

## HUME IS NOT A SKEPTIC ABOUT INDUCTION

XINLI WANG

### 1. Two Interpretations of Hume

Any philosopher who aims to challenge the accepted understanding of a well-known concept, to argue that it has been misunderstood up to his/her time, and to give it a new account, is liable to get carried away and to appear to be debunking the concept itself rather than the accepted interpretation of it. David Hume is not an exception. Hume wants to give a different justification, i.e., epistemic justification, of induction from the traditional logical justification. But his language suggests, not that he is justifying the epistemic legitimacy of induction, but that he is telling us that inductive inferences are not rationally justifiable, and hence the beliefs arrived at via inductive inferences are (and must remain) irrational. Perhaps this explains why Hume scholars before the 1970's have almost all agreed that Hume believes that induction is not only logically illegitimate, but also epistemically worthless. Hume is regarded as a dead-heart radical skeptic about induction.<sup>1</sup>

However, the above traditional interpretation makes Hume's empirical epistemology self-defeating. On the one hand, Hume raises serious problems about the legitimacy of inductive inferences. On the other hand, he argues *inductively* himself in laying the foundations of his epistemology. At the beginning of the *Treatise*, for example, Hume maintains that "every simple idea has a simple impression, which resem-

---

<sup>1</sup> Defenders of the received view are both numerous and distinguished. Main versions of this interpretation can be found in the following writings: K. Popper 1959, 369; W. Salmon 1967, ch. 1; F. Will 1947; W. Kneale 1949, 55; J. Bennett 1971, 300-302; Kemp Smith 1964, 374-375; B. Stroud 1977, 56 ff. The fullest and most elaborate defense of the received interpretation can be located in D. Stove 1973, pt. 2.

bles it, and every simple impression a corresponding idea" (*Treatise*, 3). Hume defends this claim by giving an example and then arguing:

Everyone may satisfy himself in this point *by running over as many as he pleases*. But if any one should deny this universal resemblance, I know no way of convincing him, but by desiring him to shew a simple impression, that has not a correspondent idea, or a simple idea, that has not a correspondent impression. If he does not answer this challenge, as 'tis certain he cannot, we may from his silence and *our own observation* establish our conclusion. (*Treatise*, 3-4; italics added).

This is a typical inductive argument. In fact, similar inductive arguments like this abound in the *Treatise*. But if, as Hume goes on to argue, we have no adequate ground for accepting inductive reasoning, then we have no adequate ground for accepting the arguments that Hume uses to establish the starting point of his empirical epistemology, a starting point which itself leads to the problem of induction. Consequently, Hume appears to have undermined what he takes to be one of his most important projects--the construction of a science of man.

Since 1975, the traditional interpretation has been challenged. Some scholars argue that reading Hume as a radical skeptic about induction is untenable and is due to a misunderstanding of Hume. They contend that Hume is merely concerned with showing (a) that inductive inferences cannot provide the *logical necessity* which uniquely characterizes demonstrative reasoning; (b) that demonstrative reasoning cannot, from its own recourses alone, prove matters of fact which inductive reasoning concerns. Simply put, Hume only shows us that inductive inferences are not deductive inferences. Hume does not thus show that the *conclusions* of inductive inferences are rationally unjustifiable. Therefore, Hume may be in many respects a skeptic, but not a radical skeptic about induction.<sup>2</sup>

The new interpretation of Hume's problem of induction is, I think, more plausible than the traditional one. It at least eliminates the charge of inconsistency within Hume's empirical epistemology. Up to now, however, different versions of the new interpretation are unsatisfactory. Some go from one extreme to the other. For example, Beauchamp and Mappes assert that Hume never grapples with the problem of the epis-

---

<sup>2</sup> Challenges to reading Hume as a radical skeptic about induction were first given by L. Beauchamp and Mappes in their 1975. The basic approach was expanded and revised in Beauchamp and Rosenberg 1981, ch. 2. Later challenges can be found in N. Arnold 1983, J. Broughton 1983, and F. Dauer 1980.

temic justification of induction which they refer to as the 'external problem.' Their intention is plain. Since Hume's argument about induction is not a demand for a wholesale justification of induction, it is much less a skeptical assault on induction.<sup>3</sup> But Beauchamp and Mappes are mistaken in their claim that Hume never considered the 'external problem.' As a matter of fact, in Bk. I, Pt. IV, sect. iv & vii of the *Treatise*, Hume does call into question the epistemic legitimacy of inductive inference. Although it is not my contention that these statements about skepticism represent Hume's final position on induction (I will argue the opposite), it shows clearly that Hume does not fail to address the 'external question.'

Another version of the new interpretation proposed by Arnold clarifies some confusions in Beauchamp and Mappes' interpretation, but it, unfortunately, does not make much more progress in defending Hume. Arnold argues correctly that Hume does not identify justifiability and rationality with epistemic certainty. So Hume does not infer the conclusion that the beliefs arrived at via inductive inferences are unjustifiable and unreasonable from the invalidity of inductive inferences. However, Arnold answers only what Hume's conclusion is not (that is, the invalidity of inductive inferences does not mean that their conclusions are unreasonable), not what Hume's conclusion is. That is, the beliefs arrived at via strong inductive inferences are rationally justified. If Hume's position for the epistemic legitimacy of induction cannot be fully revealed, then the new interpretation is not convincing enough to make Hume avoid falling into the position of inductive skepticism commonly attributed to him. Therefore, the above consideration makes our return to this well-worn topic relevant and necessary. I want to argue that Hume does believe that inductive inferences are epistemically justifiable and the beliefs gained by strong inductive inferences are rationally justified, rational, or epistemically warrantable. I believe that Hume grants the epistemic legitimacy of induction.

## 2. Hume's Logical Arguments Against Induction

To reveal Hume's position on the epistemic legitimacy of induction, we should start with a brief review of his celebrated logical arguments against induction. There has been quite general agreement upon what

---

<sup>3</sup> T. Beauchamp and T. Mappes 1975.

Hume's argument against induction is. The argument, at least as it occurs in Bk. I, Pt. III, sect. xi of the *Treatise* and in sect. iv of the *Enquiries*, is what is called the circularity argument. But this reading of Hume's argument about induction is radically incomplete. Hume's complete arguments, in my reading of Hume, consist of the following three arguments in a chain.

Step I--Argument From Conceptual Possibility: It is a well-known doctrine held by Hume that "Whatever can be conceiv'd by a clear and distinct idea necessarily implies the possibility of existence" (*Treatise*, 43). It is conceivable, hence it is logically possible, that in any inductive inference, the inference might have its premises true but its conclusion false. Consequently, all inductive inferences are *deductively* invalid by the very definition of deductive validity. Now, the question is whether we can render an inductive inference deductively valid by adding other necessary premises. The answer to this question leads us to the next step of Hume's argument chain.

Step II--Argument From Unavailability of Causal Necessity: In order to render an inductive inference valid, we can try to add a new premise--namely, a premise about the necessary connection between causes (here the premises of the inference) and the effect (here its conclusion)--into that inference. "Here it is constantly supposed that there is a connection between the present fact and that which is inferred from it. Were there nothing to bind them together, the inference would be entirely precarious" (*Enquiries*, 26-27). But this premise cannot be established because neither single case sensory experience nor reasoning--either reasoning entirely *a priori* or reasoning assisted only by such experience--discovers 'the separable and inviolable connexion' between two objects (*Enquiries*, 7, 31, 42).

Step III--Argument From Circularity: A further problem is that powers on connections, even if they were perceivable, would not alone render inductive inferences deductively valid, especially when the inferences concern the future. The fact that certain objects have possessed certain powers in the past and present is not the reason for believing that they will in the future unless the inductive method has been justified (*Treatise*, 91). Therefore, Hume argues that inductive arguments require some principle about the Uniformity of Nature (for example, the future will resemble the past) as a necessary premise in order to render them valid (*Treatise*, 89). Hume's strategy is to show that the Principle of the Uniformity of Nature cannot be satisfactorily established. He does this by

arguing that there are only two kinds of arguments that could be used--either by a demonstration or by a probable argument (an argument from experience) to establish the principle. But neither is successful. Since the denial of the principle is conceivable, viz., it is a *contingent truth*, there can be no demonstrative argument for the principle (*Treatise*, 89). The probable argument for the principle does not work either since it involves a circularity:

Probability 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; and 'tis impossible this assumption can arise from probability (*Treatise*, 90).

Furthermore, there is no noncircular (deductively) valid argument from experience since a noncircular (valid) argument for the principle either begs the question (any valid argument from experience has the Principle of the Uniformity of Nature itself as a premise) or gets involved in an infinite regress (by supposing an even greater regularity than is stated in the original principle, such as, the Resemblance Thesis). So, it is claimed that any intended deductively valid probable argument for the Principle of the Uniformity of Nature is circular, question-begging, or an infinite regress (*Treatise*, 89-90).

From the above three arguments, Hume concludes that all inductive inferences are incurably deductively invalid. There is no doubt that Hume's famous arguments against induction above are confined within the logical domain only. Their conclusion is no more than the claim that inductive inferences are not deductive inferences, and hence inductive inferences are not logically justifiable (since only deductively valid inferences are logically justifiable).

However, what we are concerned with here is what *epistemic* implication Hume draws from the above logical arguments against induction. Does the fact that inductive inferences are not *logically* justifiable due to their deductive invalidity imply that inductive inferences cannot be justified in general and cannot be *epistemically* justified in particular? This is an epistemologically significant but abstruse question. One way of reading Hume is to generalize the conclusion from his logical arguments to the extent of denying that induction could be rationally justified in any way; as the traditional interpretation does. Another way of reading Hume is to draw a distinction between the logical justification and the epistemic justification of induction and to show that Hume is not a skeptic about

induction as to epistemic justification, although he is a radical skeptic about induction as to logical justification. This is what I intend to do here. Presumably the latter way of reading Hume requires a theoretical basis sufficient to make a sound distinction between logical and epistemic justification of induction, which I will turn to below.

### 3. Two Types of Induction: Logical vs. Factual Probability

It is widely accepted that Hume's problem of induction is about the legitimacy or rational justification of induction. But it is a matter of controversy what the term 'legitimacy' or 'rational justification' means. Hume scholars often have different concepts of rational justification or legitimacy in mind when they are discussing Hume's problem. The logical *validity* of inductive inferences, the *epistemic certainty* of inductive conclusions, and the *epistemic warrant* of beliefs arrived at via inductive inferences are all possible candidates. For instance, the traditional interpretation equates legitimacy of induction with its logical validity. The vagueness of the concepts of legitimacy or rational justification indicates that Hume's problem itself is multidimensional. I believe that the problem contains the following three dimensions: (a) Logical dimension: the question is whether the *inductive inference itself*, as a form of logical reasoning, is *deductively* valid. It concerns the logical legitimacy / justification of induction. (b) Epistemic dimension: the question is whether the *beliefs* arrived at via inductive inferences are epistemically justifiable or warrantable. It deals with the epistemic legitimacy / justification of induction. (c) Pragmatic dimension: the question is whether or not the *beliefs* gained by inductive inferences are pragmatically reliable. It pertains to the pragmatic legitimacy / justification of induction.

Hume argues explicitly against the logical legitimacy of induction in his most famous arguments about induction as I have presented above (*Treatise*, Bk. I, Pt. III, sect. vi; *Enquiries*, IV, V), and is implicitly concerned with the epistemic and pragmatic legitimacy in other texts (*Treatise*, Bk. I, Pt. III, sect. ix, xi, xii, xiii, xv). As for the pragmatic legitimacy of induction, Hume's position is well known. Hume believes that a reasonable man will, and 'must' make inductive inferences and the *beliefs* gained by strong inductive inferences are pragmatically reliable.

The problem of concern here is how to make a sound distinction between logical and epistemic dimensions of induction. To do this, we need to turn to Hume's own concept of inductive reasoning. Hume dis-

tinguishes the forms of human reasoning into two kinds, viz., demonstrative reasoning and probable reasoning (factual reasoning or inductive reasoning). Hume often refers to the latter as reasoning from probability or briefly probability. It is clear that by demonstrative reasoning Hume means one concerning the relations of ideas and arising from the comparison of ideas. This kind of reasoning is purely a product of understanding and is entirely free from doubt and uncertainty. In contrast, Hume does not explicate explicitly what probability or inductive reasoning is except that he means "by probability, that evidence, which is still attended with uncertainty" (*Treatise*, 124). However, how to understand Hume's concept of probability is crucial for us to clarify *in which sense* Hume believes that inductive inferences and the beliefs arrived at via induction, if any, are rationally justifiable.

Stove's analysis of two kinds of probability, namely, logical and factual probability, can cast some light on this issue. According to Stove, the logical probability of a hypothesis (upon some evidence) is the degree of *belief* that a perfectly rational person would have in this hypothesis. To say that the logical probability of a hypothesis *b* is high is just to say that, given some evidence, it is highly reasonable to *believe b*. This means that the logical probability of *b* has a subjective implication relative to a believer. By contrast, the factual probability of *b* is a notion roughly equivalent to the relative frequency notion of probability,<sup>4</sup> but where, unlike usual mathematical statistical treatment, the reference sequences are finite. If I say that the factual probability of *b* on some evidence *e* is high, then I mean not that I *believe* that I will be right, but that in most cases of a like situation I will *in fact* be right. Unlike logical probability, factual probability can be confirmed or disconfirmed by experience, thus we can say that a judgment of factual probability has an objective implication.<sup>5</sup>

Although the statements of logical probability and that of factual probability are essentially different, they are related. On the one hand, the truth-value of a statement of logical probability is not correlated with the truth-value of the corresponding statement of factual probability. The

---

<sup>4</sup> By relative frequency notion of probability, I mean the empirical probability which is defined as a limiting frequency of an infinite sequence. For example, the probability *P* of a coin landing heads (with respect to a given finite sequence of tosses) is  $n/m$ , if and only if the actual numbers of the coin landing heads are *n* in the given total numbers *m* of tosses.

<sup>5</sup> D. Stove 1973, 5-10.

former may be true even though the latter is quite false. For example, I have seen thousands of white swans in the past. So, it is reasonable for me to *believe* that the next swan I meet will be white (logical probability) even though the next swan I meet is in fact black. In this situation, the claim that the next swan I meet will in fact be white (factual probability) is false. On the other hand, the relative frequency of the factual probability of statements would exercise influence on one's judgment of logical probability of that statement. For instance, if the frequency of a factual probability of a statement is above certain percentage (say, ninety percent), such as "the sun rises from the east every morning", then it is very reasonable to *believe* it.

To illustrate, let us use a case given by Hume. Given that flames in my past experience have been associated with the impression of hot, I may infer that it is highly reasonable for me to *believe* that the next flame I meet will be hot. In other words, I may infer that *the logical probability* of the statement that the next flame I meet will be hot is very high. I will refer to this kind of inference as the inductive inference in the sense of logical probability, briefly, induction-LP. On the other hand, I may simply infer that the next flame I meet will *in fact* be hot. Similarly, I will refer to this kind of inference as the inductive inference in the sense of factual probability (hereafter, induction-FP).

#### 4. Epistemic Justification of Induction

To which dimension does induction-FP or induction-LP pertain? What is Hume's attitude toward each? Since induction-FP deals with the logical relation between factual beliefs, it pertains to logical justification of induction. Hume argues quite convincingly that induction-FP is incurably deductively invalid as I have presented in section 2. When Hume says that induction-FP is deductively invalid, he is not saying that we *can* be wrong, but that the inference has no logical necessity; since there is nothing possessed by our knowledge of the past which determines *a priori* our future experience. We may wake up tomorrow to find that all our sciences must be revised, and the sun never rises from the east again. If I must say that Hume is skeptic about induction, I would rather say that he is a radical skeptic about induction-FP.

In contrast, induction-LP concerns the question of to what extent a rational person has epistemically justifiable or warrantable beliefs arrived at via inductive inferences. It pertains to what I refer to as the epistemic

---

justification of induction. According to my reading of Hume, Hume does believe that induction-LP, from the past experience to a reasonable belief in the future, is rationally justifiable. From the past experience, we can infer justified beliefs in terms of a strong induction-LP. My above claim is based on the following considerations.

#### 4. 1 Rational justification vs. epistemic certainty

From the conclusion that the traditional interpretation attributes to Hume, namely, that all beliefs arrived at via inductive inferences are (and must retain) rationally unjustified or irrational, we can trace a deeper assumption which the traditional view attributes to Hume. It is believed that Hume holds the following conditional R:

[R] If one cannot know *with absolute certainty* that statement S is true, then it is unreasonable (rationally unjustifiable) to believe S.

On the basis of conditional R, rational justification is, for Hume, an all-or-nothing affair. To say that a belief is less than certain is to say that it is rationally unjustifiable. In addition, there is a clear and obvious connection between the logical validity of an inference and the epistemic certainty of its conclusion. In a valid inference, the conclusion can be regarded as certain relative to the premises; since in a valid argument it is logically impossible for the conclusion to be false if all the premises are true. On the contrary, in an invalid inference, the conclusion cannot be rendered certain relative to the premises. Since Hume has proved that the conclusions of inductive inferences are less than certain relative to the premises due to the invalidity of the inferences, the traditional interpretation continues, the beliefs arrived at via inductive inferences are not rationally justifiable.

However, there is no independent evidence for the claim that Hume thinks that a lack of epistemic certainty implies a lack of rational justification or of epistemic warrant. What Hume's logical arguments against induction achieve is that inductive inferences cannot guarantee epistemic certainty of the beliefs arrived at via inductive inferences. It says nothing about whether or not the beliefs are rationally justifiable or epistemically warrantable. On the contrary, there is adequate evidence that Hume does not identify epistemic certainty with rational justification.<sup>6</sup> Hume makes it quite clear that inductive inferences can have varying measures of epis-

---

<sup>6</sup> N. Arnold 1983.

temic warrant by providing varying measures of epistemic justification for their conclusions.<sup>7</sup> Epistemic warrant or rational justification is not, for Hume, an all-or-nothing affair. There is no reason to employ Hume's logical arguments against induction to deny the rational justifiability of inductive inferences in general.

#### 4. 2 Justifiability of induction-LP

According to the distinction between logical and factual probability, the deductive validity of an induction-FP is not a necessary condition for the justifiability of a corresponding induction-LP. When Hume argues that induction-FP (i.e., to claim that the next flame will *in fact* be hot) is deductively invalid and therefore is not logically justifiable, he by no means means that induction-LP (i.e., to *believe* that next flame will be hot) is unjustifiable. It may be perfectly reasonable to *believe* that the next flame will be hot, even though it is *in fact* not.

However, it is generally supposed by many that Hume infers that the *beliefs* arrived at via inductive inferences (more precisely, induction-LP) are unreasonable and unjustifiable from the fact that inductive inferences (more precisely, induction-FP) are deductively invalid. According to this interpretation, it is *unreasonable to believe* that next flame will be hot since it is logically *possible* that next flame will in fact not be hot. So, Hume is believed to have frowned upon induction in general. But it would be better to say, I think, that Hume frowned upon those who believe that their (correct) judgments of logical probability must be correlated with true statements of factual probability, i.e., upon those who think that the deductive validity of induction-FP is a necessary condition for the justifiability of induction-LP.

#### 4. 3 Epistemic warrant of the beliefs of logical probability

Hume does make a distinction between unjustified and justified factual beliefs arrived at via induction-LP, namely, between the beliefs of different logical probability. Hume holds that inductive inferences do provide varying measures of epistemic warrant for their conclusions. The following passage taken from Hume's essay "Of Miracles" makes the above point very clear:

---

<sup>7</sup> See 4.3 for detail.

Though experience be our only guide in reasoning concerning matters of fact; it must be acknowledged that this guide is not altogether infallible, but in some cases is apt to lead us into errors... A wise man, therefore, proportions his belief to the evidence. In such conclusions as are founded on an infallible experience, he expects the event with the last degree of assurance, and regards his past experience as a full *proof* of the future existence of that event. In other cases, he proceeds with more caution: He weighs the opposite experiments; he considers which side is supported by the greater number of experiments--to that side he inclines, with doubt and hesitation; and when at last he fixes his judgment, the evidence exceeds not what we properly call 'probability.' ... a hundred uniform experiments, with only one that is contradictory, reasonably beget a pretty strong degree of assurance (*Enquiries*, 110 - 111).

Hume devotes three sections of the *Treatise* (Bk. I, Pt. III, sect. xi, xii, xiii) to provide a basis upon which to distinguish the two kinds of factual beliefs and to examine the psychological sources of the basis. These considerations can be generalized into the following three aspects:<sup>8</sup> (1) Hume's section "Of the probability of chance" (*Treatise*, Bk. I, Pt. III, sect. xi) inquires whether inductive inferences have degrees of evidence, some being superior to the others. His answer is affirmative although he discovers that the 'difference between kinds of evidence' is in 'many cases insensible' even though it is easy to see the difference when widely varying experiences and types of generalization are compared (*Treatise*, 131). (2) In section "Of the probability of causes" (*Treatise*, Bk. I, Pt. III, sect. xii), Hume indicates that whenever the source of some event is secret, unobserved, we should proceed on the hypothesis that the event fits a pattern of causal uniformity, even if we are disposed to believe otherwise (*Treatise*, 132). 'Deliberation' is said to properly displace 'habitual determination.' (3) Hume makes a general distinction between inductively well-grounded beliefs and those which are purely artificial or associational. He takes the difference to rest in wide, varied acquaintance, as distinct from limited acquaintance. The reflective life of wide experience is able to test customs and display them with more adequately grounded beliefs (*Treatise*, 113, 133). Hume says that mere belief produced by the imagination is capricious and must be supplemented by application of general rules of judgment (*Treatise*, 149). Kemp Smith has well captured Hume's point:

---

<sup>8</sup> T. Beauchamp and T. Mappes 1975, 125-127.

In saying that custom is king, Hume has left undecided the all-important issue as to when its sovereignty is legitimate and when it is usurped, when it should be loyally accepted and when it ought to be challenged ... Consequently, Hume's position is not that custom (or habit) as such is king: it has no manner of right to lay claim to any such dignity. It is experience -- and custom only so far as it conforms to and is the outcome of experience -- which is, and ought to be, the ultimate court of appeal, a court of appeal which makes possible a distinction between those customs and habits that are reliable and beneficial and those that are not (Smith 1966, 382).

#### 4. 4 The canons of rational induction-LP

Hume provides us with his canons of induction, which come from experience and the law of association, to make a rational induction-LP. In section "Rules by which to judge of causes and effects" (*Treatise*, Bk. I, Pt. III, sect. xv), Hume is expressly concerned with providing methods for justifying causal beliefs. His intention is to "fix some general rules, by which we know when (causes and effects) really are so" (*Treatise*, 173). These rules clearly indicate that the correctness of causal inference is a matter of objective support and does not depend on custom, animal faith, or observers' acquired feelings of determination. Since satisfaction of the warranting conditions provides all the evidence needed for the verification of causal statements, 'instinct' feeling of expectation adds nothing essential and might even be misleading or mistaken (*Treatise*, Rule 6, 174 and also 149). General rules are the same sort of thing, for Hume, as the principles of logical probability and the intuitive assessments of statements of logical probability. The rules are justified by two considerations. First, they are tested, probed, not proven, by exceptions (*Treatise*, 153-154). Second, rules without exceptions--and consistent with our other beliefs--engender, simply by the rules of association (*Treatise*, 130, 134, 138, 143), a more vivid belief than rules without these pleasing characteristics (*Treatise*, 150).<sup>9</sup>

Hume's real concern about inductive inferences is to show what the principles of logical probability--the principles governing the formation of reasonable beliefs--are. Hume's quarrel is not with logical probability, but with those who believe that there is some ascertainable relation be-

---

<sup>9</sup> For the theoretical function and worth of these rules within Hume's epistemology, please see Passmore 1968, ch. 3, 42-64.

tween true statements of logical probability and those of factual probability, with those who hold that tomorrow must be in fact like today. Therefore, Hume is asserting not that we cannot justifiably make statements of logical probability (It is reasonable to *believe* that the sun will rise tomorrow), but simply that we cannot know to what extent they will be 'borne out' by true statements of factual probability. If one is rational, i.e., is consistent with the principles of logical probability, then one must make inductive inferences because true statements of logical probability, not factual probability, are all we possess and all we need. When we expect that the sun will rise tomorrow, our expectation is reasonable and rationally justified, even if the sun will in fact not rise tomorrow.

### 5. Conclusion

Hume believes that (correct) induction-LP is epistemically legitimate and justifiable. Hence the beliefs arrived at via (correct) induction-LP are rational beliefs. Hume is not an inductive skeptic in the sense of induction-LP although he may be said to be a radical skeptic about induction-FP. Hume's real contribution to the problem of induction is that he rules out one way of justifying induction, namely, that induction cannot be justified logically (deductive logic). At the same time, Hume not only leaves other ways open--such as epistemic or pragmatic justification of induction, but positively advocates the epistemic justification of induction, more precisely, the rational justification of induction-LP.

*Juniata College, Pennsylvania, US*

### References

- Arnold, N. (1983), "Hume's Skepticism about Inductive Inference", *Journal of the History of Philosophy* 21: 31-56.
- Beauchamp, T. and Mappes, T. (1975), "Is Hume Really a Skeptic about Induction?" *American Philosophical Quarterly* 12: 119-129.
- Beauchamp, T. and Rosenberg, A. (1981), *Hume and the Problem of Causation*. New York: Oxford University Press.
- Bennett, J. (1971), *Locke, Berkeley, Hume: central themes*. Oxford: Clarendon Press, 300-302.

- Broughton, J. (1983), "Hume's Skepticism about Causal Inferences", *Pacific Philosophical Quarterly* 64: 3-18.
- Dauer, F. (1980), "Hume's Skeptical Solution and the Causal Theory of Knowledge", *Philosophical Review* LXXXIX: 357-378.
- Hume, D. (1978), *A Treatise of Human Nature*. First edition (ed.) by L. A. Selby-Bigge; second edition (ed.) by P. H. Nidditch. New York: Oxford University Press 1978.
- Hume, D. (1975), *Enquiries Concerning Human Understanding*, first edition (ed.) by L. A. Selby -Bigge; third edition revised by P.H. Nidditch, New York: Oxford University Press, 1975.
- Kneale, W. (1949), *Probability and Induction*. Oxford: Clarendon Press.
- Passmore, J. (1968), *Hume's Intentions*. London: Gerald Duckworth & Co.
- Popper, K. (1959), *Logic of Scientific Discovery*. New York: Basic Books.
- Salmon, W. (1967), *The Foundations of Scientific Inference*. Pittsburgh: University of Pittsburgh Press.
- Smith, N. (1964), *The Philosophy of David Hume*. New York: St. Martin's Press.
- Stove, D. (1973), *Probability and Hume's Inductive Skepticism*. New York: Oxford University Press.
- Stroud, B. (1977), *Hume*. London: Routledge and Kegan Paul.
- Will, F. L. (1947), "Will the Future Be Like the Past?" *Mind* 56: 332-347.