance of cognitive faculty psychology to Hume on this topic in particular, and the early modern period in general, see Garrett (1997), Falkenstein and Easton (1997), and Hatfield (1997).

[2] See for instance *T* 186: 'If the sceptical reasonings be strong, say they, 'tis a proof, that reason may have some force and authority: if weak, they can never be sufficient to invalidate all the conclusions of our understanding.' But note even here the emphasis is on inferences or 'reasonings', and the conclusions to which they lead. Similarly, in the footnote at *T* 117–18, Hume characterizes reason as the faculty responsible for 'our demonstrative and probable reasonings', whereas in the analogous footnote at *T* 371, it is the understanding that is so characterized.

reasoning, which results in knowledge, and probable reasoning, which results in opinion or belief.[3] Part of what Hume wants to do, or so I will claim, is to argue against the explanatory fruitfulness of treating reason as an independent faculty, with its own irreducible powers. Instead, the activities of reason are to be explained in terms of broader principles of the imagination. But Hume's account can only be understood against the background of seeing reason as a cognitive faculty to be investigated, along with the other cognitive faculties, through faculty psychology.

Hume had a conception of reasoning (or inference) radically different from our own, and unless we are aware of that conception we will not fully understand what he is up to when he discusses, for example, what we now call the problem of induction. In the early modern period, ideas were the central feature of both faculty psychology and logic,[4] and Hume's conception of reasoning revolves around it. We reason from one idea to another. Ideas can stand in various relations one to another; an instance of reasoning is constituted by a chain of ideas, each idea related to its neighbour in various ways. Although any such instance can be thought of in terms of propositions, premises, and conclusions, it must be understood that the fundamental work is done at the level of ideas and their relations. For example, suppose we wanted to reason towards the proposition 'the square of the hypotenuse is equal to the squares of the other two sides.' Hume says that this 'cannot be known, let the terms be ever so exactly defined, without a train of reasoning and enquiry' (*EHU* 163). If I am right, such a train would be constituted by a chain of ideas the first of which is the idea whose content is 'the square of the hypotenuse' and the last of which is 'the squares of the other two sides'. Connecting these ideas is a series of intermediate ideas. The link between each pair of adjacent

[3] Locke often contrasts knowledge with probability. For example, at IV. iii. 6 he says, 'I am not here speaking of Probability, but Knowledge' (*Essay,* 541). See also IV. xi. 9: 'But this is but probability, not Knowledge.' Here, 'probability' is used to describe the result or upshot of probable reasoning, i.e. it is used in place of 'belief' or 'opinion'. Keeping in mind the background of faculty psychology will allow us to disambiguate between the faculty, the activity of the faculty, the result of that activity, and characteristics of the result of that faculty.

[4] Two logic books of the period are Arnauld and Nicole's *Logic, or the Art of Thinking* (Arnauld and Nicole (1996)) and Gassendi's *Institutio Logica* (Gassendi (1981)) . Both treat ideas as the central ingredient of their logic. Judgements or propositions are formed out of ideas, and syllogisms out of propositions. Locke, following Descartes, abandoned syllogism as an adequate account of reasoning, replacing it with an account that saw inference as the perception of the relation between two ideas via an intermediate idea. Such intermediate ideas were often called 'mediums', reflecting the concept of a 'middle term' in a syllogism. Hume followed Descartes and Locke in treating reason this way.

ideas is a relation which must be seen to hold, and one that must enable us to see that the first idea stands in the relation of equality to the last idea. Finding these ideas, putting them in the right order, and seeing that the relevant relations hold is what constitutes reasoning. We can, if we like, break off the two ideas at each end of the chain, and combine them into a proposition called 'the conclusion', while forming other propositions out of the intermediate ideas which we call 'the premises'. But to see why the conclusion 'follows from the premises', we must construct the chain of related ideas.

There are at least two large claims about this conception of reasoning that I will argue for. One is that Hume inherited it from Descartes and Locke, though of course he refined it and gave it peculiarly Humean characteristics. The second is that this is a non-formal conception of reasoning, one that has little to do with formal conceptions of deductive validity, characterized either in an Aristotelian/Scholastic way or in a modern, post-Fregean way. Hume's demonstrative reasoning is not our (or Aristotle's) deductive reasoning.

The first claim might seem to put me squarely in the camp about which Norton warns us: 'Readers of Hume should be wary of those commentators who engage in the kind of historical reductivism that claims to unlock the secrets of Hume's thought by reference to one or two authors or one intellectual tradition' (Norton (1993*a*), 3). I seek to avoid membership of this group by claiming neither that Hume's view on reasoning is the sole key to an overall understanding of Hume, nor that Descartes and Locke are the only influences on Hume, even with respect to reasoning.[5] I hold only the more modest thesis that the topic of reason and reasoning is of great importance in Hume studies and that it is undeniable that he was influenced by Descartes and Locke on this issue.

The second claim needs more unpacking. What do I mean when I say that Hume (and Descartes and Locke) had a non-formal conception of inference? Part of the answer is that they utterly rejected syllogism and its attendant mode of inference or consequence. Hence I do not mean that, while rejecting 'formal inference' as enunciated by Paul of Venice, they were happy to accept his 'material inference'.[6] Another part of the answer

[5] See n. 4. Although Arnauld and Gassendi would serve just as well as Descartes and Locke as exemplars of the background of faculty psychology and the logic of ideas, the latter pair, like Hume and unlike the former pair, reject syllogism as a theory of reasoning.

[6] See Normore (1993), 450. I am greatly indebted to the whole discussion in this article. Paul of Venice systematized the late medieval tradition in his *Logica Magna*.

is that their conception of inference was very unlike the modern conception of deductive inference as found in modern formal logic. When we introduce deductive validity to students in introductory courses in modern formal logic, we often say things such as:

> An argument is deductively valid just in case the argument is such that if the premises are true, the conclusion *must* be true (or, it is not possible for the premises to be true and the conclusion false).

With this semantic or modal conception of deductive validity, it is easy enough to form a correlative notion of deductive inference. But it soon emerges that this criterion is too broad. We do not want to count as deductively valid arguments containing inferences such as the following:

(1) Socrates runs.
Therefore, Socrates moves.

We can turn this into a deductively valid argument by adding the additional premise 'Anything that runs, moves', hence:

(2) Socrates runs.
Anything that runs, moves.
Therefore, Socrates moves.

Argument (2) is a paradigm of a deductively valid argument, while (1) is invalid as it stands. We can say that (2) is formally valid, that is to say, it is valid in virtue of its form. This can be explained either syllogistically or according to modern predicate logic. Any argument with a similar form, specified in the relevant way, will also be deductively valid. So, part of what I mean by saying that Descartes, Locke, and Hume had a non-formal conception of inference is that they thought that the formal conception of inference, as exemplified in (2) above, was of little or no interest, and might actually do harm.

The rejection of syllogism is connected with the central role ideas played in the faculty psychology of the time. In the works of the philosophers we are concerned with, the formal structure of syllogism is of little interest in accounting for reasoning. The focus is not the validity of argument so much as the activity of the faculty of reason. And to examine that faculty is to examine the materials with which we reason (ideas), and the activities performed by the faculty on those materials (inferences or reasonings). As Hatfield says: 'The early modern rejection of Aristotelian logic can then be seen as reflecting a negative assessment of the fit between

the syllogism and logic considered as an art of reasoning that refines the use of the cognitive faculties.'[7]

What are we to say of the inference found in argument (1)? [8] One thought is that such an inference depends on the 'content' of the words and propositions, rather than on the form of the argument. The contents of the words 'run' and 'moves' are crucial to (1) in a way they are not to (2). Alternatively, we could say that (1) depends on the meaning of many words, while (2) depends on the meaning only of the logical constants.[9] Or we may think that (1) instantiates a semantic conception of inference, while (2) is purely syntactic. Part of what I mean when I say that Descartes, Locke, and Hume had a non-formal conception of inference is that, since they thought that inference or reasoning was a matter of relations of ideas, and since ideas were, as one might say, pure content, inference was to them more a matter of content than of form.

One consequence of this is that Locke's and Hume's distinction between demonstrative and probable inference is quite unlike our distinction between deductive and inductive inference. In a deductive argument, truth is preserved: if the premises are true, the conclusion must be true. In an inductive argument, the truth of the premises makes the truth of the conclusion more probable. A demonstration preserves certainty: a demonstrative argument transfers the certainty of the premises to the conclusion. A probable argument has premises with a lower degree of certainty or evidence, and that lesser degree is transferred to the conclusion. If the premises are not certain, the argument can be only probable, not demonstrative.[10]

Another feature of this interpretation of Hume is that Hume's assertion, that when we make probable inferences we are not determined by

[7] Hatfield (1997), 22.

[8] The inference found in this argument would, of course, be recognized by the scholastics as a perfectly legitimate 'consequence'. But I have found no evidence that the concept of such a non-syllogistic inference played any role in the thinking of Hume and his predecessors.

[9] See Barnes (1990) for an extended argument for the possibility of treating all inferences, including this one, as dependent on the meaning of the logical constants. That requires, of course, expanding the extension of the concept 'logical constant' to include, *inter alia,* 'runs' and 'moves'.

[10] Don Garrett appreciates this point in Garrett (1997). Concerning the difference between probable and demonstrative arguments in Hume, he says: 'This distinction has now, of course, been largely replaced by the distinction between deductively valid and deductively invalid arguments, a distinction that concerns only the nature and strength of the *connection* between premises and conclusions. Thus, an argument with false or weak premises may be deductively *valid* for us, although it would not have been demonstrative for Hume' (Garrett (1997), 94).

reason, is not be understood primarily as a claim about the reasonableness or unreasonableness of such inferences, or about the justification of the beliefs thus produced.[11] Rather, Hume is arguing that reason cannot explain how we come to have beliefs in the unobserved on the basis of past experience. Past experience explains the presence of those beliefs in a different way. Similarly, when Hume claims that reason or the understanding, when it acts alone, 'entirely subverts itself', he is not claiming that reason undermines its own warrant or that the beliefs based on reason are shown to be unreasonable. Rather, Hume is arguing that reason by itself cannot explain how we manage to retain beliefs in the face of sceptical arguments.

One of the difficulties of discussing these issues with respect to the early modern period is vocabulary. For instance, in the *Rules* Descartes talks about intuition and deduction as the two ways of knowing. But in other works he talks more of demonstration than deduction. Locke speaks of intuition and demonstration as well, but also of deduction. Hume follows Locke in this respect, but mentions 'deduction' much less frequently. If, when we read Locke and Hume, we think of deduction in the modern sense, we will fail to understand what is being said. It might be best to start with a brief overview of these and related terms, of how I shall use them, and of what I take Descartes, Locke, and Hume to mean by them. I shall do this in the context of a brief summary of the overall position I shall ascribe to these authors in subsequent chapters.

1. The Scholastics

Formal validity applies, strictly speaking, only to arguments and argument forms. The mode of inference characteristic of formally valid arguments is *deductive inference*. By extension, we can talk of *formally valid inferences* and *deductively valid arguments*. These concepts of validity and inference

[11] I say 'not to be primarily understood' as a claim about reasonableness because if reason, as a higher cognitive faculty, did explain such inferences, then that in itself would confer positive normative validation on such inferences. As Falkenstein and Easton say, relying on Hatfield (1997), 'with few exceptions early modern philosophers from Descartes through to Reid had an antecedent commitment to the notion that the higher cognitive faculties are truth-generating and truth-preserving' (Falkenstein and Easton (1997), p. iii). So when Hume argues that when we make probable inferences we are not determined by reason, he is denying that our beliefs in the unobserved have the sort of reasonableness that would be conferred on them if they were the product of the faculty of reason. But it remains an open question whether there is any other sense in which they are reasonable. See Chapters 6–9 below.

are formal in the sense explained above: they have to do with the form of the argument, the meaning of the logical constants, and are characterized syntactically rather than semantically. Very roughly, this is the conception of deduction and inference found both in the scholastics and in modern logic.

A *syllogism* is an argument which is an instance of a syllogistic argument form. It is formally valid, and it exhibits deductive modes of inference. The validity of a syllogism is explained or accounted for by the formal theory of syllogism or *syllogistic*. A *demonstration* is a syllogism, or a linked series of syllogisms, in which the premises are known with certainty (or are self-evident) and explain the conclusion. A conclusion which has been so demonstrated is thus known with certainty (but is not self-evident) and is explained. Demonstrations are formally valid and exhibit only deductive modes of inference. By extension, then, we can talk of demonstrative inference or reasoning, and demonstrative certainty.

2. Descartes (Chapter 2)

Descartes was interested in reasoning as a method of discovering new truths. He held that syllogisms and demonstrations were only good for presenting truths already known. The deductive inference characteristic of formal arguments was non-ampliative. In the *Rules,* he presented his own theory of *intuition* and *deduction*. Intuition was the way in which one could just 'see' with complete certainty that an idea (or proposition, or object of the intellect) was true.[12] Simple truths of mathematics were exemplars of things known by intuition. Deduction, for Descartes, was quite distinct from the formal conception of his predecessors; it was essentially a linked series of intuitions. The certainty of deduction was less than that of intuition because of the greater number of steps involved. Deduction approximated to intuition when the reasoner went over the steps of the deduction many times until she became so familiar with them that she could grasp the relation between the first and last ideas in the chain almost by intuition, as it were. The ability to 'see' or 'intuit' the relation between ideas was, for Descartes, a characteristic of the faculty of the intellect.

[12] It is jarring for us to think of an idea, as opposed to a proposition, being true. But many figures of this period took proposition formation to be 'creating a composite idea from simple ones' (Gassendi (1981), 102). Judging two ideas to agree or disagree was described equally well as forming a proposition or creating a composite idea.

Descartes's own conception of demonstration was essentially the same as his concept of deduction. However, he distinguished between the method of *analysis* and the method of *synthesis*. The former was his own method of discovery; the latter was more like scholastic demonstration. Once new truths had been discovered by analysis, the results could be 'proved' by the method of synthesis. For instance, at the end of the second set of *Objections and Replies,* he recasts the results of the *Meditations* into synthetic form. Sometimes Descartes uses 'demonstration' to talk about such synthetic presentations.

3. Locke (Chapter 3)

Locke followed Descartes in rejecting syllogism and formal accounts of reasoning, and he did so for roughly the same reasons. His account of intuition is analogous to Descartes's, and his absolutely clear and explicit account of *demonstration* seems much the same as Descartes's account of deduction in the *Rules*. But Locke's account of the nature and origin of ideas is different: ideas come from sense either in sensation or reflection, and are much less abstract. There are no unique and abstract objects of the intellect; all ideas have their origin in experience. Hence, the scope and range of reason and knowledge is much more limited. But knowledge is supplemented by probable opinion or *belief*. Such beliefs are still based on reason, but they are the result of probable, not demonstrative, reasoning. *Probable reasoning* is structurally analogous to demonstrative reasoning in that it consists of a chain of ideas. The link between adjacent ideas in the chain is not intuitive but probable; such relations of ideas hold not universally but only for the most part.

Locke frequently speaks of deductions but never intends thereby to be speaking of formally valid arguments. Rather, he uses the term 'deduction' in a standard seventeenth- and eighteenth-century sense, where it simply means 'argument'. So by 'deduction', Locke means 'argument, either demonstrative or probable'.

4. Hume (Chapters 4–9)

Like Locke, and in contrast to Descartes, Hume had an empirical account of ideas, and a conception of reason with very limited power. His account of intuition and demonstrative reasoning is much like Locke's. However,

he has a quite new account of belief and probable reasoning. Hume uses the term 'deduction' much less frequently then Locke, but appears to use it in the same non-formal sense, referring simply to arguments either demonstrative or probable.

In Chapter 4, I turn to the details of Hume's view. I start with an overview of his rigorous methodology of refusing to go beyond experience. This is cashed out in the doctrine of impressions and ideas and the derivation of all ideas from impressions. A consequence of this methodology is his refusal to treat an appeal to a faculty as explanatory of the characteristic activity of that faculty. Instead, he traces observable connections among the perceptions of the mind. Ideas stand in certain relations to each other; some of these are the natural relations of association, others are philosophical relations. Hume makes a further distinction between two classes of relations: the members of one class remain the same as long as the related ideas remain the same, while the members of the other class can change even if the ideas do not. These slender materials are the only resources Hume uses to come up with his account of reasoning and the understanding.

Chapter 5 deals with intuition and demonstrative reasoning. The main negative point is that our concept of a deductively valid argument, even one with necessarily true premises, has little to do with Hume's conception of demonstration. Following Descartes and Locke, the emphasis is on certainty, not necessity or validity. Two ideas are intuitively related if the relation between them is immediately conceived. Two ideas are demonstratively related if the relation between them is conceived, not immediately, but via other intermediate ideas. The link between each pair of adjacent ideas in the resulting chain must be intuitive. With this background, some of Hume's more infamous claims are explained: we know in advance that two ideas cannot be demonstratively related if we can conceive one without the other; the causal maxim is neither intuitively nor demonstratively known; the only relation capable of sustaining demonstrations is that of quantity and number.

Chapter 6 deals with Hume's negative argument about probable reasoning. I attempt to uncover what he means when he raises the question whether we are determined by reason in making the inference from a present impression to an unobserved idea. If we were determined by reason, something, such as the idea of necessary connection or the principle of uniformity, would have to serve as the intermediary via which we get from the impression to the idea. But no such idea or principle is available to us prior to our engaging in probable reasoning. So inferences or reasonings

from the observed to the unobserved are not explained by appeal to the faculty of reason. The point about not being determined by reason does not show that such inferences, or the beliefs we thus come to hold, are unreasonable. It shows that our coming to have such beliefs is not explained by appeal to the proper functioning of the faculty of reason.

Chapter 7 outlines Hume's own explanation of how we are led from a present impression directly to an idea of something unobserved by the association of ideas set up by past experience. It is this that explains our most basic probable inferences. Hume also has to explain why and how the results of such inferences are believed. What distinguishes belief from mere conception is the very same as what distinguishes impressions from ideas, and ideas of memory from ideas of the imagination: force and viva-city. Once Hume has an account of these basic inferences and beliefs, he is able to explain how we manage to form more complex, reflective reasonings. Such reasonings make use of the uniformity principle and the causal maxim, and Hume is even able to explain how we get the idea of necessary connection. At the end of the story, we have an account of how we manage to perform really quite difficult and complex feats of reasoning. But this account requires his explanation of the simplest cases of probable reasoning as merely associative, and his account of belief as belonging more to the sensitive than the cogitative part of our natures.

Chapter 8 provides an account of Hume's treatment of scepticism with regard to reason that is analogous to his account of probable reasoning. In neither case is Hume concerned with the justification of beliefs or the warrant of reason so much as with the explanation of the presence of beliefs. In his account of probable reasoning the issue was the origin of beliefs; in his account of scepticism with regard to reason the issue is the retention of beliefs in the face of sceptical arguments. The sceptical arguments threaten to lessen the degree of force and vivacity characteristic of our beliefs to the extent that they are in danger of becoming mere ideas and not beliefs at all. We know, as a matter of fact, that this result does not obtain, and Hume attempts to explain this by appeal to a feature of his account of reasoning: lengthy chains of abstruse reasoning have little effect on us. Hume considers his ability to respond to these sceptical arguments to be a vindication of his theory of belief.

Chapter 9 deals with two large issues: the scope of Hume's negative arguments and the warrant of probable reasoning. I expand and clarify my account of what Hume means when he says that we are not determined by reason when we make inferences from the observed to the unobserved. He is claiming that such inferences cannot be explained by appeal to a faculty

of reason which functions by reasoning from one idea to another via an intermediate idea. Hume's own conception of reason explains reasoning in terms of a subset of properties of the imagination. Similarly, the arguments of scepticism with regard to reason are directed against reason considered as a faculty functioning independently of those properties; it is only because of these properties that beliefs survive in the face of sceptical arguments. Concerning the second issue, I try to locate where in fact Hume does face the issue of warrant and to explain how he deals with it. I argue that, although Hume was not primarily concerned with issues of warrant and justification, he does, in Part 4 of Book I of the *Treatise,* begin to face the issue of just why we prefer the results of reason to those of other belief-forming mechanisms, such as superstition. Although the beginnings of Hume's answer can be found in this part of the *Treatise,* the answer is much better formulated and more ably presented in the first *Enquiry.* Hume explains our preference for reason in the same way as he accounts for our preference for virtue: the reasonable person, like the virtuous person, is more useful and pleasing to herself and others.

2 Descartes's New Theory of Reasoning

Descartes rejected syllogism and its associated formal account of deductive reasoning. Although he admitted that training in syllogistic logic could be useful for sharpening the wits of young students,[13] by and large he thought it useless as a method for discovering new truths. His own method, much discussed, included a new theory of reasoning as a way of getting to know new things. It appears to have been used by Descartes with great success early on, as he used it to help him solve Pappus's locus problem for four or more lines.[14]

Descartes's account of reasoning did not, of course, arise in a vacuum. Trends evident in the logic of Renaissance humanists such as Rudolph Agricola, Lorenzo Valla, Johannes Caesaris, and Petrus Ramus[15] were similar to Descartes's rejection of scholastic logic and its accompanying formal mode of inference. These thinkers reacted against the 'scholastic logicians insistence on the formal nature of their concern with rationcination.'[16] Since 'syllogism is presented as the focal point of the study of valid inference',[17] their arguments were largely directed against it. Valla wanted to include other forms of inference as legitimate, even though traditionally they would not have been so conceived. For instance, 'Socrates is married; therefore Socrates is not a bachelor' seemed to Valla to be as perfectly acceptable as 'If it is day, it is light; but it is day, therefore it is light'. He may well have considered this to be more a matter of extending formal validity than of replacing it with another conception. Agricola was

[13] *Rules* 2, p. 11.

[14] See Gaukroger (1992) for a clear discussion of Descartes's discovery as well as an illuminating exposition of his new account of reasoning, an exposition to which I am much indebted. Gaukroger (1989) is an earlier, more detailed account of Descartes's conception of inference.

[15] See Wilson (1997) for a discussion of the influence of Ramist logic on Descartes, Locke, and especially Berkeley.

[16] Jardine (1988), 173.

[17] Ashworth (1988), 164. I am indebted to this article, and Jardine (1988), throughout this paragraph.

interested in limiting the role of formal inference and concerned with looking at ways in which people might be legitimately persuaded of plausible truths. In this he was influenced by the Renaissance and early modern reading of Academic scepticism as, having rejected certainty, being concerned mainly with arguing plausibly towards the most likely conclusion.[18] Although the works of these Renaissance logicians were used briefly as textbooks in some schools in the mid-sixteenth century, their influence soon waned, and the schools returned to more traditional logics. The Jesuits were committed by their constitution to following Aristotle in logic (Descartes was educated at a Jesuit school), and the Laudian statutes of 1636 decreed Aristotelian logic to be the standard at Oxford.[19]

Why did Descartes reject syllogism and its associated formal account of reasoning?[20] For one thing, at least in the early *Rules,* he associates the scholastic account with too great a respect for authority and an unwillingness to discover things for oneself. For example, when speaking of his scholastic education,[21] he says 'For our part, we are very glad that we had a scholastic education of this sort. But we are now freed from the oath which bound us to our master's words and are old enough to be no longer subject to the rod.' (*Rules* 2, p. 11.) And in the next rule, when speaking of the advantages and disadvantages of studying 'the ancients', he says 'there is a considerable danger that if we study these works too closely traces of their errors will infect us and cling to us against our will and despite our precautions' (p. 13). These are general points and do not pick out failings of logic as such. More importantly, he detected in scholastic logic a lack of concern for truth. The 'weapons of the schoolmen, probable syllogisms, . . . are just made for controversies' (p. 11) and have nothing to do with the establishment of truth. Furthermore, such logic is useless for uncovering falsehood and error: 'those chains with which dialecticians suppose they regulate human reason seem to me to be of little use here.'[22]

[18] This reading of Academic scepticism is very likely false; see Annas (1994). But it is undeniable that it was the standard reading of the period; see Norton (1994). It is, of course, a tradition that Hume continued, with explicit reference to Academic scepticism.

[19] Oxford flirted briefly with using Locke's *Essay* as a logic textbook in the eighteenth century, but soon returned to more traditional texts. See Yolton (1986).

[20] See Passmore (1953) for an illuminating discussion of this issue to which I am much indebted. Passmore traces the parallels between Descartes's rejection and Locke's. See also Normore (1993) and Gaukroger (1992).

[21] Descartes stood in a very complex relationship to scholasticism, in respect not just to his education but also to the tradition of scholasticism and the influence it still had. See Ariew (1992).

[22] *Rules* 2, p. 12. Note Descartes's use of the term 'dialectician' for 'logician'. This was the term used by and of the Renaissance humanist logicians.

To infer one truth from another, we must 'cast off our syllogistic fetters' (*Rules* 7, p. 26).

Descartes's problem with formal logic with respect to truth is just that the logic of the schools was *formal*.[23] Descartes is concerned with truths, the discovery of new truths, and the ability to recognize a truth and distinguish it from falsehood. A formally valid argument can allow one to infer a truth from a falsehood or a falsehood from a falsehood. What has this to do with the establishment of new truths? If the correctness of an inference is divorced from the content of both what is inferred and that from which it is inferred, one loses the whole point of reason. Consider this long passage from *Rules* 14:

> Accordingly, in all reasoning it is only by means of comparison that we attain an exact knowledge of the truth. Consider, for example, the inference: all A is B, all B is C, therefore all A is C. In this case the thing sought and the thing given, A and C, are compared with respect to their both being B, etc. But, as we have frequently insisted, the syllogistic forms are of no help in grasping the truth of things. So it will be to the reader's advantage to reject them altogether and to think of all knowledge whatever—save knowledge obtained through simple and pure intuition of a single, solitary thing—as resulting from a comparison between two or more things. In fact the business of human reason consists almost entirely in preparing for this operation. (p. 57)

For Descartes, reasoning is not a matter of formalization, or obeying rules, or checking inference patterns. It is to see that one thing, A, stands in the relevant relation to another thing, C, either directly (intuition) or via some other thing, B (Cartesian deduction). And for this 'we have no need of a technique to help us intuit the truth which the comparison yields; all we need is the light of nature' (p. 57).

Descartes thought that the use of syllogism and formal (non-Cartesian) deductive inference, far from constituting correct reasoning, actually hindered its operation:

> As for other mental operations which dialectic claims to direct with the help of those already mentioned, they are of no use here, or rather should be reckoned a positive hindrance, for nothing can be added to the clear light of reason which does not in some way dim it. (*Rules* 4, p. 16)

[23] As Passmore says, 'Now we are really at the heart of the matter. The Cartesian objection to formal logic is just that it *is* formal. To express the same point differently, it distinguishes between truth and validity . . . —as if the true could follow from anything but the true' (Passmore (1953), 550). By modern standards, the logic of the schools was not *completely* formal. But it was formal enough to give Descartes pause.