

3

HUME'S 'SCEPTICISM' ABOUT INDUCTION

Peter Millican

'Is Hume a sceptic about induction?' This might seem to be a fairly straightforward question, but its appearance is misleading, and the appropriate response is not to give a direct answer, but instead to move to a more fundamental question which is suggested by Hume himself at the beginning of his definitive discussion of scepticism in *Enquiry* Section 12: 'What is meant by a sceptic?' (EHU 12.2 / 159). His point here is that 'sceptic' can mean many things, and what counts as 'sceptical' will often depend on the relevant contrast. Someone who is sceptical about morality or the existence of God, for example, need not be sceptical about the external world. And someone who is sceptical about the *rational basis* of inductive inference need not be sceptical at all – in the sense of dismissive or critical – about the practice itself.

This crucial point about the varieties of scepticism is often overlooked in discussions of Hume on induction, generating a great deal of misunderstanding. Commonly, the debate will be framed in terms of a simple contest between 'sceptical' and 'non-sceptical' interpretations. Then on the one side, a case is made drawing on Hume's famous negative argument which apparently denies induction any basis in 'reason'.¹ Meanwhile,

on the other side, appeal is made to Hume's writings as a whole – including the *Treatise*, *Essays*, *Enquiries*, *Dissertations*, *History* and *Dialogues* – which display a clear commitment to induction, and even reveal their author to be a fervent advocate of inductive science. The evidence on each side is then judiciously weighed, and an appropriate conclusion drawn depending on which way the balance falls. But this whole procedure is misdirected, because once we recognize the varieties of scepticism, it becomes clear that *these two bodies of evidence are not in conflict*.

1. A SCEPTICAL ARGUMENT, WITH A NON-SCEPTICAL OUTCOME

In this chapter, I shall maintain that Hume's argument concerning induction is indeed a sceptical argument, in the sense of showing that inductive extrapolation from observed to unobserved lacks any independent rational warrant. To avoid any misunderstanding on the way, however, it will help to be clear from the start that this is entirely compatible with his wholehearted endorsement of such extrapolation as the only legitimate method

HUME'S 'SCEPTICISM' ABOUT INDUCTION

for reaching conclusions about 'any matter of fact, which lies beyond the testimony of sense or memory' (EHU 12.22 / 159). The two may initially seem incompatible, but if so, this is because we are taking for granted that a method of inference is to be relied upon *only* if it can be given an independent rational warrant. And one of the central messages of Hume's philosophy is that this assumption is itself a rationalist prejudice that we should discard, even though it is shared by both the Cartesian dogmatist and the extreme 'Pyrrhonian' sceptic. In the contest between those two extremes, the Pyrrhonist 'seems to have ample matter of triumph' while he 'justly' urges Hume's own 'sceptical doubts' of *Enquiry* 4 (the famous argument which is then summarized at EHU 12.22 / 159). However, the appropriate response, as Hume himself explains, is not to follow the dogmatist in vainly attempting to challenge the argument that yields these doubts, but rather to ask the Pyrrhonist: '*What his meaning is? And what he proposes by all these curious researches?*' (EHU 12.23 / 159). What, after all, does he really expect us to do in response to this sceptical argument, even if we fully accept it? Is he seriously proposing that we should stop drawing inferences about the unobserved? That would obviously be absurd:

a PYRRHONIAN . . . must acknowledge, if he will acknowledge any thing, that all human life must perish, were his principles universally and steadily to prevail. All discourse, all action would immediately cease; and men remain in a total lethargy, till the necessities of nature, unsatisfied, put an end to their miserable existence. (EHU 12.23 / 160)

Theoretically, the Pyrrhonist might try to deny any such disastrous consequences, on the ground that if induction is unwarranted,

then we have no good reason for supposing that human life will indeed perish in these circumstances. But Hume suggests that even the Pyrrhonist – whatever his theoretical commitments – will be quite unable to insulate himself from such common-sense beliefs: 'Nature is always too strong for principle. . . . the first and most trivial event in life will put to flight all his doubts and scruples, and leave him the same, in every point of action and speculation' with the rest of us (EHU 12.23 / 160).

Hume cannot, of course, *prove* that putting total scepticism into practice will lead inevitably to disaster, at least not to the satisfaction of the Pyrrhonist who consistently refrains from induction. Nor can he *prove* that common life will always trump sceptical principle. But *if in fact* Hume's inductive conclusions about human psychology are correct, then he does not need to prove these points to any such opponent:

Nature, by an absolute and uncontrollable necessity has determin'd us to judge as well as to breathe and feel; nor can we any more forbear [making inductive inferences], than we can hinder ourselves from thinking as long as we are awake, or seeing the surrounding bodies, when we turn our eyes towards them in broad sunshine. Whoever has taken the pains to refute the cavils of this *total* scepticism, has really disputed without an antagonist, and endeavour'd by arguments to establish a faculty, which nature has antecedently implanted in the mind, and render'd unavoidable. (THN 1.4.1.7 / 183)

So *if in fact* the sceptic's doubts will be spontaneously 'put to flight' as soon as common life intrudes, then Hume's point is practically successful even if theoretically unproved. And recall again that *Hume himself need not be committed to accepting only what is*

theoretically provable – that is the very prejudice which he is aiming to undermine.

Hume's subtle approach to scepticism is made harder to appreciate by the vigour and rhetoric of some of his negative arguments and conclusions (especially in the *Treatise*, where his ultimate position on scepticism remains relatively obscure), but also, I suspect, by the widespread tradition of approaching scepticism initially through Descartes's *Meditations*. Descartes sees the sceptic as an opponent to be refuted outright, through rational argument of such overwhelming force as to be immune to any possible doubt. He thus takes on the onus of providing an ultimate justification of human reason, with any ineradicable doubt telling in favour of his sceptical opponent. Hume succinctly points out the fundamental flaw in this approach immediately after having raised the question 'What is meant by a sceptic?' at the beginning of *Enquiry* Section 12:

There is a species of scepticism, *antecedent* to all study and philosophy, which is much inculcated by DES CARTES . . . It recommends an universal doubt . . . of our very faculties; of whose veracity . . . we must assure ourselves, by a chain of reasoning, deduced from some original principle, which cannot possibly be fallacious or deceitful. But neither is there any such original principle, which has a prerogative above others, that are self-evident and convincing: Or if there were, could we advance a step beyond it, but by the use of those very faculties, of which we are supposed to be already diffident. The CARTESIAN doubt, therefore, were it ever possible to be attained by any human creature (as it plainly is not) would be entirely incurable; and no reasoning could ever bring us to a state of assurance and conviction upon any subject. (EHU 12.3 / 149–50)

Such *antecedent scepticism* is utterly unworkable, because in refusing to trust our faculties from the start, we are denying ourselves the only tools that could possibly provide any solution. The proper alternative, Hume seems to be saying, is to accord our faculties some initial default authority, and to resort to practical scepticism about them only '*consequent* to science and enquiry', in the event that those investigations reveal their 'fallaciousness' or 'unfitness' (EHU 12.5 / 150). Thus the onus is shifted onto the sceptic to give reasons for mistrusting our faculties, and in the case of induction, that onus is at most only partially fulfilled. Admittedly,

The sceptic . . . seems to have ample matter of triumph; while he justly insists, that all our evidence for any matter of fact, which lies beyond the testimony of sense or memory, is derived entirely from the relation of cause and effect; that we have no other idea of this relation than that of two objects, which have been frequently *conjoined* together;² that we have no argument to convince us, that objects, which have, in our experience, been frequently conjoined, will likewise, in other instances, be conjoined in the same manner; and that nothing leads us to this inference but custom or a certain instinct of our nature; which it is indeed difficult to resist, but which, like other instincts, may be fallacious and deceitful. (EHU 12.22 / 159)

But this result – as we have seen – gives no practical basis for scepticism. Certainly it raises a ground for theoretical concern, and highlights 'the whimsical condition of mankind, who must act and reason and believe; though they are not able, by their most diligent enquiry, to satisfy themselves concerning the foundation of these operations'

HUME'S 'SCEPTICISM' ABOUT INDUCTION

(EHU 12.23 / 160). But unless we are in the grip of the rationalist prejudice that Hume rejects, we should not see this lack of theoretical satisfaction as sufficient reason to abandon our only respectable method of inference about the unobserved. That would be to take the sceptical considerations to a ridiculous (and anyway unachievable) extreme. Instead, the appropriate response is less dramatic but far more valuable: to recognize our 'whimsical condition' as a ground for modesty about the depth and extent of our powers, and to adopt a 'mitigated scepticism' which is correspondingly diffident and cautious (EHU 12.24 / 161–2), and which confines our attention to the subjects of common life, 'avoiding distant and high enquiries':

While we cannot give a satisfactory reason, why we believe, after a thousand experiments, that a stone will fall, or fire burn; can we ever satisfy ourselves concerning any determination, which we may form, with regard to the origin of worlds, and the situation of nature, from, and to eternity? (EHU 12.25 / 162)

This sentence is Hume's last word on the question of inductive scepticism, and represents the conclusion of a coherent line of thought which can be traced from the beginning of *Enquiry* Section 12, his most clear and explicit – and repeatedly refined – treatment of scepticism as a whole. So far, then, we have a clear outline of his mature position.

2. HUME'S SCEPTICAL ARGUMENT

The main aim of this chapter is to understand the logic and significance of Hume's famous argument, and in particular its implications

for his notion of 'reason' and for the rational status of inductive inference. These issues are far from straightforward, partly because the argument appears three times in Hume's works, with many differences between the three presentations – some of them highly significant – and clear evidence of a systematic development in his views. But for our purposes, it will be enough here just to highlight the most salient points.

2.1 THE ARGUMENT OF THE *TREATISE*

In the *Treatise*, the famous argument occurs within the context of Hume's rather rambling search for the origin of the idea of *necessary connexion*, which he has previously (THN 1.3.2.11 / 77) identified as the key component of our idea of causation. Not having 'any certain view or design' on how to trace the impression(s) that could account for this crucial idea, he sets off to 'beat about all the neighbouring fields' in the hope that something will turn up (THN 1.3.2.12–13 / 77–8). His first such 'field' concerns the basis of the Causal Maxim 'that *whatever begins to exist, must have a cause of existence*' (THN 1.3.3.1 / 78), but after concluding that this Maxim cannot be 'intuitively or demonstratively certain',³ he quickly moves on to a related question, '*Why we conclude, that such particular causes must necessarily have such particular effects, and why we form an inference from one to another?*' (THN 1.3.3.8–9 / 82). He soon narrows his focus onto what he considers the paradigm case of a causal inference, from a sensory *impression* of one 'object' (for example, we see a flame), to forming a belief – a lively *idea* – of its effect or cause (for example, we expect heat). He then analyses such an inference into its component parts: '*First*, The original impression. *Secondly*, The transition

to the idea of the connected cause or effect. *Thirdly*, The nature and qualities of that idea' (THN 1.3.5.1 / 84). The remainder of Section 1.3.5 discusses the first component, then 1.3.6, entitled 'Of the Inference from the Impression to the Idea', comes to the second component, the causal inference itself.⁴

Hume's first move, in discussing this paradigm causal inference, is to insist that it cannot be made a priori, simply from observation of the cause:

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 imply the absolute contradiction and impossibility of conceiving any thing different. But as all distinct ideas are separable, 'tis evident there can be no impossibility of that kind. When we pass from a present impression to the idea of any object, we might possibly have separated the idea from the impression, and have substituted any other idea in its room. (THN 1.3.6.1 / 86–7)

Here Hume is appealing to the principle that if an inference is to be a priori, there must be an *absolute contradiction and impossibility* of conceiving things as turning out differently: an a priori inference has to yield total certainty. He also seems to be taking for granted that such a contradiction in conception implies a contradiction in fact, which is closely related to his Conceivability Principle that *whatever we conceive is possible* (this makes a more explicit entrance shortly, at THN 1.3.6.5 / 89). Note also his appeal to what is commonly called his Separability Principle, that 'all distinct ideas are separable' (cf. THN 1.1.3.4 / 10, 1.1.7.3 / 18–19, 1.3.3.3 / 79–80), which plays a major role

in the *Treatise* but disappears from his later writings.⁵

Hume has now established one of the most important results of his philosophy: 'Tis . . . by EXPERIENCE only, that we can infer the existence of one object from that of another.' (THN 1.3.6.2 / 87). And he immediately goes on to explain that the kind of experience which prompts such a causal inference is repeated conjunctions of pairs of 'objects . . . in a regular order of contiguity and succession'. Where we have repeatedly seen *A* closely followed by *B*, 'we call the one *cause* and the other *effect*, and infer the existence of the one from that of the other'. Hume enthusiastically trumpets this relation of *constant conjunction* as the sought-for key to the crucial notion of necessary connexion, with a clear allusion back from THN 1.3.6.3 / 87 to 1.3.2.11 / 77,⁶ and he celebrates the progress of his rambling journey of discovery. Admittedly there is still some way to go, because mere repetition of conjunctions does not seem to generate 'any new original idea, such as that of a necessary connexion'. But the line of investigation seems clear:

having found, that after the discovery of the constant conjunction of any objects, we always draw an inference from one object to another, we shall now examine the nature of that inference . . . Perhaps 'twill appear in the end, that the necessary connexion depends on the inference, instead of the inference's depending on the necessary connexion. (THN 1.3.6.3 / 88)

This last sentence provides an elegant epitome of the link between Hume's theories of induction and causation, anticipating the eventual outcome of his quest for the elusive impression of necessary connexion (which will come much later, at THN 1.3.14.20 / 164–5). For present purposes, however, we

HUME'S 'SCEPTICISM' ABOUT INDUCTION

can forget about that quest, and focus on the nature of inductive inference.

Having established that causal inference 'from the impression to the idea' (e.g. from seeing *A* to expecting *B*) depends on experience, Hume goes on to pose the central question that his argument aims to answer, namely which *mental faculty* is responsible for the inference: 'the next question is, Whether experience produces the idea by means of the understanding or imagination; whether we are determin'd by reason to make the transition, or by a certain association and relation of perceptions?' (THN 1.3.6.4 / 88–9). If the faculty of *reason* were responsible, Hume says, this would have to be on the basis of an assumption of similarity between past and future, commonly called his Uniformity Principle: 'If reason determin'd us, it wou'd 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.*' (THN 1.3.6.4 / 89). So the next stage is to see whether there is any argument by which reason could establish this principle, and if there is not, then Hume will conclude that reason cannot be the basis for our inductive inferences.

Following the standard categorization deriving from John Locke,⁷ just two types of argument are potentially available, *demonstrative* and *probable*, and Hume now eliminates each in turn. First, *demonstrative* arguments proceed with absolute certainty based on self-evident ('intuitive') relationships between the ideas concerned; these sorts of argument are capable of yielding 'knowledge' in the strict sense, and are mostly confined to mathematics.⁸ But no such argument can possibly prove the Uniformity Principle, because that would mean the principle is absolutely guaranteed, which the

Conceivability Principle shows it cannot be: 'We can at least conceive a change in the course of nature; which sufficiently proves, that such a change is not absolutely impossible. To form a clear idea of any thing, is an undeniable argument for its possibility, and is alone a refutation of any pretended demonstration against it' (THN 1.3.6.5 / 89). As for *probable* arguments (that is, arguments in which we draw conclusions – typically about things in the world of our everyday experience – with less than total certainty), these must be based on causal relations, because causation is 'The only . . . relation of objects . . . on which we can found a just inference from one object to another' (THN 1.3.6.7 / 89).⁹ But Hume has just argued that causal inference is 'founded on the presumption of a resemblance betwixt those objects, of which we have had experience, and those, of which we have had none' (an argument that he recapitulates at THN 1.3.6.6–7 / 89–90, echoing the discussion of THN 1.3.4.1–4 / 82–9).¹⁰ And since probable inference relies on causal relations, 'tis impossible this presumption [of the Uniformity Principle] can arise from probability', on pain of circularity.¹¹ So neither demonstrative nor probable arguments can provide any solid basis for the Uniformity Principle, and Hume quickly concludes that *reason* cannot be responsible for causal inference:¹²

Thus not only our reason fails us in the discovery of the *ultimate connexion* 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 shou'd 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. (THN 1.3.6.11 / 91–2)

Instead, such inference must derive from associative principles in the *imagination* (THN 1.3.6.12 / 92), and in particular, from a mechanism which Hume calls *custom* (e.g. THN 1.3.7.6 / 97, 1.3.8.10 / 102) or *habit* (e.g. THN 1.3.10.1 / 118). Experience of constant conjunction between *A* and *B* establishes an associative connexion between them, making our mind habitually move easily from the idea of one to the idea of the other. When we then see an *A*, the 'force and vivacity' of that sense impression is transferred through the associative link to our idea of *B*, enlivening it into a belief. Hume accordingly goes on to define a belief as 'A LIVELY IDEA RELATED TO OR ASSOCIATED WITH A PRESENT IMPRESSION' (THN 1.3.7.5 / 96), and to expand on this theory of belief formation over the subsequent sections.

2.2 FROM THE *TREATISE* TO THE *ABSTRACT*

Given the fame that it has subsequently enjoyed, Hume's argument in *Treatise* 1.3.6 is surprisingly inconspicuous. It occurs within a detour (at THN 1.3.3.9 / 82) from a ramble through fields (THN 1.3.2.13 / 77–8); the core of it occupies only six fairly short paragraphs (1–2 / 86–7 and 4–7 / 88–90); and its primary role seems to be to identify *custom* as the ground of causal belief – as a component in Hume's larger theory of belief – rather than to emphasize its own apparently sceptical conclusion. He does later remark on the striking nature of this conclusion:¹³

Let men be once fully perswaded of these two principles, *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 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; . . . and this will throw them so loose from all common systems, that they will make no difficulty of receiving any, which may appear the most extraordinary. (THN 1.3.12.20 / 139)

But this again is within a context where his aim is to develop his theory of belief, now focusing on inferences involving *probability* where the relevant past conjunctions are not constant.

Books 1 and 2 of the *Treatise* were published at the end of January 1739, but well before the end of that year, Hume seems to have radically reassessed the significance of his philosophy. By then he had written his *Abstract* of the *Treatise*, which appeared in print in March 1740, and which devotes 8 paragraphs out of 35 (paragraphs 8 and 10–16) to the famous argument. From being a very small part of a much larger system, suddenly it becomes the prime focus of his philosophy, as it remained in the first *Enquiry* of 1748, which can indeed be seen as mainly constructed around the argument and its implications.

The declared purpose of the argument in the *Abstract* is to understand 'all reasonings concerning *matter of fact*' (Abs. 8 / 649), rather than limiting discussion to the paradigm case of a causal inference – 'the inference from the impression to the idea' – which had been the topic of *Treatise* 1.3.6. But Hume then immediately states that all such *factual reasonings* (to coin a shorthand term) 'are founded on the relation of cause and effect', thus making clear that causal inference is still the focus. However, this initial

HUME'S 'SCEPTICISM' ABOUT INDUCTION

move is helpful in both emphasizing the generality of the argument and also streamlining it, avoiding the need for the recapitulation of his treatment of causal reasoning which had occupied THN 1.3.6.6–7 / 89–90. Now, in proving that all causal reasoning presupposes the Uniformity Principle, he will have proved at the same time that ‘all reasoning concerning *matter of fact*’ – and hence all *probable* reasoning – has such a dependence.¹⁴

To facilitate discussion, Hume introduces the simple example of one billiard ball striking another and causing it to move (Abs. 9–10 / 649–50). He then presents a vivid thought-experiment, imagining the first man Adam, newly created by God, and confronted with such an imminent collision:

without experience, he would never be able to infer motion in the second ball from the motion and impulse of the first. It is not any thing that reason sees in the cause, which makes us *infer* the effect. Such an inference, were it possible, would amount to a demonstration, as being founded merely on the comparison of ideas. But no inference from cause to effect amounts to a demonstration. Of which there is this evident proof. The mind can always *conceive* any effect to follow from any cause, and indeed any event to follow upon another: whatever we *conceive* is possible, at least in a metaphysical sense: but wherever a demonstration takes place, the contrary is impossible, and implies a contradiction. There is no demonstration, therefore, for any conjunction of cause and effect. (Abs. 11 / 650–1)

Compared to the equivalent passage in the *Treatise* (THN 1.3.6.1 / 86–7), this is clearer and more straightforward, proving by direct appeal to the Conceivability Principle a general lesson which he states even more

forthrightly elsewhere: ‘that to consider the matter *a priori*, any thing may produce any thing’ (THN 1.4.5.30 / 247, cf. 1.3.15.1 / 173, EHU 12.29 / 164).

So experience is necessary to ground any causal inference (and hence any inference ‘concerning *matter of fact*’). And Hume goes on to explain that the type of experience relevant to his thought-experiment would be of ‘several instances’ (Abs. 12 / 651) in which Adam saw the collision of one ball into another followed by motion in the second ball. Such experience would condition him ‘to form a conclusion suitable to his past experience’, and thus to expect more of the same. ‘It follows, then, that all reasonings concerning cause and effect, are founded on experience, and that all reasonings from experience are founded on the supposition, that the course of nature will continue uniformly the same’. (Abs. 13 / 651). So as in the *Treatise*, we reach Hume’s Uniformity Principle, and he now proceeds accordingly to consider what rational basis this principle could be given:

’Tis evident, that *Adam* . . . would never have been able to *demonstrate*, that the course of nature must continue uniformly the same, and that the future must be conformable to the past. What is possible can never be demonstrated to be false; and ’tis possible the course of nature may change, since we can conceive such a change. (Abs. 14 / 651)

As in the *Treatise*, we have an appeal to the Conceivability Principle to show that a change in the course of nature is possible, which in turn implies that uniformity cannot be demonstrated.

Nay, . . . [*Adam*] could not so much as prove by any *probable* arguments, that the

future must be conformable to the past. All probable arguments are built on the supposition, that there is this conformity betwixt the future and the past, and therefore can never prove it. This conformity is a *matter of fact*, and if it must be proved, will admit of no proof but from experience. But our experience in the past can be a proof of nothing for the future, but upon a supposition, that there is a resemblance betwixt them. This therefore is a point, which can admit of no proof at all, and which we take for granted without any proof. (Abs. 14 / 651–2)

Here the logical circularity of attempting to give a probable argument for the Uniformity Principle is more explicitly spelled out than in the *Treatise*. With both demonstrative and probable argument eliminated, Hume briskly concludes that ‘We are determined by CUSTOM alone to suppose the future conformable to the past. . . . ’Tis not, therefore, reason, which is the guide of life, but custom’ (Abs. 15–16 / 652).¹⁵

2.3 THE ARGUMENT OF THE *ENQUIRY*

In the *Enquiry concerning Human Understanding* of 1748, the famous negative argument occupies virtually all of Section 4, with the positive account in terms of *custom* appearing in Section 5. Compared with the versions in the *Treatise* and *Abstract*, the argument is clarified and greatly expanded, leaving little doubt that Hume considers this his definitive presentation.

Section 4 starts with an important distinction now commonly known as ‘Hume’s Fork’, between *relations of ideas* – that is, propositions (notably from mathematics) that can be known to be true a priori, just by examining and reasoning with the ideas concerned – and *matters of fact* – that is, propositions whose truth or falsehood depends on

how the world is, and so can be known (if at all) only through experience. Some matters of fact we learn directly by perception, and can later recall.¹⁶ But what of the rest? Hume sets himself to address this key question: ‘what is the nature of that evidence, which assures us of any real existence and matter of fact, beyond the present testimony of our senses, or the records of our memory’ (EHU 4.3 / 26)? On what basis do we infer from what we perceive and remember, to conclusions about further, unobserved, matters of fact?

Hume calls such inferences ‘reasonings concerning matter of fact’ (EHU 4.4 / 26), a term we saw introduced just once in the *Abstract* but which now becomes his standard way of referring to what he had previously called ‘probable arguments’. The reason for this terminological adjustment seems to be to avoid the infelicity of calling such inferences merely ‘probable’ even when they are based on vast and totally uniform past experience that yields complete ‘moral certainty’ (that is, practical assurance). In a footnote to the heading of Section 6, Hume will accordingly draw a distinction – within the class of ‘reasonings concerning matter of fact’ – between *probabilities* and *proofs*, the latter being ‘such arguments from experience as leave no room for doubt or opposition’, as when we conclude that ‘all men must die, or that the sun will rise to-morrow’.¹⁷

In *Enquiry* 4, the famous argument now proceeds much as it had in the *Abstract*, albeit greatly filled out. The appendix to this chapter lays out a structure diagram involving 20 stages,¹⁸ with the stages numbered according to the logic of the argument. The same numbers will be followed here, within square brackets, to enable easy cross-referencing. First, we learn that [2] ‘All reasonings concerning matter of fact seem to be founded on the relation of *Cause and Effect*’ (EHU 4.4 / 26),

HUME'S 'SCEPTICISM' ABOUT INDUCTION

since [1] 'By means of that relation alone we can go beyond the evidence of our memory and senses'. As in the *Abstract*, starting in this way has the virtue of streamlining the argument that follows, so that conclusions then drawn about *causal* reasoning will automatically apply to the entire class of *factual* reasoning. The first of these conclusions, as before, is that [5] all knowledge of causal relations must be founded on experience: 'the knowledge of this relation [i.e. causation] is not, in any instance, attained by reasonings *a priori*; but arises entirely from experience, when we find, that any particular objects are constantly conjoined with each other'. (EHU 4.6 / 27). Again we get a thought-experiment involving Adam, but this time with water and fire, illustrating the general truth that [3] 'No object ever discovers [i.e. reveals], by the qualities which appear to the senses, either the causes which produced it, or the effects which will arise from it'. This is relatively easy to see when the phenomena are untypical or unfamiliar, such as the unexpected adhesion between smooth slabs of marble, the explosion of gunpowder, or the powers of a (magnetic) lodestone, where we have no temptation to imagine that we could have predicted these effects in advance (EHU 4.7 / 28). But with commonplace occurrences, such as the impact of billiard balls (EHU 4.8 / 28–9), we might suppose that the effect was foreseeable *a priori*. To prove that this is an illusion, Hume asks us to imagine how we could possibly proceed to make such an *a priori* inference, arguing that we could not, on the grounds that the effect is a quite distinct event from the cause (EHU 4.9 / 29), while many different possible effects are equally conceivable (EHU 4.10 / 29–30). Summing up [4]:

every effect is a distinct event from its cause. It could not, therefore, be

discovered in the cause, and the first invention or conception of it, *a priori*, must be entirely arbitrary. And even after it is suggested, the conjunction of it with the cause must appear equally arbitrary; since there are always many other effects, which, to reason, must seem fully as consistent and natural. (EHU 4.11 / 30)

Note the strong emphasis on *arbitrariness*, making clear that it is not just the *conceivability* – or mere theoretical possibility – of alternative outcomes which makes any *a priori* inference from cause to effect impossible; it is the fact that from an *a priori* point of view, there is nothing to suggest one outcome over another.¹⁹

If causal relations cannot be known *a priori*, then factual inference cannot be *a priori* either (given [2] that factual inference is founded on causation). [6] 'In vain, therefore, should we pretend to determine any single event . . . without the assistance of observation and experience'. Hume now brings Part 1 of Section 4 to a close, with two very important corollaries for his philosophy of science. The first is that since we cannot aspire to *a priori* insight into why things work as they do, the appropriate ambition for science is instead to aim more modestly for *systematization* of those cause and effect relationships that experience reveals: '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'. (EHU 4.12 / 30). Then follows Hume's most explicit account of applied mathematics (which he calls 'mixed mathematics'), emphasizing that although mathematical relationships are *a priori*, the laws through which they are applied to the world – his example is the Newtonian law of

conservation of momentum – remain unambiguously a posteriori: ‘the discovery of the law itself is owing merely to experience, and all the abstract reasonings in the world could never lead us one step towards the knowledge of it’ (EHU 4.13 / 31).²⁰

Part 2 starts by summarizing Hume’s results so far, and anticipating his eventual conclusion [20]:

When it is asked, *What is the nature of all our reasonings concerning matter of fact?* the proper answer seems to be, that they are founded on the relation of cause and effect. When again it is asked, *What is the foundation of all our reasonings and conclusions concerning that relation?* it may be replied in one word, EXPERIENCE. But if we still carry on our sifting humour, and ask, *What is the foundation of all conclusions from experience?* this implies a new question . . . I shall content myself, in this section, with an easy task, and shall pretend [i.e. aspire] only to give a negative answer to the question here proposed. 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. (EHU 4.14–15 / 32)

Having established that experience is required for any factual inference, Hume goes on to explain how experience plays that role:

we always presume, when we see like sensible qualities, that they have like secret powers,²¹ and expect, that effects, similar to those which we have experienced, will follow from them. . . . But why [past] experience should be extended to future times, and to other objects, which for aught we know, may be only in appearance similar; this is the main question . . . (EHU 4.16 / 33–4; emphasis added)

This passage seems to be saying that [7] when we draw conclusions from past experience, we presuppose a resemblance between the observed and the unobserved, extrapolating from one to the other.²² Later, when apparently referring back to this passage, Hume confirms such a reading: ‘We have said, . . . that all our experimental conclusions proceed upon the supposition, that the future will be conformable to the past’ (EHU 4.19 / 35). So his ‘main question’ at EHU 4.16 / 34 concerns, in effect, the foundation of the Uniformity Principle.²³ He repeats (cf. EHU 4.6 / 27) that [3] ‘there is no known connexion between the sensible qualities and the secret powers’ of any object, and infers from this that [9] ‘the mind is not led to form such a conclusion concerning their constant and regular conjunction, by any thing which it knows of their nature’ (EHU 4.16 / 33). So the Uniformity Principle cannot be established on the basis of anything that we learn directly through sense perception, in which case [10] any foundation for it will have to draw on past experience, which for the sake of the argument can here be taken as infallible: ‘As to past *Experience*, it can be allowed to give *direct* and *certain* information of those precise objects only, and that precise period of time, which fell under its cognizance. . . . (EHU 4.16 / 33). The ‘main question’ is then urged: how to justify the step from past experience to the assumption of future resemblance?

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, in appearance, similar, will be attended with similar effects*. I shall allow, if you please, that the one proposition may justly be inferred from the other: I know in fact, that it always is

HUME'S 'SCEPTICISM' ABOUT INDUCTION

inferred. But if you insist, that the inference is made by a chain of reasoning, I desire you to produce that reasoning. The connexion between these propositions is not intuitive. There is required a medium, which may enable the mind to draw such an inference, if indeed it be drawn by reasoning and argument. (EHU 4.16 / 34)

So because [11] the inference from past experience to future resemblance is not *intuitive* (i.e. not immediately *self-evident*), [12] there must be some *medium*, some 'connecting proposition or intermediate step' (EHU 4.17 / 34) if indeed the inference is 'drawn by reasoning and argument'.²⁴

The long paragraph that we have just been discussing (EHU 4.16 / 32–4) includes steps that have no parallel in the *Treatise* and *Abstract*, where, as we saw, Hume simply takes for granted that if the Uniformity Principle is to be rationally well founded, then this must be on the basis of some chain of reasoning, either demonstrative or probable. Here in the *Enquiry*, he explicitly rules out both *sense experience* and *intuition* as sources of foundation for the Uniformity Principle, and only then comes to consider *demonstration* and *probability*, which are in turn dismissed in the familiar way, but again with the structure of the argument made somewhat more explicit:

[13] All reasonings may be divided into two kinds, namely demonstrative reasoning, or that concerning relations of ideas, and moral reasoning, or that concerning matter of fact and existence.²⁵ [15] That there are no demonstrative arguments in the case, seems evident; since [14] it implies no contradiction, that the course of nature may change, . . . Now whatever is intelligible, and can be distinctly conceived, implies no contradiction, and

can never be proved false by any demonstrative argument or abstract reasoning *a priori*. (EHU 4.18 / 35)

As in the *Treatise* and *Abstract*, Hume appeals to the Conceivability Principle, though slightly differently: here he expresses it as the principle that what is conceivable *implies no contradiction*, rather than saying that what is conceivable is *possible*.²⁶ Moving on now to *probability*:

[16] If we be, therefore, engaged by arguments to put trust in past experience, and make it the standard of our future judgment, these arguments must be probable only, or such as regard matter of fact and real existence, . . . But . . . there is no argument of this kind, . . . We have said, that [2] all arguments concerning existence are founded on the relation of cause and effect; that [5] our knowledge of that relation is derived entirely from experience; and that [7] all our experimental conclusions proceed upon the supposition, that the future will be conformable to the past. [17] To endeavour, therefore, the proof of this last supposition by probable arguments, or arguments regarding existence, must be evidently going in a circle, and taking that for granted, which is the very point in question. (EHU 4.19 / 35–6)

Note in passing how Hume just assumes here some obvious inferences, linking [2] with [5] to deduce that [6] all factual inferences ('probable arguments', 'arguments concerning existence') are founded on experience, and then combining this with [7] to deduce in turn that [8] all factual inferences 'proceed upon the supposition' of the Uniformity Principle.²⁷ He also now leaves the reader to piece together the final

stages of his argument.²⁸ First, that since the Uniformity Principle cannot be established by either demonstrative or factual inference, it follows that [18] there is no good argument for the Uniformity Principle. Secondly, that therefore (given [12]),²⁹ it follows that [19] the Uniformity Principle cannot be founded on reason, and finally, that since [8] all factual inferences are founded on the Uniformity Principle, it follows that [20] no factual inference (i.e. no 'reasoning concerning matter of fact and existence') is founded on reason. Hume had anticipated this conclusion at EHU 4.15, quoted earlier:³⁰ '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' (EHU 4.15 / 32). Also in the following section – most of which is devoted to sketching his theory of belief as based on 'CUSTOM or HABIT' (EHU 5.5 / 43) – Hume refers back to this argument and states its conclusion explicitly, once purely negatively and once alluding to his positive theory: 'we . . . conclude . . . in the foregoing section, that, in all reasonings from experience, there is a step taken by the mind, which is not supported by any argument or process of the understanding; . . .' (EHU 5.2 / 41); 'All belief of matter of fact or real existence . . . [is due merely to] . . . a species of natural instincts, which no reasoning or process of the thought and understanding is able, either to produce, or to prevent' (EHU 5.8 / 46–7).

2.4 THE ESSENTIAL CORE OF HUME'S SCEPTICAL ARGUMENT

We can now distil the essence of Hume's argument from these three different presentations, into eight main stages:

- (A) The argument concerns all inferences to matters of fact that we have not observed: what the *Enquiry* calls 'reasonings concerning matter of fact' (here *factual inferences* for short). Although the *Treatise* version starts with a narrower focus on causal inference 'from the impression to the idea', it later requires the lemma that *all factual inferences are based on causal relations* (stated at THN 1.3.6.7 / 89). So the argument is improved both structurally and philosophically by starting with all factual inferences, as in the *Abstract* and the *Enquiry*, and then deriving this lemma as its first main stage (Abs. 8 / 649; EHU 4.4 / 26–7).
- (B) Hume next argues that *causal relations cannot be known a priori, and hence are discoverable only through experience* (THN 1.3.6.1 / 86–7, Abs. 9–11 / 649–51; EHU 4.6–11 / 27–30). This is a major principle of his philosophy, wielded significantly elsewhere (e.g. THN 1.3.15.1 / 173, 1.4.5.30 / 247–8; EHU 12.29 / 164).
- (C) From this principle, together with the lemma from (A), Hume concludes that *all factual inferences are founded on experience*, the relevant experience being of those *constant conjunctions* through which we discover causal relationships (THN 1.3.6.2 / 87, Abs. 12 / 651; EHU 4.16 / 33).
- (D) Factual inferences thus involve *extrapolation from observed to unobserved, based on an assumption of resemblance* between the two. Initially in the *Treatise*, Hume seems to suggest that such an assumption of resemblance – commonly called his Uniformity Principle (UP) – would be necessarily implicated only *if reason were responsible* for the inference (THN 1.3.6.4 / 88–9). But his settled view, expressed in all three works (see note 10 above), is that *UP is presupposed by all factual*

HUME'S 'SCEPTICISM' ABOUT INDUCTION

inferences,³¹ simply in virtue of their taking for granted a resemblance between observed and unobserved.

- (E) Hume now proceeds to investigate critically the basis of UP itself. In the *Treatise* (THN 1.3.6.4 / 88–9) and *Abstract* (Abs. 14 / 651–2), he appears to assume immediately that any foundation in reason would have to derive from some *demonstrative* (i.e. deductive) or *probable* (i.e. factual) inference. In the *Enquiry*, however – which hugely expands this part of the argument from the cursory treatment in the earlier works – he considers demonstrative and factual inference only after first (EHU 4.16 / 32–4) explicitly ruling out any foundation in *sensory awareness of objects' powers*, or in immediate *intuition* (i.e. self-evidence).³²
- (F) Any demonstrative argument for UP is ruled out because a change in the course of nature is clearly conceivable and therefore possible (THN 1.3.6.5 / 89; Abs. 14 / 651–2, EHU 4.18 / 35). Any factual argument for UP is ruled out because, as already established at (D), such arguments inevitably presuppose UP, and hence any purported factual inference to UP would be viciously circular (THN 1.3.6.7 / 89–90; Abs. 14 / 651–2; EHU 4.19 / 35–6).
- (G) The upshot of this critical investigation is that *UP has no satisfactory foundation in reason*, though Hume expresses this in various ways:

'tis impossible to satisfy ourselves by our reason, why we shou'd extend [our] 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. (THN 1.3.6.11 / 91–2)

This [resemblance between past and future] is a point, which can admit of no proof at all, and which we take for granted without proof. (Abs. 14 / 652)

it is not reasoning which engages us to suppose the past resembling the future, and to expect similar effects from causes, which are, to appearance, similar. (EHU 4.23 / 39)

- (H) Since UP is presupposed by all factual inferences (D), and UP has no foundation in reason (G), Hume finally concludes that *factual inference itself has no foundation in reason*. Again he expresses this conclusion in various ways (and note here the narrower focus of the *Treatise* on causal inference 'from the impression to the idea', as pointed out at (A) above):

When the mind . . . passes from the idea or impression of one object to the idea or belief of another, it is not determin'd by reason (THN 1.3.6.12 / 92)

'Tis not, therefore, reason, which is the guide of life, but custom. That alone determines the mind . . . to suppose the future conformable to the past. However easy this step may seem, reason would never, to all eternity, be able to make it. (Abs. 16 / 652)

I say then, that, . . . our conclusions from . . . experience are *not* founded on reasoning, or any process of the understanding. (EHU 4.15 / 32)

in all reasonings from experience, there is a step taken by the mind, which is not supported by any argument or process of the understanding (EHU 5.2 / 41)

Note also that two of these quotations – from Abs. 16 / 652 and EHU 5.2 / 41 – could just as appropriately have been cited as illustrations of (G), because both refer to that 'step'

which is precisely the presupposition of the Uniformity Principle. Since factual inference operates by extrapolation from past to future, Hume takes it to be obvious that the foundation of such inference must be the same as the foundation of the principle of extrapolation. Hence he does not consistently distinguish between (G) and (H), making the last stages of his argument less explicit than one might wish (cf. the end of section 2.3 above).

3. THE NATURE OF HUME'S SCEPTICAL CONCLUSION

Hume usually expresses the conclusion of his famous argument in a way that seems to imply some *incapacity* on the part of human reason. The Uniformity Principle is something that we 'are never able to prove' (THN 1.3.6.11 / 92), and which indeed 'can admit of no proof at all' (Abs. 14 / 652). Because of this, 'tis impossible to satisfy ourselves by our reason' (THN 1.3.6.11 / 91) concerning the inferential step from past to future, a step which 'reason would never, to all eternity, be able to make' (Abs. 16 / 652) and 'which is not supported by any argument or process of the understanding' (EHU 5.2 / 41). Hume also frequently uses similar terms within the argument itself, when saying that various would-be proofs of UP are impossible, refutable, circular or lack any 'just foundation' (THN 1.3.6.5 / 89, 1.3.6.7 / 89–90, 1.3.6.10 / 91; EHU 4.18 / 35, 19 / 35–6, 21 / 37–8), denying that human knowledge 'can afford . . . an argument' that 'supports the understanding' (EHU 4.17 / 34) in reasoning from past to future, and consequently denying that our factual inferences 'are built on solid reasoning' (THN 1.3.6.8 / 90). In both the *Treatise* (see section 2.2 above) and *Enquiry* (see section 1), he later

glosses the conclusion of the argument in apparently very negative terms, as showing that '*we have no reason*' to draw any factual inference (THN 1.3.12.20 / 139), and that 'we cannot give a satisfactory reason, why we believe, after a thousand experiments, that a stone will fall, or fire burn' (EHU 12.25 / 162). In this light, it seems entirely appropriate that he should entitle *Enquiry* Section 4 'Sceptical Doubts concerning the Operations of the Understanding', and describe it as appearing to give the sceptic 'ample matter of triumph' (EHU 12.22 / 159).

As discussed earlier, however, the issue of Hume's inductive 'scepticism' is not so straightforward, and it is far from clear that he sees the acknowledged incapacity of reason to 'prove' or 'support' the Uniformity Principle as any sort of genuine *problem*. Certainly he does not infer from it (either in the *Treatise*, the *Abstract* or the *Enquiry*) that induction is *unreasonable* in any pragmatic sense. And indeed the line of thought sketched in Section 1 above, drawing on Section 12 of the *Enquiry*, somewhat suggests that he considers it inevitable that our most basic principles of inference – precisely because they are so basic – will lack any ultimate justification beyond their fundamental place in our mental economy. That being so, the central upshot of Hume's argument might be simply to identify the Uniformity Principle as a basic principle of this kind, and the sceptical flavour of his reasoning – in demonstrating reason's incapacity to prove UP – need not carry over at all into the theory of human inference that he draws from it. Nevertheless, the sceptical flavour of the famous argument itself would remain, in denying UP a source of rational support that more optimistic philosophers might have expected it to enjoy. And although the argument also delivers the important positive principle that

HUME'S 'SCEPTICISM' ABOUT INDUCTION

the Uniformity Principle is presupposed by all factual inference (D), even in the *Enquiry* we have to wait until the final section to see this wielded as part of an effective *theoretical* defence against the 'Pyrrhonian' sceptic.³³

3.1 DEBATES ABOUT HUMEAN 'REASON'

What we get much sooner, of course, and in all three works, is Hume's positive account of how our inductive inferences operate through *custom* or *habit* – what he calls in the title of *Enquiry* Section 5 his 'sceptical solution' to the earlier 'sceptical doubts'. But as David Owen observes, it seems odd to suppose that a *psychological* account of how belief functions could in any way 'solve' genuine *epistemological* doubts; Owen accordingly suggests that the famous argument is itself best understood as exclusively concerned with psychological mechanisms, and as having nothing to do with 'the warrant of probable reasoning or the justification of belief'.³⁴ The argument's conclusion, that factual inference is not founded on *reason*, may initially seem unambiguously normative, but Owen interprets 'reason' here as signifying what he takes to be a Lockean conception of *the mechanism by which human reasoning operates*, namely, through stepwise inference via *intermediate ideas*. Thus he is able to read Hume's conclusion that factual inference 'is not determin'd by reason' as purely descriptive: as denying that we actually draw factual inferences in the stepwise, mediated manner that Locke supposes.³⁵ The famous argument accordingly serves to *reject* this Lockean conception of probable reasoning in favour of the more immediate and instinctive Humean model, thus providing a contribution to empirical psychology, rather than an exercise in sceptical epistemology.

Owen is by no means the first to read Hume's famous argument as designed to

reject some non-Humean notion of reason; indeed this style of interpretation became extremely popular in the 1980s. Before then, the general image of Hume was of a highly destructive sceptic, intending through his famous argument to maintain that inductive arguments lack all rational justification. Barry Stroud wittily expressed what he took to be Hume's conclusion: 'As far as the competition for degrees of reasonableness is concerned, all possible beliefs about the unobserved are tied for last place'.³⁶ Some of these extreme sceptical interpretations – most influentially those of Antony Flew³⁷ and David Stove³⁸ – took Hume to be starting from the assumption of *deductivism*, that an inference is rationally justified only if it is logically guaranteed.³⁹ But deductivism sits very uneasily with the (fallible but reasonable) empirical judgements that abound within Hume's contributions to 'the science of human nature', for example his discussions of the passions, his *Essays* on politics and economics, and his various pieces on religion. The 'wise man' of *Enquiry* 10.4 / 110, who 'proportions his belief to the [empirical] evidence', clearly cannot be a deductivist; hence Flew, in discussing 'Of Miracles', was forced to accuse Hume of 'flagrant and embarrassing' inconsistency.⁴⁰ Even more flagrantly inconsistent, from this perspective, were the passages in which Hume, after his famous argument had apparently denied causal, factual inference a place within the realm of 'reason', then quite explicitly treated it as one of reason's central operations, for example:⁴¹

with regard to reason . . . The only conclusion we can draw from the existence of one thing to that of another, is by means of the relation of cause and effect (THN 1.4.2.47 / 212)

reason, in a strict and philosophical sense, can have an influence on our conduct . . . by informing us of the existence of something which is a proper object of [a passion]; or when it discovers the connexion of causes and effects, so as to afford us means of exerting any passion. (THN 3.1.1.12 / 459)

But such gross inconsistency was hard to credit, and given Hume's evident commitment to inductive moral science (and to its reasonableness in comparison with 'superstition'), it seemed to most later scholars far more plausible to interpret his famous argument not as genuinely sceptical, but instead as a way of *rejecting* or *undermining* the deductivist notion of reason on which it was thought to be based (by revealing its complete incapacity to underwrite any factual inference). From this it would follow that Hume must use the term 'reason' in at least two distinct senses: one narrowly deductivist or 'rationalistic' notion within the famous argument, and a broader, more 'naturalistic' notion elsewhere, such as in his discussions of the passions and morality.

This *anti-deductivist* style of interpretation was pioneered in 1975 by Tom Beauchamp and Thomas Mappes,⁴² whose work was quickly followed by numerous variations on the theme.⁴³ However it lost favour after I and Don Garrett (independently, in 1995 and 1997)⁴⁴ pointed out the implausibility, under careful analysis, of reading Hume's argument as employing a deductivist notion of reason. Deductivism proves very hard to square with the argument's logic,⁴⁵ and it also seems strange – if Hume's purpose is to wield the argument in order to *reject* the notion of reason that it employs – that he should then continue to assert its sceptical conclusion in the apparently sincere terms we saw earlier.⁴⁶ My own

proposed alternative was to see the argument as presupposing a *perceptual* model of reason, according to which we draw inferences through the perception of evidential connexions. This had the virtue of identifying a plausible (and substantial) target of Hume's argument, namely, Locke's view – complacently assumed and stated in his *Essay concerning Human Understanding*⁴⁷ but never worked out in any detail – that probable reasoning is founded on the *perception of probable connexions*. Against this, Hume's rival model of probable inference based on *custom* – and introduced immediately after his famous argument had refuted the alternative – stood out as a radical (and highly sceptical) departure. Moreover the ubiquitous hold of the traditional perceptual view of reason, which goes back to the ancients and was shared by Hume's contemporaries, could help to make sense of his own apparent assessment of the famous argument as having a significant sceptical impact. A mere denial that induction has *deductive* force, or yields *total* certainty, would hardly be worthy of notice in the wake of Locke.⁴⁸ But denying that induction is founded *on perception of any good reason whatever* would have vastly more sceptical significance.

Garrett's approach was quite different, and in context more radical. He insisted – against the prevailing orthodoxy – that Hume employs but a single sense of 'reason', taking this to be Hume's name for 'the general faculty of making inferences or producing arguments – just as it was for Locke'.⁴⁹ Leaving aside the (debatable) attribution to Locke,⁵⁰ the obvious advantage of this interpretation was precisely its lack of any need to posit an ambiguity in 'reason':

Hume . . . [is] making a specific claim, within cognitive psychology, about the relation between our tendency to make

HUME'S 'SCEPTICISM' ABOUT INDUCTION

inductive inferences and our inferential/argumentative faculty: he is arguing that we do not adopt induction on the basis of recognizing an *argument* for its reliability, for the utterly sufficient reason that there *is* no argument ('reasoning' or 'process of the understanding') that could have this effect. . . . this does not mean that inductive inferences are not themselves *instances* of argumentation or reasoning . . . His point is rather that they are reasonings that are not themselves produced by any piece of higher level reasoning: there is no argument that could lead us to accept the conclusion that inductive reasonings will be reliable if we did not *already* accept that conclusion in practice. Hence, in just this sense, they are a class of 'reasonings' (inferences or arguments) that 'reason' (the faculty of making inferences or giving arguments) does not itself 'determine' (cause) us to make.⁵¹

Like Owen, Garrett saw Hume's argument as an exercise in descriptive psychology rather than normative epistemology, delivering a result about the *causation* of inductive inference rather than its 'evidentiary value'. However, this sat uneasily with Garrett's emphasis (as in the quotation above) on the recognition of higher-level arguments *for the reliability* of induction, and under challenge, he modified his original reading of Hume's conclusion to make it more general. Here are the relevant parts of the passage above, edited to reflect the adjusted reading:⁵²

Hume . . . [is] making a specific claim, . . . about the underlying causal mechanism that gives rise to inductive inferences: namely, that it is not itself dependent on any reasoning or inference. . . . His point

is . . . that [inductive inferences] are reasonings which are not themselves *caused* by any piece of reasoning (including, of course, themselves). Inductive inferences require that we bridge a gap between observation and prediction, and for someone not already disposed by nature to bridge that gap, no argument for doing so would be persuasive. Hence, . . .⁵³

One surprising effect of this change was to bring Garrett's interpretation rather close to Owen's, because his detailed analysis of how mediated inferences operate made them *ipso facto* inferences that are 'determin'd by reason'. On this account, a demonstrative inference from *A* to *D*, mediated by the intuitive connexions of *A* to *B*, *B* to *C*, and *C* to *D*, will include as part of its processing the intermediate inference connecting *B* to *D*.⁵⁴ This makes the latter inference, according to Garrett, a *cause* of the overall inference from *A* to *D*; hence that overall inference is 'determin'd by reason' in the sense of being *caused* by another inference. Thus Garrett agrees with Owen that Hume's conclusion involves a denial that induction proceeds by *stepwise ratiocination*. All this may seem somewhat artificial, and increasingly distant from anything to be found in Hume's text, but it has the nice feature of accommodating a genuinely Humean point – that probable inference is characteristically immediate and instinctive rather than mediated and reflective – within a framework which, unlike Owen's, avoids any need to treat the notion of 'reason' that is operative in the famous argument as one that Hume *rejects*. Garrett has consistently urged this last point against rival interpretations: that Hume's famous argument gives little internal clue that he is employing some special notion of reason which he aims to reject. And although both Owen and I sought to mitigate the impact of

this criticism on our interpretations (by stressing that we saw Hume's response to the argument as changing not the *scope* of his notion of reason, but rather its *presumed method of operation*),⁵⁵ the lack of any obvious and deliberate ambiguity or equivocation on Hume's part has remained by far the strongest weapon in Garrett's armoury.

Garrett's interpretation has also seemed attractive for a more specious reason, namely, the extent to which Hume expresses his conclusion in terms of the impossibility of founding induction on 'reasoning' (e.g. THN 1.3.6.8 / 90; EHU 4.15 / 32, 4.16 / 34, 4.23 / 39), 'proof' (e.g. THN 1.3.6.11 / 92; Abs. 14 / 651–2), or 'argument' (e.g. Abs. 15 / 652; EHU 4.16–17 / 34–5, 4.21–3 / 38–9, 5.2 / 41). Today we read these terms as signifying complex inference involving intermediate steps, but in Hume's day they were understood rather differently. Johnson's dictionary of 1756 tells us that 'reasoning' is derived from 'reason', and defines it simply as 'argument'.⁵⁶ The first sense of 'argument' is given as 'A reason alleged for or against any thing', and Johnson implicitly confirms that he takes this as its primary sense in specifying – as one of the *non-discursive* senses of 'reason' – 'Argument; ground of persuasion; motive'. Likewise the first sense of 'proof' is given as 'Evidence; testimony; convincing token', supplemented in later editions by the clauses 'convincing argument; means of conviction'. The words that Johnson favours for stepwise inference are 'deduction' and 'ratiocination',⁵⁷ as in the specification of the two *discursive* senses of 'reason': 'The power by which man deduces one proposition from another, or proceeds from premises to consequences', and 'Ratiocination; discursive power'. These both contrast with 'intuition', which is 'Knowledge not obtained by deduction of reason', and 'intuitive',

which means 'Having the power of discovering truth immediately without ratiocination'. All this seems to fit with Hume's own usage: he refers to 'deductions' and 'ratiocination' in contexts where stepwise argument is clearly intended (e.g. THN 1.3.14.2 / 156, EHU 5.22 / 55, EPM 1.4 / 170; EHU 4.23 / 39, 12.17 / 155), and he is happy to refer to 'arguments', 'inference' and 'proof' that are 'intuitive', and hence do not proceed in a stepwise fashion (THN 1.3.14.35 / 173, 2.3.2.2 / 408; EHU 4.21 / 37, 8.22n18 / 94n, LDH 1.187, 91).⁵⁸ Overall, therefore, the language in which Hume expresses his famous conclusion is no argument (*sic.*) in favour of Garrett's interpretation.

Perhaps the most serious problem for Garrett's interpretation, as for Owen's, has been in making sense of the *logic* of Hume's famous argument. For as we have seen, that argument does not in fact put much emphasis on a *general absence of stepwise processing or ratiocination* within inductive inference.⁵⁹ Instead, it focuses on the very specific step of extrapolation from observed to unobserved – that is, the supposition of the Uniformity Principle (UP) – and then it attacks in turn the props on which that principle 'may be suppos'd to be founded', showing that none of them can 'afford any just conclusion of this nature' (THN 1.3.6.4 / 90). This move makes perfect sense on an *epistemological* interpretation of the argument, because if *any* essential evidential step in an inductive inference lacks a 'just foundation', then the inference as a whole will, apparently, be undermined.⁶⁰ On the Garrett/Owen style of *psychological* interpretation, however, the move looks almost irrelevant – *even if* it sufficed to show that UP is not itself reached through mediated ratiocination, that would not exclude such ratiocination from playing some *other* role within inductive inference. This objection can

HUME'S 'SCEPTICISM' ABOUT INDUCTION

be sharpened by posing a dilemma over what role UP itself is supposed to play here.⁶¹ If Hume is saying that UP functions as an intermediate step in inductive inference, then it looks as though he thinks inductive inference *does* involve stepwise ratiocination (*via* UP itself), in which case he is contradicting the very conclusion that Owen takes him to be drawing from the argument. If, on the other hand, Hume is *denying* that UP can play any psychological role within inductive inference (on the basis that it has no 'just foundation'), then it is unclear why he should take this to imply anything further about the actual psychological mechanism of inductive inference. The only apparently plausible answer here is to see Hume as placing a conditional constraint on how stepwise 'reason' *could* work: 'If reason determin'd us, it *would* proceed upon' UP (THN 1.3.6.4 / 89; emphasis added). But this conditional statement appears *only* in the *Treatise* presentation, and even there, it is followed three paragraphs later by the unconditional statement that 'probability *is* founded on the presumption of' UP (THN 1.3.6.7 / 90; emphasis added).⁶² Owen largely builds his interpretation around the conditional,⁶³ but it is straining credibility to rely so heavily on one statement in the *Treatise*, when we have seen so much evidence in sections 2.1–3 above that the versions in the *Abstract* and (especially) the *Enquiry* are more carefully crafted.

On a psychological interpretation, moreover, Hume should not be so confident that mediated ratiocination for a factual conclusion can proceed only via UP.⁶⁴ At best, he can claim that any *rationally sufficient* reasoning for such a conclusion must involve UP. And likewise, his argument seems completely inadequate to show that UP itself could not be believed on the basis of some mediated ratiocination. At best, again, he

has shown that UP has no 'just' foundation in demonstrative or factual reasoning.⁶⁵ But why should this be thought to exhaust the possibilities of relevant reasoning? Hume quite often refers to 'arguments' or 'reasoning' that he considers 'absurd', 'fallacious', or 'sophistical' (e.g. THN 1.2.4.11 / 43, 1.4.5.30 / 247; DNR 9.189–92); on a *psychological* interpretation of the famous argument, these should be as relevant to his theory as the 'just' reasonings that he is able to rule out.⁶⁶ Suppose, for example, it were suggested that induction can be founded on the principle that every change must have a cause, and hence the *ultimate* causal laws must be consistent over time. This would bring into play the attempted demonstrations of the Causal Maxim that Hume refutes at THN 1.3.3.4–8 / 80–2: even if fallacious, they could still be contenders as *psychological* explanations of our inductive assumptions. In short, Hume has done nothing to refute the hypothesis that UP may be believed on the basis of an *invalid* demonstrative argument; hence on the interpretations of Owen and Garrett, his famous argument is hopelessly incomplete.⁶⁷

But things are even worse than this, for yet another strategy that remains open on their readings was actually used by Hume's friend and correspondent Richard Price in the first chapter of his *Review of the Principal Questions in Morals*. Price claims that the Causal Maxim is known intuitively, 'nothing being more clearly absurd and contradictory, than the notion of a change without a *changer*'.⁶⁸ Then, in a footnote a few pages later, he explains how this can provide a basis for inferring future events from past regularity:

The conviction produced by experience is built on the same principle, with that

which assures us, that there must be a cause of every event . . . Because we see intuitively, that there being some reason or cause of this *constancy of event*, it must be derived from causes regularly and constantly operating . . . And the more frequently and uninterruptedly we knew this had happened, the stronger would be our expectation of its happening again, . . .⁶⁹

Hume produced no fewer than seven editions of his *Enquiry* after Price published this, and it would be astonishing if he did not know of it, given that the *Enquiry* itself – under its original title *Philosophical Essays* – is mentioned twice within the vicinity of these quotations (in footnotes on pages 12 and 41). As interpreted by Owen and Garrett, however, Hume's famous argument completely fails to engage with Price's justification of induction. That justification starts from what Hume would no doubt claim to be a fallacious 'intuition', but again there is no obvious *psychological* obstacle to erecting an argument on a fallacy: humans do it all the time!

Another related issue concerns the intended scope of the famous argument: is it supposed to be proving something about *every individual* factual inference, or about the genesis of our *general practice* of factual inference? When developing his interpretation, Owen writes repeatedly as though it were the latter, for example:

If the uniformity principle were something we knew or believed, prior to our engaging in probable reasoning,⁷⁰ we could explain probable reasoning as being based on reason. . . . [P]rior to our engaging in probable reasoning, we . . . neither know nor believe the uniformity principle. . . . Hume's argument . . . has more to do with the failure of reason to account for why we have the beliefs

we do than with why those beliefs are unjustified.⁷¹

But when articulating Hume's conclusion, Owen apparently moves towards a claim about the functioning of all individual inductive inferences, and strongly contrasts this with the alternative view as ascribed to Garrett:

Hume is here denying that such inferences can be explained as an activity of the faculty of reason conceived as functioning by the discovery of intermediate ideas . . . Garrett says that Hume 'is denying only that we come to engage in this species of reasoning as a result of any piece of reasoning *about* it'.⁷² . . . My main objection to Garrett's interpretation is that he treats Hume as asking about the cause of our engaging in probable reasoning . . . Hume's question is not what Garrett takes it to be. Hume's question is: how is it that we manage to make these inferences?⁷³

As we have seen already, however, Garrett's interpretation in his 1997 book was quickly modified (in his 1998 debate with me), at which point he clarified that, like Owen, he took Hume's conclusion to be one that applies to all individual inductive inferences:

[From] *Cognition and Commitment* . . . , Millican understandably infers that on my interpretation 'it is only the *general practice* of induction that fails to be determined by reason, and each of our *particular* inductive inferences is itself an instance of the operation of our reason.' . . . The crucial distinction for Hume, however, is . . . between an inference being an *instance* of reasoning and the same inference being *caused* by (another instance of) reasoning.⁷⁴

HUME'S 'SCEPTICISM' ABOUT INDUCTION

The significance of this point is that the bulk of Hume's argument, and especially his conclusion – in both the *Treatise* and the *Enquiry* – seems to intend a result about *every particular factual inference* (cf. section 2.4 [H] above). But on the interpretations of Owen and Garrett, the argument seems to lead far more plausibly to a result about *factual inference in general*. Note, for example, that Hume takes many inductive inferences to be reflective and mediated, especially those that involve 'inferences from contrary phenomena' (THN 1.3.12.7 / 133) or the application and balancing of 'general rules' (THN 1.3.13.7–12 / 146–50, 1.3.15 / 173–5). Moreover, inductive inferences from 'only one experiment of a particular effect' can – Hume says – be mediated by explicit reflection on a principle which looks very similar to UP (THN 1.3.8.14 / 104–5).⁷⁵ Owen is well aware of this,⁷⁶ but he does not apparently recognize the threat to his own interpretation, under which such mediated inferences become counterexamples to Hume's conclusion, at least if that is read (as Hume's own words seem to require) as a claim about each and every factual inference.

Garrett is also aware that 'not all probable inferences are immediate', but he endeavours to explain how nevertheless Hume's conclusion can be seen to apply even to those that are mediated:

it may well happen, as Millican notes, that one piece of probable reasoning is part of another piece of probable reasoning . . . But as Hume states his conclusion . . . , it is that 'in all reasonings from experience, there is a step taken by the mind which is not supported by any argument or process of the understanding' [EHU 5.2 / 41; emphasis added]. Where a piece of probable reasoning does occur as part of a second piece

of probable reasoning, it will involve a crucial step that is not supported by any argument . . . ; that is the point of Hume's discovery. Reasoning cannot cause the crossing of an inductive gap.⁷⁷

However, my objection to which this was a response referred not to the situation where 'one piece of probable reasoning is part of another piece of probable reasoning', but rather, where one inductive inference's *conclusion* (e.g. 'a general principle of uniformity' as at THN 1.3.8.14 / 104–5) is then given 'the role of a *premise* in further inductive inference'.⁷⁸ Garrett's response thus preserves what he takes to be Hume's conclusion, as universally applicable to factual inferences, only by stipulatively treating *the inference which was used to establish a proposition as itself a part of the further inference which then takes that proposition as a premise*. In the context of discussing the *epistemology* of induction, this might seem reasonable enough: if the proposition in question has a problematic foundation, then those problems will be inherited by any further inference built on it. But if Hume's famous argument is to be interpreted as involving the *psychological mechanism of individual inductive inferences* – as Garrett intends – then the move looks artificial and *ad hoc*, smudging over the manifest difference between *arguing* for some proposition and *taking it as assumed or established* (on the basis of previous argument).

To sum up so far, we have yet to find an interpretation that is genuinely satisfying. Any extreme sceptical reading leaves Hume's philosophy hopelessly inconsistent. The *anti-deductivist* reading and that of Owen both have serious difficulty making sense of the logic of his argument, and also have to rely on the textually questionable claim that Hume's notion of

'reason' within the argument is a target rather than sincere (a problem which also beset my own previous interpretation).⁷⁹ Garrett's reading has the significant merit of avoiding this last pitfall, but again has difficulty squaring with the argument's text and logic, and has been forced to adapt accordingly over time. Initially, Garrett understood Hume's conclusion as the straightforward claim that 'we do not adopt induction on the basis of recognizing an *argument* for its reliability'.⁸⁰ This soon changed into the more complex claim that 'the underlying causal mechanism that gives rise to inductive inferences . . . is not itself dependent on any reasoning or inference'.⁸¹ Meanwhile, since the *Enquiry* argument clearly ranges beyond narrow 'reasoning or inference', Garrett suggested that here Hume 'expands the famous conclusion to rule out any "reasoning or process of the understanding," thereby eliminating such non-inferential processes of the understanding as intuition or the perception of a probable connection between even a single "proof" and a conclusion'.⁸² But pushing in the opposite direction, his recognition that Hume acknowledges the role of explicit (and sometimes complex) ratiocination within some inductive inferences has led to a narrowing of the supposed conclusion, to focus on the very specific logical step which is 'the crossing of an inductive gap'.⁸³ Even after all this, as we have seen, Garrett's defence of the interpretation looks suspiciously *ad hoc*, holding that conclusion to be true even of an inductive inference which *explicitly* argues across the inductive gap using an antecedently established Uniformity Principle, simply on the basis that some *previous* inference was required to establish that principle. But by now the interpretation has been diluted beyond recognition, and we seem to have lost any focus on the actual psychological mechanism of individual inductive inferences – this

is looking far more like a discussion of the epistemology of our general presumption of uniformity.

3.2 'REASON' AS THE COGNITIVE FACULTY

One promising route towards a better understanding of Humean 'reason' is to look at the usage of Hume's contemporaries in Scotland and England, and especially those who – unlike Locke – were enthusiastic about the language of 'faculties' and relatively consistent in their usage.⁸⁴ Francis Hutcheson, Professor of Moral Philosophy at Glasgow and correspondent with Hume from 1739, provides the closest spatio-temporal match to the Treatise, having published in 1742 no fewer than four works containing an outline of the faculties, at least one of which – *Philosophiae Moralis Institutio Compendiaria* (later translated as *A Short Introduction to Moral Philosophy*) – he sent to Hume.⁸⁵ This, like the *Synopsis Metaphysicae* (*Synopsis of Metaphysics*)⁸⁶ was a Latin teaching text, and contains a discussion of 'The parts or powers of the soul'.⁸⁷ The other two works were *An Essay on the Nature and Conduct of the Affections* and *Illustrations on the Moral Sense*, published together as a third edition of both. To the former, Hutcheson added a footnote on the faculties,⁸⁸ and to the latter, a new paragraph:

Writers on these Subjects should remember the common Divisions of the Faculties of the Soul. That there is 1. *Reason* presenting the natures and relations of things, antecedently to any Act of *Will* or *Desire*: 2. The *Will*, . . . or the disposition of Soul to pursue what is presented as good, and to shun Evil. . . . Both these Powers are by the Antients included under the Λόγος or λογικὸν μέρος. Below these they place

HUME'S 'SCEPTICISM' ABOUT INDUCTION

two other powers dependent on the Body, the *Sensus*, and the *Appetitus Sensitivus*, in which they place the particular Passions: the former answers to the *Understanding*, and the latter to the *Will*. But the Will is forgot of late, and some ascribe to the *Intellect*, not only *Contemplation* or Knowledge, but *Choice, Desire, Prosecuting, Loving*.⁸⁹

It is clear from his alternation between 'Reason' and 'the *Understanding*' that Hutcheson takes these to be one and the same; indeed his *Essay*'s new footnote says as much.⁹⁰ This equivalence is also asserted (or manifested through the same sort of elegant variation of terminology that we see above) by various other writers known to Hume, for example Shaftesbury, Butler and Price,⁹¹ so it was evidently commonplace, though writers in the Scottish common-sense school later preferred to use 'reason' more narrowly, in much the way that Garrett favours.⁹² Hume himself, however, is clearly aligned with the former group, interchanging between 'reason' and 'the understanding' dozens of times – purely for the sake of stylistic variation – just as he does between 'the fancy' and 'the imagination':⁹³

the mind . . . is not determin'd by *reason*, but by certain principles, which associate together the ideas of these objects, and unite them in *the imagination*. Had ideas no more union in *the fancy* than objects seem to have to *the understanding*, . . . (THN 1.3.6.12 / 92; emphasis added)

There are no principles either of *the understanding* or *fancy*, which lead us directly to embrace this opinion . . . The . . . hypothesis has no primary recommendation either to *reason* or *the imagination* . . . (THN 1.4.2.46 / 211; my emphasis)

This sceptical doubt, both with respect to *reason* and *the senses* . . . 'Tis impossible upon any system to defend either *our understanding* or *senses* . . . ' (THN 1.4.2.57 / 218; emphasis added)

Consider also the following two footnotes, the first of which was expanded and moved to create the second:

when it [the imagination] is oppos'd to *the understanding*, I understand the same faculty, excluding only our demonstrative and probable reasonings. (THN 2.2.7.6n / 371n; emphasis added)

when I oppose it [the imagination] to *reason*, I mean the same faculty, excluding only our demonstrative and probable reasonings. (THN 1.3.9.19n22 / 117–18n; emphasis added)

Again, the switch from 'the understanding' to 'reason' looks purely stylistic, perhaps prompted by the clumsiness of ' . . . the understanding, I understand . . . '.

There is thus overwhelming textual evidence that Hume generally treats 'reason' and 'the understanding' as one and the same. And virtually all major writers of the period take 'the understanding' to refer to our principal cognitive faculty, usually drawing a general division between it and 'the will'.⁹⁴ This division between the domains of *the understanding* and *the will* is indeed essentially the same as the modern distinction between *cognitive* and *conative* mental functions, a dichotomy whose fundamental nature is often now expressed in terms of a 'direction of fit' between world and mind: *the understanding* aims to conform our beliefs to the way the world is, while *the will* aims to change the world to conform to our desires. Reid characterizes this in terms of a

distinction between our *intellectual* (or *contemplative*) and *active* powers:

We shall . . . take that general division which is the most common, into the powers of *understanding* and those of *will*. Under the will we comprehend our active powers, and all that lead to action, or influence the mind to act; such as, appetites, passions, affections. The understanding comprehends our contemplative powers; by which we perceive objects; by which we conceive or remember them; by which we analyse or compound them; and by which we judge and reason concerning them. . . . The intellectual powers are commonly divided into simple apprehension, judgment, and reasoning.⁹⁵

Although Reid is somewhat critical of this framework, which he takes to be 'of a very general reception', his clear account of it is helpful in setting the scene for Hume, whose understanding of it – though again critical – seems to be very similar.⁹⁶

The earlier quotation from Hutcheson's *Illustrations on the Moral Sense* likewise recognizes this 'common Division of the Faculties of the Soul' between 'Reason' (or 'the Understanding') and 'The Will', while suggesting a hierarchical structure in which the senses 'answer to' the understanding, and the passions to the will. His *Short Introduction to Moral Philosophy*, however, paints a cruder picture which is closer to that outlined by Reid above:

The parts or powers of the soul . . . are all reducible to two classes, the *Understanding* and the *Will*. The former contains all the powers which aim at knowledge; the other all our desires. . . . [Of] the several operations of the understanding . . . The first in order are the *senses* . . . Senses are either *external*, or *internal*.⁹⁷

This treats the senses themselves as 'operations of the understanding', a tendency common enough for Price to make a point of criticizing it.⁹⁸ But Hutcheson's *Synopsis of Metaphysics*, within two sentences, first implicitly places the senses within the understanding and then gives them a subordinate reporting role, which suggests that the former placement is just a shorthand way of indicating that the senses fall within the understanding's sphere of influence:

we might reasonably reduce [the powers of the mind] to two, namely, the faculty of *understanding* and the faculty of *willing*, which are concerned respectively with knowing things and with rendering life happy. The *senses* report to the *understanding*, . . .⁹⁹

The *Synopsis* goes on to give Hutcheson's most detailed account of his faculty framework, with Chapter 1 of Part II devoted to a categorization of the powers associated with the understanding, including *external sensation* (sect. 3), *internal senses or consciousness* (sect. 4), *reflexive or subsequent sensations* (sect. 5), *memory, the power of reasoning and imagination* (sect. 6).¹⁰⁰ This again suggests a hierarchical structure, with these various powers 'reporting to' an overseer faculty – reason or the understanding proper – which perceives and judges the deliverances of the subordinate faculties in order to establish truth. Thus 'Reason is understood to denote our *Power of finding out true Propositions*'.¹⁰¹ Price talks in a similar spirit of 'the power within us that *understands*; . . . the faculty . . . that discerns *truth*, that views, compares, and *judges* of all ideas and things'.¹⁰² And a similar conceptual linkage between *reason* or *the understanding* and the search for *truth* is common to many other writers.¹⁰³

HUME'S 'SCEPTICISM' ABOUT INDUCTION

We are now in a position to appreciate the significance of Hume's repeated statements that align him strongly with this general conception of *reason as cognition*:¹⁰⁴

Reason is the discovery of truth or falsehood. (THN 3.1.1.9 / 458);

That faculty, by which we discern Truth and Falshood, . . . (EHU 1.4n – 1748/1750 editions);¹⁰⁵

Thus the distinct boundaries and offices of reason and of taste are easily ascertained. The former conveys the knowledge of truth and falsehood: . . . (EPM App. 1.21 / 294);

reason, in a strict sense, as meaning the judgment of truth and falsehood, . . . (DIS 5.1 / 24; cf. THN 2.3.3.8 / 417).

In all these contexts, Hume is stressing that reason, since it is purely *cognitive*, cannot also be *conative*: that is, it cannot be contrary to any passion or – by itself – provide any motive to action or the will. This is the crux of one of Hume's three most famous arguments concerning the incapacity of reason, which concludes that 'Since morals . . . have an influence on the actions and affections, it follows, that they cannot be deriv'd from reason' (THN 3.1.1.6 / 457). For the purpose of this argument, it is enough that *reason* is confined to the domain of truth and falsehood, though Hume's talk of *discovery*, *discernment* and *knowledge* suggests a normative bias towards truth rather than falsehood. This normative flavour is far more explicit in another of the three famous arguments, this time concerning the external world (the third, of course, concerns induction):

The vulgar confound perceptions and objects . . . This sentiment, then, as it

is entirely unreasonable, must proceed from some other faculty than the understanding. . . . Even after we distinguish our perceptions from our objects, 'twill appear presently, that we are still incapable of reasoning from the existence of one to that of the other: So that upon the whole our reason neither does, nor is it possible it ever shou'd, . . . give us an assurance of the continu'd and distinct existence of body. (THN 1.4.2.14 / 193)

'tis a false opinion that any of our . . . perceptions, are identically the same after an interruption; and consequently . . . can never arise from reason, . . . (THN 1.4.2.43 / 209)

we may observe a conjunction or a relation of cause and effect betwixt different perceptions, but can never observe it betwixt perceptions and objects. 'Tis impossible, therefore, that from the existence or any of the qualities of the former, we can ever form any conclusion concerning the existence of the latter,¹⁰⁶ or ever satisfy our reason in this particular. (THN 1.4.2.47 / 212)

It might appear strange that in one of these arguments, *reason* seems to embrace both truth and falsehood, whereas in the other, it is normatively connected with *truth*. But this sort of linguistic variation is commonplace, and it is worth noting that an unambiguous identification of *reason* with *the cognitive faculty* is consistent with a fairly wide range of nuances of meaning. Given such an identification, 'reason' might most naturally be used to refer to the human (or animal) faculty of truth-apprehension, *however well and by whatever processes it operates* (as, for example, when Hume compares the 'reason' of people and animals at THN 3.3.4.5 / 610). But sometimes there might be debate over these processes, in which case we could

find ourselves referring to *processes that are commonly taken to be involved in truth-apprehension*, even if they turn out not to be truth-conducive (as suggested by Hume's 'scepticism with regard to reason' of *Treatise* 1.4.1). Alternatively, we might wish to apply a stricter criterion under which 'reason' would be confined to processes that *operate successfully to apprehend truth* (thus giving the normative flavour of the passages from *Treatise* 1.4.2 quoted above).¹⁰⁷ A different strict usage is to refer to *the faculty of truth-apprehension acting entirely alone*, independently of other faculties such as the senses or memory (this seems to be Hume's intention at THN 3.1.2.1 / 470).¹⁰⁸ Finally, there is in the early modern period a common metonymy, under which 'reason' is used to refer to its *product*, namely true belief as successfully achieved using our rational faculty (hence the pairing of 'truth and reason' at THN 2.3.3.5 / 415, 3.1.1.15 / 461, and THN App. 1 / 623; cf. also note 84 above). Notice that acknowledgement of all these nuances is quite different from supposing an *ambiguity* in 'reason', because they all arise naturally from the core meaning, and there need be no suggestion that the word has been coincidentally assigned two or more distinct meanings. With this understood, much of the evidence that has previously been adduced for the ambiguity of 'reason' is significantly undermined, and it becomes more plausible to suggest that the term has, for Hume, a single core meaning, namely what we now call *cognition*.

3.3 REASON AND THE IMAGINATION

If *reason*, for Hume, is just our overall cognitive faculty, and if his general epistemological approach is – as set out in Section 1 above – to begin by ascribing default authority to

our natural faculties, then one would expect that his arguments about reason's capabilities would start from a relatively straightforward and conventional understanding of our cognitive functions. Coming from a Lockean background, it is no surprise to find Hume recognizing the cognitive faculties of *the senses, memory, intuition, and demonstrative and probable reasoning*.¹⁰⁹ The *senses* can be either *external* (i.e. *sight, touch, hearing, smell, gustatory taste*) or *internal* (i.e. *reflection*) – these provide the *impressions* from which our *ideas* are copied, and those ideas are represented to us either through *the memory* or *the imagination*. It follows that all of our thinking, except in so far as it confines itself to memory, must involve representation of ideas in the imagination, which is apparently to be thought of as something like a multi-layered or multi-dimensional canvas on which sense-copied ideas appear, with different degrees of 'force and vivacity' and 'in a perpetual flux and movement' (THN 1.4.6.4 / 252).¹¹⁰ Thus our faculties of *intuition, demonstration, and probable reasoning* must inevitably act on our imagination, through such processes as bringing ideas into mind, dismissing others, or – most importantly given Hume's analysis of belief (summarized at the end of section 2.1 above) – changing their degrees of force and vivacity. Even when we make judgements about the deliverances of our *senses* and *memory*, it is their force and vivacity in the imagination which apparently constitutes our assent to them.¹¹¹ Hence Hume's comment, leading into the sceptical anxieties of the Conclusion of *Treatise* Book 1, that: 'The memory, senses, and understanding are, therefore, all of them founded on the imagination, or the vivacity of ideas' (THN 1.4.7.3 / 265). This comment might be read as suggesting that the imagination is itself active, but earlier in the same paragraph, Hume

HUME'S 'SCEPTICISM' ABOUT INDUCTION

makes clear that he is talking of *principles* (namely *experience* and *habit*) that 'operate upon the imagination'. The initial framing of his discussion of induction in the *Treatise* (as quoted earlier in section 2.1) may give a different impression: 'the next question is, Whether experience produces the idea by means of the understanding or imagination; whether we are determin'd by reason to make the transition, or by a certain association and relation of perceptions?' (THN 1.3.6.4 / 88–9). But Hume's answer to his own question – repeated numerous times – will be that our causal reasoning is *determined by custom*,¹¹² and he never says that it is *determined by the imagination* itself. So at least in this context, the imagination is apparently only the virtual stage on which the mind's various principles – either of reason or custom – orchestrate their dance of perceptions.¹¹³

In other contexts, however, the imagination does appear as an active agent, having *the liberty to transpose and change its ideas* (THN 1.1.3.4 / 10, 1.1.4.1 / 10–11, 1.3.5.3 / 85, 1.3.7.7 / 97; EHU 2.4 / 18, 5.10 / 47–8, 5.12 / 49), to *distinguish* and *separate them* (THN 1.2.4.3 / 40, 1.2.5.3 / 54–5, 1.3.3.3 / 79–80, 1.4.5.5 / 233), to *suggest* (THN 1.1.7.15 / 23–4) or *raise them up* (THN 1.2.1.3 / 27), and to generate *fictions* (THN 1.1.6.2 / 16, 1.4.2.29 / 200–1, 1.4.2.36 / 205, 1.4.2.43 / 209, 1.4.2.52 / 215, 1.4.3.3–5 / 220–1, 1.4.3.11 / 224–5, 1.4.6.6–7 / 253–5).¹¹⁴ The distinction between the two classes of operation seems to be explained by the footnote at THN 1.3.9.19 / 117 which we encountered in section 3.2 above:

In general we may observe, that as our assent to all probable reasonings is founded on the vivacity of ideas, it resembles many of those whimsies and prejudices, which are rejected under

the opprobrious character of being the offspring of the imagination. By this expression it appears that the word, *imagination*, is commonly us'd in two different senses; and tho' nothing be more contrary to true philosophy, than this inaccuracy, yet in the following reasonings I have often been oblig'd to fall into it. When I oppose the imagination to the memory, I mean the faculty, by which we form our fainter ideas. When I oppose it to reason,¹¹⁵ I mean the same faculty, excluding only our demonstrative and probable reasonings. (THN 1.3.9.19n22 / 117–18n)

This note was inserted by means of a 'cancel' leaf, prepared by Hume while the *Treatise* was going through the press, and I believe he saw the need for this on rereading the end of THN 1.3.9.4 / 108:¹¹⁶ 'All this, and every thing else, which I believe, are nothing but ideas; tho' by their force and settled order, arising from custom and the relation of cause and effect, they distinguish themselves from the other ideas, which are merely the offspring of the imagination'. A related passage is at THN 1.4.4.1 / 225, where Hume addresses the complaint that he has criticized 'the antient philosophers' for being guided by imaginative fancies, whilst building his own philosophy on principles of the imagination:

In order to justify myself, I must distinguish in the imagination betwixt the principles which are permanent, irresistible, and universal; such as the customary transition from causes to effects, and from effects to causes: And the principles, which are changeable, weak, and irregular; such as those I have just now taken notice of [e.g. the 'inclination in human nature to bestow on external objects the same emotions, which it observes in itself', as attributed to the 'antient

philosophers']. The former are the foundation of all our thoughts and actions, so that upon their removal human nature must immediately perish and go to ruin. The latter are neither unavoidable to mankind, nor necessary, or so much as useful in the conduct of life . . .

All three passages point to a distinction drawn within the class of principles that 'operate on the imagination' – that is, which affect our thinking. Some of these are 'the foundation of all our thoughts and actions', the 'permanent, irresistible, and universal' principles that ground 'our demonstrative and probable reasonings', and are therefore appropriately dignified with the name of *reason* or *the understanding*. The other principles are those that we more naturally think of as belonging to the *imagination* itself: those that ground our free play of ideas, fictions, whimsies and prejudices. Hence in this narrower sense *the imagination* is in opposition to *reason*, though both sets of principles perform on the same stage – *the imagination* in the broader sense – where all our non-memory ideas are represented. It is this broader sense which enables Hume to refer, without paradox, to 'the understanding, that is, . . . the general and more establish'd properties of the imagination' (THN 1.4.7.7 / 267).¹¹⁷

3.4 AN OPERATION OF REASON WHICH IS 'NOT DETERMIN'D BY REASON'

Equipped with this understanding of the Humean faculties, let us now try to clarify the significance of his famous argument. In the *Treatise*, he considers a paradigm causal inference 'from the impression to the idea'; in the *Abstract* and *Enquiry*, he widens this to any factual inference 'beyond the present testimony of our senses, or the records of

our memory' (EHU 4.3 / 26). He then identifies the crucial step of such inference: the extrapolation from observed to unobserved which is encapsulated in his Uniformity Principle. If this is to qualify as founded on *reason*, then there must be some cognitive operation that grounds it, and which does so through genuine *cognition* (rather than some fallacy or confusion). In the *Treatise* and *Abstract*, Hume apparently takes it to be obvious that the only plausible contenders here are *demonstrative reasoning* and *probable* (i.e. *moral* or *factual*) *reasoning*. In the *Enquiry* he is more thorough, and rules out also both *intuition* and *sensory knowledge* as sources of foundation for the Uniformity Principle. Since *memory* is taken for granted in the experiential observations from which the inference starts, this exhausts all the standardly recognized sources of evidence with which reason might operate. It is therefore no coincidence that the four sources considered – and rejected – in Hume's argument in the 1748 *Enquiry* match up exactly with those itemized in his 1745 *Letter from a Gentleman*: 'It is common for Philosophers to distinguish the Kinds of Evidence into *intuitive, demonstrative, sensible, and moral; . . .*' (LFG 22). If *reason* is understood by Hume in the standard contemporary way – as the overall cognitive faculty – then we should indeed expect it to embrace all four 'Kinds of Evidence'.

Notice that this way of reading Hume's argument has the clear implication that inductive (i.e. probable, moral, factual) inference is being treated as an operation of reason throughout, which at least strongly suggests that it would be a mistake to interpret Hume's conclusion – that such inference is 'not determin'd by reason' – as deposing it from that status. (For if that were indeed his intention, one might reasonably expect

HUME'S 'SCEPTICISM' ABOUT INDUCTION

such an apparently paradoxical move to be far more clearly signalled.) So we need to understand how Hume, as a result of his famous argument, can coherently view induction as *an operation of reason which is not 'determin'd by' reason*.¹¹⁸

The obvious answer, given both our interpretation of reason and the structure of Hume's argument, is that he views induction as *a cognitive process which depends on a non-cognitive sub-process*. So he is thinking at two levels, with inductive inference being a manifest operation of our conscious reason, causally driven by a subconscious process that involves the customary enlivenment of our ideas. This underlying process is of a type which is naturally categorized as 'imaginative' rather than 'rational', because it works through an associative mechanism which automatically and mindlessly extrapolates beyond anything that we have perceived or otherwise detected in the world (whether objective events, or evidence). It is therefore in sharp contrast with the underlying process hypothesized by Locke, who supposed inductive (i.e. probable) inference to be driven by a *perceptual* process, namely the rational apprehension of objective probable connexions. Locke therefore saw induction as *a cognitive process which depends on a cognitive sub-process* – apparently 'cognitive all the way down' because it is ultimately founded on direct perception of evidential connexions. Hume's argument destroys this illusion by showing that there is no plausible source for such perception: it cannot derive from examining relations of ideas (because it depends on the experienced world), but nor can it derive from experience, either current (because the senses detect no such evidential connexions) or remembered (because inductive extrapolation is the very process whose perceptual basis we are seeking).

A similar theme can be seen in the other of Hume's most famous arguments that assigns a vital role to the imagination, on 'Scepticism with Regard to the Senses' (THN 1.4.2 / 187–218). Here he takes on the natural and naive assumption that external objects – distinct from us and continuous over time – are directly and straightforwardly perceived through the senses. To refute this, he shows that identification of objects over time requires a process that goes beyond anything we perceive, latching onto patterns of 'constancy' and 'coherence' in our distinct impressions, and smoothing over gaps and changes to generate an illusion of continuity. Again the process involved is naturally categorized as 'imaginative', and so Hume describes his argument as showing that our 'assurance of the continued and distinct existence of body . . . must be entirely owing to the IMAGINATION' (THN 1.4.2.14 / 193). Like his argument concerning induction, therefore, this can be seen as making a significant contribution to *both* cognitive science *and* epistemology, by highlighting how the informational processes that are implicit in the temporal identification of physical objects go well beyond anything that is directly perceived. Indeed modern-day cognitive science, through the development of 'artificial intelligence' visual systems, has provided striking vindication of Hume, by showing how even the identification of physical objects *at a time* requires 'imagination-like' processes of edge-detection, region identification, shadow and texture interpretation, and so forth. So far from being merely passive, visual perception involves many active – albeit unconscious – processes, without which the manifold of our sensory impressions would be completely incomprehensible.

This interpretation of Hume involves understanding his talk of faculties as

descriptive of *types of process* rather than as references to parts of the mind, and indeed this seems anyway to be required in the light of his general scepticism about any faculty language that pretends to be more than a functional description (THN 1.4.3.10 / 224; DNR 4.162–3). For Hume, as for Locke, a faculty just names a power.¹¹⁹ Nevertheless, at least in the *Treatise*, he has an unfortunate tendency to talk of faculties in the way that Locke rightly deplored, as ‘so many distinct Agents’.¹²⁰ Taking such language literally, his famous argument paints the absurd picture of *reason* attempting in vain to make an inductive inference, and needing *the imagination* to step in to lend a hand. But induction is such a central cognitive process that it ought *by definition* to be an operation of *reason* (just as remembering is by definition an operation of *memory*); hence if we think of faculties as distinct agents or areas of the mind, *custom* – as the underlying process that drives induction – should itself be part of *reason*. Presumably it is this sort of consideration that led Hume, in the wake of his famous argument, to reassign ‘the general and more establish’d properties of the imagination’ – which must surely include custom – to *reason* or *the understanding* (THN 1.4.7.7 / 267, cf. section 3.3 above).¹²¹ But then we get into a muddle if we want to hold on to his conclusion that inductive inference is ‘not determin’d by reason’, given the frequency with which he says that inductive inference is indeed determined by custom. Little wonder, perhaps, that both Hume and his interpreters sometimes seem to exhibit confusion of the faculties!

As so often, the *Enquiry* brings considerable improvement, and in a number of respects. Now the faculties are rarely spoken of as agents in their own right, with the harmless exception of those passages that

stress the liberty of the imagination (EHU 2.4 / 18, 5.10 / 47–8, and 5.12 / 48–50). The contrast is especially striking in the case of *reason*, because whereas the *Treatise* speaks of reason itself as a determining cause (e.g. THN 1.3.6.4 / 88–9, 1.3.6.12 / 92, 1.3.7.6 / 97, 1.4.1.1 / 180), the *Enquiry* never does so. In the later work, Hume’s preference is to talk instead of reasoning *processes* (e.g. EHU 4.23 / 39, 5.4 / 42, 9.6 / 108), which were never mentioned as such in the *Treatise*. Meanwhile, *custom* in the *Enquiry* is said to *act on* the imagination (EHU 5.11 / 48, 9.5 / 106–7) and is never said (or implied) to be itself an operation of the imagination, thus avoiding the complications that arise from trying to place it consistently within the conventional faculty structure.¹²² Moreover, Hume no longer refers to custom as a principle of association of ideas (cf. THN 1.3.7.6 / 97),¹²³ but says instead that it is a process *analogous* to the association of ideas, which ‘is of a similar nature, and arises from similar causes’ (EHU 5.20 / 53–4). He continues, however, to draw a contrast between custom and reason (EHU 5.5 / 43, 5.20 / 53–4), thereby retaining the core of his theory that inductive inference is determined by a sub-process which is not itself *cognitive*.

4. CONCLUSION: SCEPTICISM AND RATIONAL FOUNDATIONS

After all this, how sceptical is Hume’s position? His famous argument has shown that inference from past to future crucially involves a process of extrapolation that cannot be independently justified by anything within our cognitive grasp. This crucial step is instead due to a mechanical associative process in the mind, whereby past experience

HUME'S 'SCEPTICISM' ABOUT INDUCTION

raises certain ideas about the future and enlivens them into beliefs. Such a process – given its automatic, non-reflective nature, and its lack of any rational insight or apprehension of reality – is naturally classified as ‘imaginative’ rather than ‘cognitive’, and Hume’s faculty language is best interpreted accordingly, as a way of categorizing types of process, rather than as a theory of distinct agents within our minds. So when he claims that the *imagination* plays a crucial role in inductive inference, he should be understood as saying simply that our process of making inductive inferences *itself* crucially involves an *imagination-like* sub-process.

As we have seen (in section 3.1 above), Hume is well aware that many inductive inferences also involve *reason-like* sub-processes, as for example when we consciously take into account the ‘rules by which to judge of causes and effects’ of *Treatise* 1.3.15 / 173–6, or attempt to identify underlying mathematical patterns (e.g. EHU 4.13 / 31, 7.29n17 / 77n). But he is clearly far more interested in the crucial *imaginative* step, even to the extent of describing it as solely responsible for the inference:

When the mind . . . passes from the idea or impression of one object to the idea or belief of another, it is not determin’d by reason, . . . The inference . . . *depends solely* on the union of ideas. (THN 1.3.6.12 / 92; emphasis added)

all reasonings are *nothing but* the effects of custom; . . . (THN 1.3.13.11 / 149; emphasis added; cf. EHU 5.5–6 / 43–4)

Similarly with his argument concerning our belief in the continued and distinct existence of body (which aims to show that it depends crucially on various associative processes, constructing ‘fictions’ from the passing show

of impressions), he expresses his conclusion in a way that ignores the obvious and essential role of the senses:

That opinion must be *entirely owing* to the IMAGINATION (THN 1.4.2.14 / 193; emphasis added).

Hume seems to be assuming here that even one *imaginative* step is sufficient to characterize the entire process of which it is a part as one that is determined by *the imagination* (rather than by *reason* or *the senses*), just as one invalid step within a sequential inference typically renders the entire inference invalid. Such a focus when speaking of inferential processes is indeed quite natural, since we are typically interested in the *weakest* link in any chain of support rather than the *strongest*. The same applies to other supportive or foundational relationships: thus a climber can properly be described as ‘supported only by a rope’, whether that rope itself is secured to a mountain, a building, a heavy vehicle or any other relatively reliable anchor.¹²⁴ Likewise, an argument or legal case which crucially depends on some imaginative fabrication, even if it *also* depends on numerous points that are logically unassailable, can appropriately be said to be ‘founded on fantasy’. But if we follow through this line of thought, then since inductive inference depends on a sub-process of ‘imaginative’ extrapolation which itself has no rational grounding, we seem forced to conclude that any proposition that can be established only by such inference must apparently in turn be disqualified from counting as founded on reason. Yet as we have seen in sections 3.1 and 3.4 above, Hume continues to treat induction as a legitimate operation of reason.¹²⁵ There is, at the least, a sceptical tension here: can we really suppose that he would consider a process

genuinely *rational* which rests on a purely *mechanical, non-reflective* sub-process?

To address this worry, suppose that Hume were to take the alternative view, that any rational process must have a rational foundation. It would then immediately follow that for anything to be founded on reason at all, it must be founded on reason 'all the way down' (i.e. it would have to be solidly founded on evidence or principles, which are either immediately apprehended by reason, or else themselves solidly founded on evidence or principles which are either immediately apprehended by reason or . . . , etc.). Hume would thus be committed to a strongly rationalistic notion of reason, the demands of which would be impossible to fulfil without abandoning the heart of his philosophy. At no point would he be able to halt the foundational regress by acknowledging that ultimately the principles of our reason can (legitimately) be grounded on basic psychological mechanisms. So the only possible outcomes would be either rationalism or incurable scepticism. Some interpreters have indeed seen Hume as impelled towards radical scepticism by precisely this kind of regressive train of thought.¹²⁶ But it would be completely at odds with his efforts to ground a conception of reason on the contingent operations of the human mind, and flatly incompatible – in the light of his own investigations – with treating induction as a genuine operation of reason.

As we saw in section 3.4 above, Locke implicitly follows the path that Hume rejects, by attributing probable reasoning to the perception of probable connexions. And indeed direct *perception* – conceived of as a process of transparent apprehension – seems to be a paradigm of what reason requires if it is to be 'cognitive all the way down'. Such perception could at once provide both a rational

foundation for belief and also a cause. By contrast, 'imagination-like' processes such as custom may *cause* belief, but they cannot at the same time provide a cognitive *foundation*: that is indeed precisely why they do not qualify as processes of reason.¹²⁷ Hume seems to have embraced this distinction, if not perhaps immediately, for his language in the *Abstract* and *Enquiry* (though not in the *Treatise*) precisely fits it. In the *Treatise*, he repeatedly talks about custom (or the principles of the imagination) as providing a *foundation* for inductive inference.¹²⁸ In the *Abstract* and *Enquiry*, by contrast, he never does, but there are no fewer than 19 passages that describe the influence of custom in terms that are either explicitly *causal*, or naturally interpretable as such.¹²⁹ This strongly suggests that Hume himself came to recognize a firm distinction between what in the *Enquiry* he calls a foundation, and what he there calls a determining cause. Thus understood, it is clear that *custom* qualifies only as a *cause*, whereas reasoning processes or sources of information can potentially provide a cognitive *foundation*.¹³⁰

All this brings the possibility of posing coherent but unanswerable questions, such as that which introduces Hume's discussion in Part 2 of *Enquiry* Section 4: 'if we still carry on our sifting humour, and ask, *What is the foundation of all conclusions from experience?* this implies a new question . . .' (EHU 4.14 / 32). If *custom* cannot qualify as a *foundation*, then Hume's ultimate conclusion that 'All inferences from experience . . . are effects of custom, not of reasoning' (EHU 5.5 / 43) excludes any foundation at all. For in competing successfully for the *causal explanatory* role, custom effectively excludes anything else from the *foundational* role (which it is nevertheless unable to fulfil itself). Perhaps, then, there is hidden depth

HUME'S 'SCEPTICISM' ABOUT INDUCTION

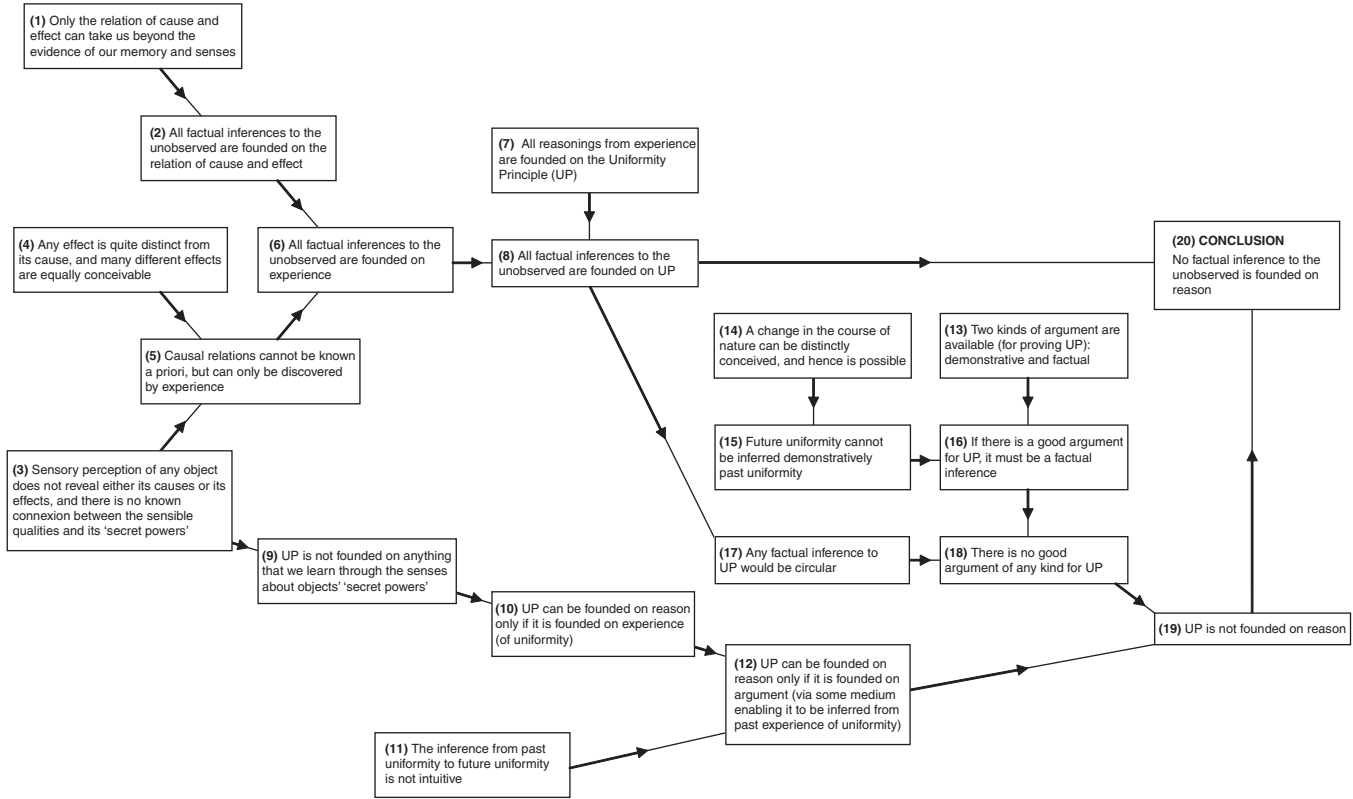
in Hume's declaration of intent: 'I shall content myself, in this section, with an easy task, and shall pretend only to give a negative answer to the question here proposed' (EHU 4.15 / 32). The upshot is that 'if we still carry on our sifting humour' in the search for ultimate foundations, we hit rock bottom with something that has a *cause* but no *foundation*. And that is the tendency, rooted in our animal nature, to infer from past to future, from experienced to not-yet-experienced. This is radically different from the kind of perceptual foundation presupposed by traditional conceptions of reason, different enough to make Hume's position seem outrageously sceptical by comparison. But in reality it is quite the reverse: he is providing an account of reason *which makes inductive*

inference possible for human beings, despite the sceptical impact of his famous argument which shows that it cannot be founded in any of the ways that previous tradition would countenance.¹³¹ He reveals how we *actually* reason inductively, rather than falling back on the aprioristic supposition that this can only be through the rational perception of evidential connexions. That traditional notion is decisively refuted by his sceptical argument, but his own position is very far from sceptical. On the contrary, as we saw in section 1 above, Hume sees very good reason to accept our faculty of inductive inference as it is (at least when suitably disciplined by general rules etc.), and no good reason to reject it. We have, indeed, no alternative, nor any compelling reason for desiring one.¹³²

APPENDIX: HUME'S ARGUMENT CONCERNING INDUCTION (FROM SECTION 4 OF THE ENQUIRY CONCERNING HUMAN UNDERSTANDING)

Hume's Own Statement of the Propositions Identified in the Structure Diagram

1. By means of [*Cause and Effect*] alone can we go beyond the evidence of our memory and senses. (EHU 4.4 / 26)
2. All reasonings concerning matter of fact seem to be founded on the relation of *Cause and Effect*. (EHU 4.4 / 26)
... all arguments concerning existence are founded on the relation of cause and effect ... (EHU 4.19 / 35)
... all our evidence for any matter of fact, which lies beyond the testimony of sense or memory, is derived entirely from the relation of cause and effect ... (EHU 12.22 / 159)
3. No object ever discovers, by the qualities which appear to the senses, either the causes which produced it, or the effects which will arise from it ... (EHU 4.6 / 27)
4. ... every effect is a distinct event from its cause. It could not, therefore, be discovered in the cause, and ... the conjunction of it with the cause must appear ... arbitrary; since there are always many other effects, which, to reason, must seem fully as consistent and natural. (EHU 4.11 / 30)
5. ... the knowledge of [*cause and effect*] is not, in any instance, attained by reasonings *a priori*; but arises entirely from experience ... (EHU 4.6 / 27)
... *causes and effects are discoverable, not by reason, but by experience* ... (EHU 4.7 / 28)
In vain, therefore, should we pretend to ... infer any cause or effect, without



HUME'S 'SCEPTICISM' ABOUT INDUCTION

the assistance of observation and experience. (EHU 4.11 / 30)

... our knowledge of that relation [of cause and effect] is derived entirely from experience ... (EHU 4.19 / 35)

6. ... nor can our reason, unassisted by experience, ever draw any inference concerning real existence and matter of fact ... (EHU 4.6 / 27)

In vain, therefore, should we pretend to determine any single event ... without the assistance of observation and experience. (EHU 4.11 / 30)

7. ... we always presume, when we see like sensible qualities, that they have like secret powers, and expect, that effects, similar to those which we have experienced, will follow from them ... (EHU 4.16 / 33)

We have said, that ... all our experimental conclusions proceed upon the supposition, that the future will be conformable to the past ... (EHU 4.19 / 35)

... all inferences from experience suppose, as their foundation, that the future will resemble the past, and that similar powers will be conjoined with similar sensible qualities ... (EHU 4.21 / 37)

8. [This proposition is implicit in the inferential sequence:] We have said, that all arguments concerning existence are founded on the relation of cause and effect; that our knowledge of that relation is derived entirely from experience; and that all our experimental conclusions proceed upon the supposition, that the future will be conformable to the past. (EHU 4.19 / 35)

9. ... the mind is not led to form such a conclusion concerning [sensible qualities and secret powers] constant and regular conjunction, by any thing which it knows of their nature ... (EHU 4.16 / 33)

10. [This proposition is implicit in Hume's transition from considering 'a priori' evidence for the Uniformity Principle

to considering experiential arguments for it:] As to past *Experience*, it can be allowed to give *direct* and *certain* information of those precise objects only, and that precise period of time, which fell under its cognizance: but why this experience should be extended to future times, and to other objects, which for aught we know, may be only in appearance similar; this is the main question on which I would insist. (EHU 4.16 / 33–4)

11. The connexion between these propositions [*I have found that such an object has always been attended with such an effect and I foresee, that other objects, which are, in appearance, similar, will be attended with similar effects*] is not intuitive. (EHU 4.16 / 34)

12. There is required a medium, which may enable the mind to draw such an inference, if indeed it be drawn by reasoning and argument. (EHU 4.16 / 34)

13. All reasonings may be divided into two kinds, namely demonstrative reasoning, or that concerning relations of ideas, and moral reasoning, or that concerning matter of fact and existence. (EHU 4.18 / 35)

14. ... it implies no contradiction, that the course of nature may change ... May I not clearly and distinctly conceive [such a thing]? (EHU 4.18 / 35)

15. That there are no demonstrative arguments in the case, seems evident ... (EHU 4.18 / 35)

... whatever is intelligible, and can be distinctly conceived, implies no contradiction, and can never be proved false by any demonstrative argument or abstract reasoning *a priori* ... (EHU 4.18 / 35)

16. If we be, therefore, engaged by arguments to put trust in past experience, and make it the standard of our future judgment, these arguments must be probable only, or such as regard matter of fact and real existence ... (EHU 4.19 / 35)

17. To endeavour, therefore, the proof [that the future will be conformable to the past] by probable arguments, or arguments regarding existence, must be evidently going in a circle, and taking that for granted, which is the very point in question. (EHU 4.19 / 35–6)
18. . . . it may be requisite . . . to shew, that none of [the branches of human knowledge] can afford such an argument . . . (EHU 4.17 / 35)
- . . . we have no argument to convince us, that objects, which have, in our experience, been frequently conjoined, will likewise, in other instances, be conjoined in the same manner . . . (EHU 12.22 / 159)
19. . . . it is not reasoning which engages us to suppose the past resembling the future, and to expect similar effects from causes, which are, to appearance, similar . . . (EHU 4.23 / 39)
- . . . nothing leads us to [expect constant conjunctions to continue] but custom or a certain instinct of our nature . . . (EHU 12.22 / 159)
20. 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. (EHU 4.15 / 32)
- . . . in all reasonings from experience, there is a step taken by the mind, which is not supported by any argument or process of the understanding. (EHU 5.2 / 41)
- All belief of matter of fact or real existence [is due merely to] a species of natural instincts, which no reasoning or process of the thought and understanding is able, either to produce, or to prevent. (EHU 5.8 / 46–7)
- 25–39, and is outlined in Sections 2.1–4 below. In discussions of induction it is commonly referred to as ‘Hume’s famous argument’, a convenient shorthand that I shall adopt. Note also that ‘induction’ is the modern term for the topic of his argument; he himself never uses the word in this sense.
- ² This is the summary of the Section 4 argument alluded to earlier. Note, however, that the previous clause brings in a point from the Section 7 discussion of the idea of necessary connexion, which does not feature in Section 4 itself.
- ³ Hume does not *reject* the Causal Maxim, but says that it ‘must . . . arise from observation and experience’ (THN 1.3.3.9 / 82), hinting that he will return to it later (though he never does). For detailed discussion, see Peter Millican, ‘Hume’s Determinism’, *Canadian Journal of Philosophy* 40 (2010), pp. 611–42, sects II, IV, VI.
- ⁴ Section 1.3.7 will in due course move on to the third component, ‘the nature and qualities’ of the belief-idea.
- ⁵ Hume continues to mention the imagination’s power to mix and separate its ideas (e.g. Abs. 35 / 662, EHU 5.10 / 47–8), but the Separability Principle as such is never again invoked as it had been, very significantly, in the *Treatise* (e.g. THN 1.1.7.3 / 18–9, 1.2.3.10 / 36–7, 1.2.5.3 / 54–5), arguably sometimes with absurd results (e.g. THN 1.4.3.7 / 222, 1.4.5.5 / 233, 1.4.5.27 / 245–6, App. 12 / 634).
- ⁶ At THN 1.3.2.11 / 77, Hume had stressed that (single-case) *contiguity* and *succession* are insufficient to characterize a cause and effect relationship, pointing out that ‘There is a NECESSARY CONNEXION to be taken into consideration’. Now at THN 1.3.6.3 / 87, he reminds us that ‘Contiguity and succession are not sufficient to make us pronounce any two objects to be cause and effect’, and he expresses satisfaction at having unexpectedly ‘discover’d a new relation . . . This relation is their CONSTANT CONJUNCTION’. The link between the passages is evident both from the content and the capitalization.
- ⁷ John Locke, *An Essay concerning Human Understanding*, ed. Peter H. Nidditch, (Oxford: Clarendon Press, 1975), IV.xv.1, IV.xvii.2.
- ⁸ Humean *demonstration* corresponds to what is now called *deductive* reasoning, in the informal sense of an argument whose premises

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¹ The argument appears in *Treatise* 1.3.6 / 86–94, *Abstract* 8–16 / 649–52, and *Enquiry* 4 /

conceptually guarantee the truth of the conclusion. For more on this, see Peter Millican, 'Humes Old and New: Four Fashionable Falsehoods, and One Unfashionable Truth', *Proceedings of the Aristotelian Society*, supp. vol. 81 (2007), pp. 163–99, sect. V.

- ⁹ This result comes from Hume's theory of relations, at THN 1.3.2.1–3 / 73–4 (for criticism, see Peter Millican, 'Hume's Fork, and His Theory of Relations', forthcoming in *Philosophy and Phenomenological Research*). In brief, THN 1.1.5 / 13–15 enumerates what Hume takes to be the seven different kinds of relation, which THN 1.3.1.1 / 69–70 then divides into two classes. The four relations 'that depend solely on ideas' are the sources of strict 'knowledge', with *resemblance*, *contrariety* and *degrees in quality* amenable to intuition (THN 1.3.1.2 / 70), and *proportions in quantity or number* the basis for demonstration. Of the three 'inconstant' relations, *identity* and *relations of time and place* are amenable to perception (THN 1.3.2.2 / 73–4), leaving *causation* as 'the only one, that can be trac'd beyond our senses, and informs us of existences and objects, which we do not see or feel' (THN 1.3.2.3 / 74). Hume thus identifies *probable* with *causal* reasoning, and the rest of Book 1, Part 3, entitled 'Of Knowledge and Probability', is accordingly devoted to 'the idea of *causation* . . . tracing it up to its origin' (THN 1.3.2.4 / 74–5). Strangely, the word 'probability' does not appear at all in this Part before THN 1.3.6.4 / 89, except in the title of the Part itself and of Section 1.3.2: 'Of Probability; and of the Idea of Cause and Effect'.
- ¹⁰ Notice that causal inference is categorically stated to be founded on that presumption – there is no suggestion here of the conditionality that we had at THN 1.3.6.4 / 89: 'If reason determin'd us, it *wou'd* proceed upon that principle . . .' (emphasis added). Nor is there any such conditionality at THN 1.3.6.11 / 91–2, or in either the *Abstract* (Abs. 13–14 / 651) or the *Enquiry* (EHU 4.19 / 35–6, 4.21 / 36–7, 5.2 / 41–2).
- ¹¹ THN 1.3.6.7 / 90 expresses the circularity in causal terms: 'The same principle cannot be both the cause and effect of another', apparently in order to make a joke: 'and this is, perhaps, the only proposition concerning that

relation, which is either intuitively or demonstratively certain'. The *Abstract* and *Enquiry* make clear that the circularity is logical.

- ¹² Before drawing this conclusion, Hume adds (what I have called) a 'coda' to his argument (THN 1.3.6.8–10 / 90–1), dismissing an attempt to get round it by appeal to objects' powers. This attempt is refuted by the simple observation that induction needs to be presupposed to enable us to draw an inference from the powers of past objects to the powers of future objects. For discussion of this coda and its implications, see Peter Millican, 'Hume's Sceptical Doubts concerning Induction', in Peter Millican (ed.), *Reading Hume on Human Understanding* (Oxford: Clarendon Press, 2002), pp. 107–73, sects 9–9.2.
- ¹³ He also refers back to it in a footnote at THN 1.3.14.17 / 163, feeding into his discussion of the idea of necessary connexion.
- ¹⁴ For discussion of some of the nuances of terminology for referring to this kind of reasoning, see Millican, 'Hume's Sceptical Doubts concerning Induction', sect. 3.1, which distinguishes between *probable inference*, *factual inference*, *factual inference to the unobserved*, and *inductive inference*. Hume generally takes for granted that all of these coincide.
- ¹⁵ The argument from THN 1.3.6.8–10 / 90–1 is also very briefly summarized, in the last two sentences of paragraph 15. For more on this 'coda', see note 12 above.
- ¹⁶ Notice that Hume seems entirely happy to take perception and memory for granted here, fitting with the strategy described in Section 1 above, of allowing default authority to our faculties. Scepticism regarding the senses is addressed at THN 1.4.2–4 / 187–231 and EHU 12.6–16 / 151–5, but Hume's ultimate attitude to it remains far less clear than his position on induction.
- ¹⁷ This notion of a *proof* plays a significant role in Hume's argument concerning miracles in Section 10 of the *Enquiry*.
- ¹⁸ This is taken from Millican, 'Hume's Sceptical Doubts concerning Induction'.
- ¹⁹ Thus there is no evidence here, as influentially claimed by David Stove, *Probability and Hume's Inductive Scepticism* (Oxford: Oxford University Press, 1973), p. 50, that Hume's method of argument shows him to be a

'deductivist', presupposing that only deductively valid arguments are legitimate. A similar point, though less obvious, can be made about the *Abstract* ('The mind can always *conceive* any effect to follow from any cause, and indeed any event to follow upon another', Abs. 11 / 650) and the *Treatise* ('When we pass from a present impression to the idea of any object, we might possibly . . . have substituted any other idea in its room', THN 1.3.6.1 / 87).

- ²⁰ This case of applied mathematics (cf. also THN 2.3.3.2 / 413–14) shows that Hume is quite comfortable with demonstrative, mathematical reasoning being applied to a posteriori premises. For discussion of this point, see Millican, 'Humes Old and New', sect. V.
- ²¹ Hume's talk of 'secret powers' is new in the *Enquiry*, and seems to reflect a more sophisticated understanding of scientific reasoning than is evident in the *Treatise* and *Abstract*. In the *Treatise*, science is generally treated as involving predictions of discrete types of event based on previous patterns of conjunction or difference (as in the 'rules by which to judge of causes and effects' of THN 1.3.15 / 173–6). The *Enquiry*, by contrast, evinces an awareness (e.g. at EHU 4.13 / 31 and EHU 7.29n17 / 77n) that science more typically deals with events having continuously varying characteristics – such as the velocity of a billiard ball – whose prediction involves the interplay of mathematically determined forces. For more on this, see Peter Millican, 'Against the New Hume', in Rupert Read and Kenneth A. Richman (eds), *The New Hume Debate: Revised Edition* (London: Routledge, 2007), pp. 211–52, at pp. 232–3.
- ²² Hume obviously means us to infer accordingly – though he does not explicitly state – that [8] all factual reasoning, since it has to be founded on experience, presupposes such a resemblance (i.e. the Uniformity Principle). See also note 27 below.
- ²³ In EHU 4.16 / 33–4 itself, Hume oscillates between reference to the activity of *inference* from observed to unobserved, and to the *presupposition* of resemblance on which such inference is based. Indeed it seems that he takes the foundation of the *inference* to be the same as the foundation of the *presupposition* that it manifests. This supports an interpretation of the Uniformity Principle as implicit rather than explicit, a principle we *exhibit* by our inferential behaviour rather than one we always consciously consider. Such an interpretation nicely squares Hume's repeated commitment to the Principle's role in all inductive inference (see note 10) with his clear recognition at THN 1.3.8.13 / 103–4 that we characteristically 'draw inferences from past experience, without reflecting on . . . that principle'. See also note 31 below.
- ²⁴ This suggests that if the inference *were* intuitive, it would count as 'reasoning and argument' notwithstanding the lack of a 'medium'. Indeed, as we shall see later (section 3.1), in Hume's day the terms 'reasoning' and 'argument' did not imply complex ratiocination.
- ²⁵ Hume is fond of elegant variation, frequently using a variety of terms for the same concept. 'Moral reasoning', 'reasoning concerning matter of fact and real existence', 'probable arguments' and 'arguments concerning existence' are all ways of referring to what we are here calling *factual* reasoning. See note 14 above.
- ²⁶ That he takes these to be equivalent was made clear by EHU 4.2 / 25–6, where he first explained the notion of a matter of fact.
- ²⁷ For an earlier occurrence of this last implicit inference, see note 22 above.
- ²⁸ As in the *Treatise* (note 12 above) and *Abstract* (note 15 above), Hume rounds off the argument in the *Enquiry* with a coda (EHU 4.21 / 36–8) in which he refutes the attempt to circumvent his argument by appeal to objects' powers. He also adds a parting shot at EHU 4.23 / 39 which emphasises the unlikelihood that peasants, infants or 'brute beasts' should form their inductive expectations on the basis of 'any process of argument or ratiocination'. Though the point is well made, however, its philosophical significance is less clear, because those who take induction to be rationally founded need not be committed to supposing that animals (etc.) function purely rationally – see Millican, 'Hume's Sceptical Doubts concerning Induction', sect. 9.3.
- ²⁹ Recall that [12] is the claim that 'There is required a medium, which may enable the mind to draw such an inference, if indeed it be drawn by reasoning and argument'.

HUME'S 'SCEPTICISM' ABOUT INDUCTION

(EHU 4.16 / 34) – that is, because the Uniformity Principle cannot be established directly through sensory perception or intuition, if it is to be established by reason at all, then this must be on the basis of some step-wise argument or ratiocination.

³⁰ The other implicit final stages are also stated explicitly elsewhere: [18] ‘we have no argument to convince us, that objects, which have, in our experience, been frequently conjoined, will likewise, in other instances, be conjoined in the same manner’ (EHU 12.22 / 159); [19] ‘it is not reasoning which engages us to suppose the past resembling the future, and to expect similar effects from causes, which are, to appearance, similar’ (EHU 4.23 / 39).

³¹ See note 23 above for the nature of this presupposition, which need not be conscious, but is implicitly *manifested* by the making of the inference. So UP need not take any very explicit or determinate form (contrary to the impression given by THN 1.3.6.4 / 88–9), and is best understood as something like a general principle of *evidential relevance* between observed and unobserved, more in line with the expression of the *Enquiry*: ‘we . . . put trust in past experience, and make it the standard of our future judgment’ (EHU 4.19 / 35); we take ‘the past [as a] rule for the future’ (EHU 4.21 / 38). This seems right: in taking such an inference to be better informed than an a priori inference, we are *ipso facto* presuming that what happened in the past provides evidence that is positively relevant to what will happen in the future. For more on the Uniformity Principle and its presupposition, see Millican, ‘Hume’s Sceptical Doubts concerning Induction’, sect. 3.2 and especially sect. 10.2.

³² Moreover this sequence of argument seems to be entirely deliberate, because it occurs very explicitly twice, first within the main argument at EHU 4.16 / 32–4, and then again in the coda at EHU 4.21 / 37.

³³ In the conclusion of Book 1 of the *Treatise*, Hume’s attempt to meet the sceptical challenge says very little about the issue of induction, except as part of a general concern regarding the role of ‘the imagination, or the vivacity of our ideas’ (THN 1.4.7.3 / 265). There the more pressing problems are those that threaten inevitable error and contradiction (notably

the existence of body, the metaphysics of causation, and the self-annihilation of reason), which the simple assumption of uniformity never does. The *Enquiry*’s response to the Pyrrhonian sceptic, starting from a rejection of extreme *antecedent* scepticism, would not be nearly as effective against varieties of *consequent* scepticism that bring to light genuine contradictions – rather than simply lack of ultimate grounding – in our faculties, and this might explain why Hume very much downplays these more problematic topics in the *Enquiry*. His attitude to them seems to be that they are best left alone: for example, metaphysical enquiries into the nature of matter are likely to lead to contradiction or unintelligibility (EHU 12.14–15 / 153–5) unless, perhaps, we fall back on a notion of matter so empty as to be unexceptionable (EHU 12.16 / 155). Hume’s final recommendation is for a *mitigated* scepticism that inspires a suitable degree of ‘doubt, and caution, and modesty’ (EHU 12.24 / 162), and which also focuses our enquiries on ‘such subjects as are best adapted to the narrow capacity of human understanding’ (EHU 12.25 / 162), notably those where we are able to progress either through mathematical demonstration (EHU 12.27 / 163) or induction from experience (EHU 12.28–31 / 163–6).

³⁴ David Owen, *Hume’s Reason* (Oxford: Oxford University Press, 1999), p. 136.

³⁵ *Ibid.*, p. 132.

³⁶ Barry Stroud, *Hume* (London: Routledge & Kegan Paul, 1977), p. 54.

³⁷ Antony Flew, *Hume’s Philosophy of Belief* (London: Routledge & Kegan Paul, 1961).

³⁸ Stove, *Probability and Hume’s Inductive Scepticism*.

³⁹ Stroud himself (*Hume*, pp. 56–7) reacted against this, suggesting that what he saw as Hume’s extreme scepticism could more plausibly be attributed to a ‘potentially regressive aspect of the notion of reason or justification’ whereby evidence *E* can count as a reason for believing *P* only if one has some reason *R* for taking *E* as a reason. If we then ask about the basis for *R* in turn, and continue in this way, we get a regress which can apparently be terminated only by ‘something we could not fail to be reasonable in believing’ (*ibid.*,

p. 62), such as an immediate experience or self-evident truth. Hume's invoking of UP within his argument is indeed somewhat in this spirit, but when considering UP's own foundation, he seems content to stop with (fallible) sensation or memory, not only with the certainty of intuition or demonstration, while the appeal to factual inference generates a circle rather than an infinite regress. Nevertheless Stroud's account is illuminating, in stressing the seductive assumption that justification is required at each step if scepticism is to be resisted. Hume's strategy outlined in Section 1 above rejects this by shifting the onus onto the sceptic.

⁴⁰ Flew, *Hume's Philosophy of Belief*, p. 171.

⁴¹ For some other passages in a similar spirit, see note 125 below.

⁴² Tom Beauchamp and Thomas Mappes, 'Is Hume Really a Sceptic about Induction?', *American Philosophical Quarterly* 12 (1975), pp. 119–29.

⁴³ Barbara Winters, 'Hume on Reason', *Hume Studies* 5 (1979), pp. 20–35 was perhaps most influential in promoting the idea that Hume's notion of reason is ambiguous in this way. Tom Beauchamp and Alexander Rosenberg, *Hume and the Problem of Causation* (Oxford: Oxford University Press, 1981); N. Scott Arnold, 'Hume's Scepticism about Inductive Inference', *Journal of the History of Philosophy* 21 (1983), pp. 31–55; Janet Broughton, 'Hume's Scepticism about Causal Inferences', *Pacific Philosophical Quarterly* 64 (1983), pp. 3–18; and Annette C. Baier, *A Progress of Sentiments: Reflections on Hume's Treatise* (Cambridge MA: Harvard University Press, 1991) all gave slightly different anti-deductivist readings, some of the nuances of which are discussed by Don Garrett, *Cognition and Commitment in Hume's Philosophy* (Oxford: Oxford University Press, 1997), pp. 83–91.

⁴⁴ Peter Millican, 'Hume's Argument concerning Induction: Structure and Interpretation', in Stanley Tweyman (ed.), *David Hume: Critical Assessments* (London: Routledge, 1995), vol. 2, pp. 91–144; Garrett, *Cognition and Commitment*.

⁴⁵ Most obviously, the famous argument treats *probable* argument as a potential foundation for the Uniformity Principle, whereas a

deductivist must consider any merely probable argument as evidentially worthless from the start. If Hume were a deductivist, indeed, then he could dismiss induction in a single step with his Conceivability Principle. For more detail on all this, see Millican, 'Hume's Argument concerning Induction', pp. 123–4, 136; 'Hume's Sceptical Doubts concerning Induction', pp. 155–6; Garrett, *Cognition and Commitment*, pp. 86–8).

⁴⁶ See in particular the passages quoted near the end of the first paragraph of Section 3 above. These and others are cited in this connexion by Millican, 'Hume's Argument concerning Induction', pp. 127, 136; 'Hume's Sceptical Doubts concerning Induction', pp. 161–2; Garrett, *Cognition and Commitment*, pp. 85–6.

⁴⁷ Locke, *Essay*, IV.xvii.2.

⁴⁸ e.g. Locke, *Essay*, IV.xv.2.

⁴⁹ Garrett, *Cognition and Commitment*, p. 92.

⁵⁰ Locke's usage is somewhat variable, though I consider *perception* to be more fundamental to Lockean reason than *inference* (see my 'Hume's Argument concerning Induction', p. 137, or for more detail, 'Hume's Sceptical Doubts concerning Induction', sect. 2). Note that both of these are distinct from the *intermediate idea* characteristic which Owen considers fundamental to Lockean reason.

⁵¹ Garrett, *Cognition and Commitment*, pp. 91–2.

⁵² The modified interpretation first appeared in Don Garrett, 'Ideas, Reason and Scepticism: Replies to My Critics', *Hume Studies* 24 (1998), pp. 171–94, but his 2002 piece 'The Meaning of Hume's Conclusion concerning "Inductive" Inferences' (in Peter Millican, *Reading Hume on Human Understanding*, pp. 332–4) was based directly on the two relevant sections of his 1997 book (*Cognition and Commitment*), reworded accordingly.

⁵³ Garrett, 'The Meaning of Hume's Conclusion', p. 333.

⁵⁴ Or, presumably, A to C. Garrett's suggestion ('Ideas, Reason and Scepticism', pp. 182–3) is that in attempting to infer from A to D, we first observe that A implies B intuitively (i.e. self-evidently), leaving a gap between B and D. We then set out to fill that gap, by noticing that B implies C, and C implies D. We put

HUME'S 'SCEPTICISM' ABOUT INDUCTION

these last two implications together, deducing that *B* implies *D* (this is Garrett's intermediate inference). Now from *A* implies *B* and *B* implies *D*, we can deduce that *A* implies *D*.

⁵⁵ See, for example, Peter Millican, 'Hume on Reason and Induction: Epistemology or Cognitive Science?', *Hume Studies* 24 (1998), pp. 141–60, at pp. 145–7, and David Owen, 'A Reply to My Critics', *Hume Studies* 26 (2000), pp. 323–37, at pp. 329–30.

⁵⁶ Samuel Johnson, *A Dictionary of the English Language* (London, 1756).

⁵⁷ 'To deduce' is defined in three clauses: '1. To draw in a regular connected series. 2. To form a regular chain of consequential propositions. 3. To lay down in regular order'. 'Ratiocination' is defined in just one clause: 'The act of reasoning; the act of deducing consequences from premises'.

⁵⁸ Also, of course, Hume's own theory of inductive inference implies that it typically does not proceed in a stepwise manner, but essentially reduces to *conception* (see THN 1.3.7.5n20 / 96–7n); yet he never hints that terms such as 'argument', 'inference', 'proof' or 'reasoning' are thereby rendered inappropriate to these transitions of thought. So it is hard to see how he could consistently refuse to apply them – on grounds of immediacy – to 'intuitive inference'.

⁵⁹ Such an emphasis comes later, with the positive account in terms of instinctive custom (e.g. at THN 1.3.8.13 / 103–4 and EHU 5.8 / 46–7).

⁶⁰ At least, this looks like a plausible implication, just as one invalid step within a mathematical proof is enough to render the entire proof invalid. But as we shall see later (section 4), things are not quite so straightforward here.

⁶¹ For another way of sharpening this sort of objection, see Millican, 'Humes Old and New', sect. VI, which expands on Millican, 'Sceptical Doubts concerning Induction', pp. 158–60. There I focus on the very last step of Hume's argument, whereby he concludes that because factual inference is founded on UP, and UP is not founded on reason, it follows that factual inference is not founded on reason. This step looks very dubious if 'reason' here is supposed to mean stepwise ratiocination (or, indeed, higher-level argument).

⁶² See note 10 above for equivalent passages in the *Abstract* and *Enquiry* versions.

⁶³ See for example Owen, *Hume's Reason*, pp. 9–10, 120–2, 127–30, 141, 148. The books of both Owen and Garrett present only the *Treatise* version of the argument, and indeed Owen's analysis hardly mentions the *Abstract* or *Enquiry*. Garrett takes relevant quotations from the later works, but states without analysis that 'the structure and language of the other versions of the argument are parallel' to that in the *Treatise* (*Cognition and Commitment*, p. 82).

⁶⁴ Descartes's *Meditations*, for example, presents the Ontological Argument for the existence of a perfect God, and then appeals to God's non-deceptive nature to vindicate various factual beliefs about the unobserved, all apparently without any essential reference to the Uniformity Principle.

⁶⁵ Or – if we take the *Enquiry* version – in any deliverance of the senses or intuition.

⁶⁶ This objection goes back to my 'Hume on Reason and Induction', sect. VII (1998), and is also discussed by Garrett, 'Ideas, Reason and Skepticism', p. 187; Millican 'Hume's Sceptical Doubts concerning Induction', pp. 157–8; Louis Loeb, 'Psychology, Epistemology, and Skepticism in Hume's Argument about Induction', *Synthese* 152 (2006), pp. 321–38, at pp. 328–9; and Abraham Sesshu Roth, 'Causation', in Saul Traiger (ed.), *The Blackwell Guide to Hume's Treatise* (Oxford: Blackwell, 2006), pp. 95–113, at pp. 108–11.

⁶⁷ The case of faulty *factual* arguments (e.g. in Hume's coda at THN 1.3.6.10 / 91 and EHU 4.21 / 36–8) is less clear, because if they presuppose UP, then the famous argument – as interpreted by Garrett and Owen – can still get a purchase on them. For critical discussion, see Loeb, 'Psychology, Epistemology, and Skepticism' (p. 329), who goes on to suggest his own explanation of why Hume fails to consider faulty arguments here: 'The answer must be that Hume imposes an epistemic constraint on any causal explanation of inductive inference: the explanation of our making inductive inferences must be compatible with their being justified' (p. 330). Helen Beebe, *Hume on Causation* (London: Routledge, 2006), pp. 55–6, takes a similar line, and both are discussed in my 'Humes Old and New', pp. 186–8. In brief, I find their approach textually unsupported and also in tension with

the sceptical tone of Hume's famous argument and of his later references to it. A far simpler solution is to see 'reason' as referring to our cognitive faculty – see section 3.2 below.

⁶⁸ Richard Price, *A Review of the Principal Questions and Difficulties in Morals* (London: 1758), p. 34.

⁶⁹ *Ibid.*, p. 40n.

⁷⁰ Owen also adds a note at this point: 'The qualification, "prior to our engaging in probable reasoning", is important, because Hume thinks that once we are engaged in the practice of probable reasoning, we come to believe the uniformity principle and use it in probable reasoning. . . . This requires an account of how we first engage in probable reasoning, before the principle is available to us'. (*Hume's Reason*, p. 128n30)

⁷¹ Owen, *Hume's Reason*, pp. 128–30.

⁷² Garrett, *Cognition and Commitment*, p. 94.

⁷³ Owen, *Hume's Reason*, pp. 132–4.

⁷⁴ Garrett, 'Ideas, Reason and Skepticism', pp. 180–1.

⁷⁵ Unlike Garrett and Owen, however, I do not take the principle in question, '*that like objects, plac'd in like circumstances, will always produce like effects*', to be identical to the Uniformity Principle. The former concerns the consistency of events within our experience, whereas UP concerns the *evidential relevance* of observed to unobserved. Without UP, experienced consistency (or, indeed, any other experienced pattern) could not be extrapolated from past to future.

⁷⁶ Owen, *Hume's Reason*, pp. 131, 170–1.

⁷⁷ Garrett, 'Ideas, Reason and Skepticism', p. 184

⁷⁸ Millican, 'Hume on Reason and Induction', p. 153.

⁷⁹ This is the main respect in which my own views have changed over time, largely in response to Don Garrett's criticisms. Most other aspects of my previous interpretation remain in place; for example it will become clear in Section 4 below that a *perceptual* notion of reason makes a highly plausible Humean target, even if we do not suppose that he was employing such a notion himself within the famous argument.

⁸⁰ Garrett, *Cognition and Commitment*, p. 92.

⁸¹ Garrett, 'The Meaning of Hume's Conclusion', p. 333.

⁸² Garrett, 'Ideas, Reason and Skepticism', p. 184.

⁸³ *Ibid.* It seems to be a *logical* rather than *psychological* point that some such step must be present in every inductive inference, given that – as Garrett acknowledges – the 'supposition of UP' that it exhibits can be entirely unconscious.

⁸⁴ Locke starts his chapter 'Of Reason' (*Essay*, IV.xvii) with the remark that '*The Word Reason in the English Language has different Significations: sometimes it is taken for true, and clear Principles: Sometimes for clear, and fair deductions from those Principles: and sometimes for the Cause, and particularly the final Cause*'. He then goes on to say that his chapter concerns yet another signification, for that 'Faculty in Man . . . whereby Man is supposed to be distinguished from Beasts, and wherein it is evident he much surpasses them'. Earlier, at *Essay* II.xxi.17–20, Locke ridicules the language of 'faculties' as a source of philosophical error. For more on his view, see Millican, 'Hume's Sceptical Doubts concerning Induction', sect. 2, and cf. note 50 above.

⁸⁵ As acknowledged in Hume's letter of 10 January 1743 (LDH 1.45, 19).

⁸⁶ Francis Hutcheson, *Synopsis of Metaphysics* (1744), trans. Michael Silverthorne, in Francis Hutcheson, *Logic, Metaphysics, and the Natural Sociability of Mankind* (Indianapolis: Liberty Fund, 2006)

⁸⁷ Francis Hutcheson, *A Short Introduction to Moral Philosophy* (1747), ed. Luigi Turco (Indianapolis: Liberty Fund, 2007), p. 25.

⁸⁸ Francis Hutcheson, *An Essay on the Nature and Conduct of the Affections. With Illustrations on the Moral Sense*, 3rd edn (London: 1742), pp. 30–1.

⁸⁹ *Ibid.*, pp. 219–20.

⁹⁰ Note that the quoted paragraph also treats 'the Intellect' as just another elegant variation on 'Reason' and 'the Understanding'. Hume does the same, albeit more rarely (DNR 3.153, 3.156), though he quite often refers in a similar spirit to the 'intellectual faculties' (THN 1.3.12.20 / 138, 2.3.8.13 / 437; EHU 5.5n8 / 43–4n, 9.6 / 108; EPM 1.9 / 173, EPM App. 1.11 / 290, 13 / 291, 18 / 293, 3.9 / 307; 'Of the Standard of Taste', E 240–1). Garrett talks of Hume as giving 'an argument against the intellect' (*Cognition and Commitment*, p. 20), but this is misleading unless 'the intellect' here

is understood to mean 'the intellect *conceived of as a faculty of non-sensory ideas*' (a conception that Garrett traces through Descartes, Spinoza and Leibniz, but is not shared by Locke, Berkeley or Hume).

⁹¹ See, for example, Anthony Ashley Cooper, Lord Shaftesbury, *Characteristicks of Men, Manners, Opinions, Times*, 3 vols, 3rd edn [the edition purchased by Hume in 1726] (London, 1723), vol. 2, II.ii, p. 118; Joseph Butler, *The Analogy of Religion, Natural and Revealed, to the Constitution and Course of Nature*, 2nd edn, corrected (London, 1736), I.vi, p. 174; Price, *Review*, I ii, p. 23.

⁹² See, for example, Henry Home, Lord Kames, *Essays on the Principles of Morality and Natural Religion*, 2nd edn (London, 1758), essay VII, p. 268n, and James Beattie, *An Essay on the Nature and Immutability of Truth; in Opposition to Sophistry and Scepticism* (Edinburgh, 1770), I.i, pp. 37–8. James Oswald, *An Appeal to Common Sense in Behalf of Religion* (Edinburgh, 1766), I.ii.1, p. 80 and Thomas Reid, *Essays on the Intellectual Powers of Man* (Edinburgh, 1785), VII.i, p. 671 are likewise keen to insist on a narrow use of 'reasoning', distinguished from 'judging', though they allow both operations to be subsumed under 'reason'.

⁹³ For other relevant passages from the *Treatise*, see, for example, THN 1.3.6.4 / 88–9, 1.3.13.12 / 149–50, 1.4.1.1 / 180, 1.4.1.12 / 186–7, 1.4.2.14 / 193, 1.4.7.7 / 267–8, 2.3.3.2–6 / 413–6, 3.1.1.16–18 / 462–3, and 3.1.1.26 / 468–9. For passages from the *Abstract*, see Abs. 11 / 650–1, 27 / 657, and from the *Enquiry*, EHU 4.0–1 / 25, 5.5 / 43, 5.22 / 55, 7.28 / 76 and 9.0–1 / 104. Further examples may be found in Hume's other works.

⁹⁴ Together with Hume himself (EHU 1.14 / 13–14, 8.22 / 93), see, for example, René Descartes, *Fourth Meditation*, in *The Philosophical Writings of Descartes*, trans. John Cottingham, Robert Stoothoff and Dugald Murdoch (Cambridge: Cambridge University Press, 1984), vol. 2, pp. 39–40; Locke, *Essay*, II.vi.2; George Berkeley, *A Treatise concerning the Principles of Human Knowledge*, ed. Jonathan Dancy (Oxford: Oxford University Press, 1998), I.27. References to Hume's contemporaries Hutcheson, Price and Reid will follow.

⁹⁵ Reid, *Intellectual Powers*, I.vii, pp. 67–8.

⁹⁶ Note, for example, the general division within the *Treatise* between Book 1 'Of the Understanding' and Book 2 'Of the Passions' (including Part 3 'Of the will and direct passions'), and also the footnote at THN 1.3.7.5n20 / 96, where Hume criticizes the 'universally receiv'd' threefold 'division of the acts of understanding' which Reid describes.

⁹⁷ Hutcheson, *A Short Introduction to Moral Philosophy*, pp. 25–6.

⁹⁸ Price deprecates 'the division which has been made by some writers, of all the powers of the soul into understanding and will; the former comprehending under it, all the powers of external and internal sensation, as well as those of judging and reasoning'. By contrast, he says, 'I all along speak of the understanding, in the most confined and proper sense of it . . . and distinguished from the powers of sensation' (*Review*, I.ii, p. 20n). Note, however, that Price implicitly equates *the understanding* with *reason* (*ibid.*, p. 23) thus using 'reason' in a broader sense than those such as Kames (cf. note 92 above) who exclude *intuition* from its scope.

⁹⁹ Hutcheson, *Synopsis of Metaphysics*, p. 112. The original Latin of the final clause is 'Ad Intellectum, referentur Sensus'.

¹⁰⁰ Sect. 6 ends with a short paragraph on 'Natural associations of ideas', which Hutcheson sees as playing an important role in both imagination and memory; sect. 7 briefly discusses what is pleasing or distressing to the senses, and our consequent judgements (of good and evil) and passions; then sect. 8 discusses habit, and sect. 9 relative ideas and judgements.

¹⁰¹ Hutcheson, *Illustrations on the Moral Sense*, I, p. 215.

¹⁰² Price, *Review*, pp. 19–20.

¹⁰³ For example Locke: 'the UNDERSTANDING . . . is the most elevated Faculty of the Soul . . . Its searches after Truth, are a sort of . . . Hunting' (*Essay*, Epistle to the Reader, paragraph 1); David Hartley: 'The *Understanding* is that Faculty, by which we . . . pursue Truth, and assent to, or dissent from, Propositions'. (*Observations on Man, His Frame, His Duty, and His Expectations*, Bath and London, 1749, vol. 1, Introduction, p. iii).

- ¹⁰⁴ Other passages that identify reason with the discovery of truth, though usually less explicitly, are at THN 2.3.3.3 / 414, 2.3.3.5–6 / 415–6, 2.3.3.8 / 417, 3.1.1.4 / 456–7, 3.1.1.19n69 / 464n, 3.1.1.25–7 / 467–70, 3.2.2.20 / 496, THN App. 1 / 623; EPM 1.7 / 172, EPM App. 1.6 / 287. All of these occur in a context where Hume is contrasting *reason* (or *the understanding*) with conative rather than cognitive notions, thus corroborating its identification as the overarching cognitive faculty.
- ¹⁰⁵ This note (which can be found as a Textual Variant on p. 177 of my edition of Hume's *Enquiry concerning Human Understanding*, Oxford World's Classics, 2007) is of particular interest because it credits Hutcheson with distinguishing between 'the Understanding' and 'That Faculty . . . by which we perceive Vice and Virtue', although Hutcheson himself considered the moral sense to be one of the 'reflexive or subsequent sensations', thus falling within the domain of the understanding. Price, *Review*, p. 12n, mentions Hume's note in the course of criticizing Hutcheson.
- ¹⁰⁶ Notice that Hume is implying that *if* we could observe a conjunction of cause and effect, *then* we could form such a 'conclusion . . . concerning . . . existence' and 'satisfy our reason in this particular'. So as in the famous argument concerning morals (cf. the quotation from THN 3.1.1.12 / 459 near the beginning of section 3.1 above), Hume is clearly here treating causal, factual inference as an operation of reason.
- ¹⁰⁷ Such nuances can apply with many words that are associated with some *achievement*. For example, a *cure* that does not work is strictly a contradiction in terms, but it is fairly natural to say, in appropriate circumstances, 'that cure is useless and ought to be banned'.
- ¹⁰⁸ An analogy here would be to an *accounting error* within a company, which on a broad interpretation could refer to any error in the accounts (including faulty data from external sources), but on a narrower interpretation would mean an error due to the accountants themselves.
- ¹⁰⁹ On the conative side, Hume hardly ever speaks of 'faculties', explicitly referring to 'the will' and 'the passions' as faculties just once each (at THN 2.3.3.9 / 417–8 and 2.2.2.16 / 339 respectively). Judgemental 'taste' is called a faculty in 'Of the Standard of Taste', E 240–1, and spoken of as having 'a productive faculty' in a famous passage at EPM App. 1.21 / 294.
- ¹¹⁰ The model of a canvas is obviously most appropriate to visual ideas, which indeed seem to dominate Hume's thought, although ideas may correspond to any of the senses – including internal 'reflection' – and only the ideas of sight and touch will be spatially arranged (not necessarily within a single space). Note that he takes *all* of our ideas to be sense-copied; hence as Garrett observes (cf. note 90 above), Hume denies any separate faculty that can take a 'pure and intellectual view' of 'refin'd and spiritual' ideas, unsullied by sensory input (THN 1.3.1.7 / 72).
- ¹¹¹ At least, this seems to be what Hume is saying in THN 1.4.7.3 / 265. At THN 1.3.9.3 / 107–8, he appears instead to take the force and vivacity of the 'impressions or ideas of the memory' – like that of 'an immediate impression' – as itself constituting assent, thus providing a basis for explaining the assent that derives from causal inference. The relationship between memory and the imagination remains somewhat obscure, though Hume's talk of 'impressions of the memory' ('somewhat intermediate betwixt an impression and an idea', THN 1.1.3.1 / 8) suggests that the memory is furnishing ideas that are sufficiently firm and vivid – sufficiently impression-like – to establish copy-ideas in the imagination: 'The impressions of the memory never change in any considerable degree; and each impression draws along with it a precise idea, which takes its place in the imagination, as something solid and real, certain and invariable'. (THN 1.3.9.7 / 110). If this is right, then all the ideas that are actually involved in *thinking* lie within the imagination, and the role of the senses and memory is to supply the 'impressions' from which those ideas derive.
- ¹¹² See THN 1.3.7.6 / 97, 1.3.9.3 / 107–8, 1.3.11.11 / 128, 1.3.14.1 / 155–6, 1.3.14.31 / 169–70; and for references from the *Abstract* and *Enquiry* see note 129 below.

HUME'S 'SCEPTICISM' ABOUT INDUCTION

- ¹¹³ I call it a 'virtual' stage to reflect Hume's comment at THN 1.4.6.4 / 253 that 'The comparison of the theatre must not mislead us. They are the successive perceptions only, that constitute the mind'.
- ¹¹⁴ THN 1.4.2.22 / 198 gives a case intermediate between passivity and activity, in which the imagination, having been 'set into any train of thinking, is apt to continue even when its object fails it, and, like a galley put in motion by the oars, carries on its course without any new impulse'. Note that the listed references involving *fictions* are confined to those that involve characteristic Humean fictions of philosophical interest, rather than arbitrary combinations of ideas (i.e. 'mere fictions of the imagination' as at THN 1.3.5.4–5 / 85, 1.3.7.7 / 97, 1.3.9.3 / 108, 1.4.3.1 / 219; EHU 5.12–13 / 49–50, 6.3 / 57).
- ¹¹⁵ Recall from Section 3.2 that the replaced footnote at THN 2.2.7.6n / 371n said 'the understanding' here instead of 'reason'.
- ¹¹⁶ It is striking, for example, that these are the only two occurrences in Hume's writings of the phrase 'offspring of the imagination'. Presumably he was forced to place the footnote at the end of the section to minimize type resetting.
- ¹¹⁷ The understanding is also identified with the imagination at THN 1.3.8.13 / 104 and 2.3.9.10 / 440.
- ¹¹⁸ Don Garrett, *Cognition and Commitment*, p. 92, was, I believe, the first to note this possibility, which is crucial if Hume's use of 'reason' within his argument is to be understood as sincere rather than a target. But of course Garrett's interpretation of 'determin'd by reason' is very different from my own.
- ¹¹⁹ See, for example, EHU 1.13–14 / 13–14 for the equation of 'faculties' with 'powers', and also THN Intro. 4 / xv, 1.3.10.9 / 123. The same equation is repeatedly found in Locke, e.g. *Essay* II.vi.2, II xxi 15, 17, 20.
- ¹²⁰ Locke, *Essay*, II.xxi.20.
- ¹²¹ In a recent debate (Don Garrett and Peter Millican, *Reason, Induction and Causation in Hume's Philosophy*, IASH Occasional Paper 19, Edinburgh: Institute for Advanced Studies in the Humanities, University of Edinburgh, 2011), Don Garrett argues that in inductive inference, 'the imagination in the narrow sense is performing the customary transition' (p. 22), thus denying that *custom* is reassigned to *reason* along with 'our demonstrative and probable reasonings'. Hence he sees the distinction alluded to at THN 1.3.9.19n22 / 117–18 as quite distinct from that drawn at THN 1.4.4.1 / 225, a position I find rather implausible, given that their stated rationale is so similar, namely, to distinguish within the imagination between the principles that 'are the foundation of all our thoughts and actions' and those that give rise to 'whimsies and prejudices'.
- ¹²² Even in the *Treatise*, Hume never says in so many words that custom is a process of the imagination, though THN 1.3.6.4 / 88–9 and 1.3.7.6 / 97 strongly suggest this.
- ¹²³ In the *Enquiry*, unlike the *Treatise* (e.g. THN 1.3.6.16 / 94, 1.3.8.6 / 100–1), Hume is careful to distinguish between the associational relation of causation (discussed at EHU 5.18–19 / 53) and custom (EHU 5.20 / 53–4).
- ¹²⁴ We would not usually describe the climber as 'supported only by' a rock to which the rope is attached unless the rock was considered potentially *less* secure than the rope (e.g. suppose the attachment is to a spur of rock that is in imminent danger of cracking – we might well then say that the climber is 'supported only by the spur').
- ¹²⁵ Together with those quoted earlier, relevant passages include: '... our reason ... or, more properly speaking, ... those conclusions we form from cause and effect ...' (THN 1.4.4.15 / 231); '... these emotions extend themselves to the causes and effects of that object, as they are pointed out to us by reason and experience ...' (2.3.3.3 / 414); '... the operations of human understanding ... [include] the inferring of matter of fact ...' (3.1.1.18 / 463).
- ¹²⁶ Both Barry Stroud (*Hume*, pp. 60–2) and John Kenyon ('Doubts about the Concept of Reason', *Proceedings of the Aristotelian Society*, supp. vol. 59, 1985, pp. 249–67, at pp. 255–7) attribute this to Hume in the context of his argument concerning induction, but neither justifies the attribution, and there is little evidence of it in Hume's text (cf. note 39 above).

- ¹²⁷ This assumes the internalist perspective which dominated the early modern period. A modern Humean might well take an externalist approach, but given Hume's explicit response to the sceptic in *Enquiry* 12 (as described in section 1 above), I am not persuaded by Louis Loeb's claim that 'In light of the massive evidence that Hume is not a sceptic about induction, he must reject [the] internalist way of thinking'. ('Psychology, Epistemology, and Skepticism', p. 333). Kenneth Winkler emphasizes how *Enquiry* 12 supports a more sceptical reading of *Enquiry* 4: see 'Hume's Inductive Skepticism', in Margaret Atherton (ed.), *The Empiricists* (Lanham, MD: Rowman & Littlefield, 1999), pp. 183–212, at pp. 193–200.
- ¹²⁸ At THN 1.3.9.19 / 117, 1.3.13.9 / 147, 1.3.14.21 / 165, 1.4.4.1 / 225, and 1.4.7.3 / 265.
- ¹²⁹ At Abs. 15 / 652, 16 / 652, 21 / 654 (twice), 25 / 656; EHU 5.4–5 / 42–3, 5.5 / 43 (twice), 5.8 / 46, 5.11 / 48, 5.20 / 54, 5.21 / 54–5, 6.4 / 58, 7.29 / 76–7, 8.5 / 82, 8.21 / 92, 9.5 / 106, 9.5n20 / 107, and 12.22 / 159. Note that this contrast cannot be accounted for in terms of Hume's moving away from the foundational metaphor more generally. On the contrary, he says that induction is 'founded' on the relation of cause and effect, or experience, or the Uniformity Principle, and that it is *not* 'founded' on reasoning, argument, or any process of the understanding, significantly more in the *Enquiry* – EHU 4.4 / 26, 4.14 / 32 (twice), 4.15 / 32, 4.21 / 37, 9.5 / 106 and 12.29 / 164) – than he does in the *Treatise* – THN 1.3.6.4 / 88 and 1.3.6.7 / 89–90 (twice).
- ¹³⁰ Other aspects of the logic of Hume's foundational relation are explored in Millican, 'Hume's Sceptical Doubts concerning Induction', sect. 10.1.
- ¹³¹ There is a thematic parallel here with Hume's account of causation, which is also commonly thought of as sceptical, but in fact provides him with a positive basis for applying causal explanation to the human world. For more on this, see Peter Millican, 'Hume, Causal Realism, and Causal Science', *Mind* 118 (2009), pp. 647–712.
- ¹³² For numerous discussions on the topics of reason and induction, I am extremely grateful to Louis Loeb, David Owen and especially Don Garrett, as well as many other members of the Hume Society at its various conferences. I am also grateful to Henry Merivale, Hsueh Qu and especially Dan O'Brien for comments on this paper, and to the Edinburgh Illumni for providing the David Hume Fellowship at Edinburgh, thus giving me the opportunity to work in the delightful context of the Institute for Advanced Studies in the Humanities, overlapping with Don Garrett's tenure there.