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Levi Tenen
info@ubiquitypress.com

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Hume and the Cause of Inductive Inferences

Levi Tenen

Lewis & Clark College

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Abstract

I present Hume's problem of induction and a puzzle that initially arises from the conclusion to the problem. In order to solve the puzzle I will present two ways we can understand Hume's conclusion. I argue that the second interpretation provides an especially charitable account of what Hume intends to prove with the problem. On this interpretation, Hume is concerned with the cause of an inductive inference. I present three arguments in favor of this reading and conclude by summarizing Hume's negative conclusion about induction.

Introduction

One of Hume's goals in the *Treatise* is to provide an account of human nature, upon which the other sciences can rest. The "science of man" that Hume develops is a cognitive psychology (*Treatise of Human Nature* XV, emphasizes original).¹ Hume notes that our ability to expect future events is an indispensable part of our cognitive psychology (T 108). We expect that the sun will rise tomorrow. We believe that food will nourish us. Constantly, we rely on beliefs about unobserved events. Our beliefs about unobserved events are based on our past experience of similar objects or events. When we infer from the observed to the unobserved, we use induction. Therefore, if Hume wants to provide an account of human nature, he must explain how we make inductive inferences.

There are two parts to Hume's account of induction. The first is a negative argument and the second is a positive account. I focus mainly on the negative argument, which is often called the problem of induction. The problem of induction demonstrates three reasons we *do not* make inductive inferences. The negative argument is important for Hume's project because it shows the inadequacy of previous accounts of reasoning. Once Hume shows how past accounts fail, he is then able to establish his new, positive, account of induction.

First, I will present the problem of induction. Then I will present a puzzle that initially arises from the conclusion to the problem. In order to solve the puzzle I will present two ways we can understand Hume's conclusion. I argue that the second interpretation provides an especially charitable account of what Hume intends to prove with the problem. On this interpretation, Hume is concerned with the cause of an inductive inference. I present three arguments in favor of this reading and conclude by summarizing Hume's negative conclusion about induction.

The Problem of Induction

The relation of causation is extremely important for Hume's problem of induction. In fact, the problem of induction is really a problem about how we reason from cause to effect. My idea that lightning causes thunder allows me to have the idea of thunder without experiencing it. In the past I have experienced the constant conjunction of lightning and thunder. After a new experience of lightning, I infer from the past constant conjunction a new idea of thunder. An inductive argument is an inference from observed events to an unobserved event. If Hume explains how we have the idea of an unobserved effect, after only observing the cause, then he explains how we make inductive inferences.

Like all ideas, the idea of causation must originate from an impression (T 4 and 74). Hume demonstrates that our idea of causation cannot be directly copied from a sense impression. The reason is that a power like causation is simply not something we can perceive or have a sense impression of. We cannot have a sensory perception of a causal power between two objects. All we have are impressions of one object appearing contiguous (close), and prior, to some other object (T 75-76). This is not sufficient for securing our idea of causation because there are many objects that appear contiguous and prior to some object, but which we do not think exemplify the cause and effect relation. Therefore, the idea of causation cannot be copied from sense impressions.

If our idea of causation does not come from sensation, then perhaps we have it by using the faculty of reason. If so, then it must either be inferred using demonstrative or probable reasoning. Regardless of what type of reasoning we use, Hume says, that "[i]f 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*" (T 89, italics original). I will refer to the italicized portion as the Uniformity Principle. Hume maintains that any argument for an instance of induction must provide an argument for the uniformity principle. The reason is that any argument to support an inductive inference must explain how we move from an observed cause to the idea of an unobserved effect. To make an inference about an unobserved effect, we must assume that past cause and effect pairs resemble unobserved cause and effect pairs. An argument to support an inductive inference must prove that the future really does resemble the past; it must prove the uniformity principle.

If we use demonstrative reasoning to prove the uniformity principle then, like all conclusions to a demonstration, its negation will be inconceivable. Yet it is conceivable that nature will completely change course tomorrow. For example, I can conceive that the sun might not rise tomorrow or that the next bite of food I eat will poison me. We can conceive that the uniformity principle might be false. Thus, it is also possible that nature will not remain uniform (Garrett 1997, 24). If the uniformity principle is conceivably false, we know that it cannot be proved by a demonstrative argument.

Given that demonstrative reasoning cannot support the uniformity principle the only other type of reasoning available is probable. When we use probable arguments we infer something beyond our senses; we make an inference about the unobserved. A probable argument for the uniformity principle would go as follows: in the past nature has always remained uniform therefore in the future nature will remain uniform. To make this inference, we must assume that the future uniformity resembles the past uniformity. In other words, we must assume that the future will resemble the past such that they are uniformly the same. Yet this means we must assume that the uniformity principle is true in order to use a probable argument to support the uniformity principle. If we did not assume that the principle was true,

then we would have no reason to expect that future uniformity would be like the past uniformity. We would have no probable argument to support the uniformity principle.

The problem should now be apparent. In order to use probable reasoning to support the uniformity principle, we must already accept that the principle is true. If we do not assume that the principle is true then we have no probable argument for the uniformity of nature. If we use probable reasoning to argue for the principle, we form a tight, vicious, circle.

Hume has shown that we do not believe the uniformity principle because of any demonstrative or probable argument for it. We also know that the faculty of sensation does not support induction because the idea of causation does not entirely originate from sensation. At the conclusion to the negative argument Hume declares:

When the mind, therefore, passes from the idea or impression of one object, to the idea or belief of another, it is not determin'd by reason, but by certain principles, which associate together the ideas of these objects, and unite them in the imagination. (T 92)

I will refer to this passage as the “determin'd by reason” passage. For the remainder of this essay I wish to explore what Hume means when he says we are not determined by reason.

The Puzzle

According to Hume, all reasoning involves a comparison between “two or more objects” (T 73). Therefore, when we move from the idea or impression of one thing to the idea or belief of another we use the faculty of reason (T 92). Yet in the determined by reason passage, Hume claims moving between ideas of one object and the idea of an unobserved object is not determined by reason. Hume says instances of probable reason are not determined by reason. It seems puzzling that a type of reasoning would not be determined by reason. If an instance of reasoning is not determined by reason, then why is it an instance of reasoning at all? I will present two different interpretations of the determined by reason passage that each provides an explanation of Hume's conclusion.

Two-Meanings Interpretation

One way to solve the puzzle is to say that Hume means “reason” in two different senses. When Hume uses “reason” to talk about our faculty of reason he means something different than when he says we are not determined by reason. On this interpretation, Hume's conclusion means that reasoning in one sense is not determined by reason in a different sense. This type of solution reads Hume as saying that induction is determined by reason in one sense but it is not determined by reason in a different sense.

David Owen (1999, 2000, 2001) offers a compelling version of this type of explanation. It is based on the difference between Locke's account of reasoning and Hume's account of reasoning. According to Locke, reasoning between ideas involves using an intermediate idea. If I reason demonstratively between A and C, I will use an idea B as an intermediate link. I move from A to B and from B to C by using intuition but I will use reasoning to move from A to C (Owen 1999, 36). Owen claims that Locke requires intermediate ideas for both demonstrative and probable reasoning (53). Therefore, any use of the faculty of reason requires at least three ideas, one of which is the intermediate idea (35).

Hume on the other hand claims that reasoning does not always involve intermediate ideas. Instead, we can exercise the faculty of reason on just two ideas. Hume introduces the distinction between demonstrative and probable reasoning and says “[a]ll kinds of reasoning consist in nothing but a *comparison*, and a discovery of those relations [...] which two or more objects bear to each other” (T 73, italics original). Then, after the problem of induction, Hume says “we may exert our reason without employing more than two ideas” (T 97 n.1). Hume rejects Locke’s conception of reason because he thinks that reasoning occurs between two or more ideas.

Owen’s insight is that we can use the difference between Locke’s account and Hume’s account of reason to make sense of the problem of induction. We can understand whom Hume was targeting with the problem. Any argument to support instances of induction must rely on the uniformity principle as an intermediate idea (T 89). He shows that the uniformity principle cannot itself be supported by either demonstrative or probable argument. Therefore we do not use an intermediate step in probable reasoning.

Locke disagrees; he thinks we use intermediate ideas as proofs for inductive inferences (Owen 1999, 56). According to Locke, the relevant intermediate ideas are ideas about our past experience (Owen 1999, 53-56). The problem of induction illustrates that there is no intermediate idea that could support inductive inferences. Hume shows that if Locke’s account of reasoning is right, then inductive inferences are not instances of reasoning- as Locke defines “reason.” When Hume says instances of probable reasoning are “not determin’d by reason” he means probable reasoning is not determined by (Lockean) reason.

Yet Owen’s account suffers from one major issue. It interprets Hume as equivocating on the meaning of “reason.” Owen’s interpretation is based on the idea that Hume means two things by the word “reason.” The principle of charity states we should avoid claiming a writer equivocates. This is especially true when we interpret Hume. Whenever Hume changes the meaning of a word, which he has already been using, he makes it *very* clear to the reader. For instance, Hume highlights an ambiguity in the term “imagination” (T 117 n.1). He explains the two ways that he uses the term and a method by which we can distinguish one meaning from the other (T 117 n.1). It would be surprising if Hume changes the meaning of “reason” in the middle of one of his most important arguments without any hint to the reader (*Abstract* 647).

Furthermore, Hume defines “reason” both before and after the problem of induction. In both cases, reasoning involves comparing two or more ideas; it is defined differently than how Locke defines it (see T 73 and 96 n.1). If Owen’s interpretation is right, Hume changes the meaning of reason in, and only in, the negative argument. This is a major weakness to any account that claims Hume means two different things by “reason” (Garrett 1997, 83-84).

Caused-by-Reason Interpretation

Don Garrett (1997, 2000, 2001) provides an alternative to the two-meanings interpretation. In order to understand Garrett’s reading, we should distinguish between (a) an instance of reasoning and (b) an instance of reasoning that is caused by some *other* inference (Garrett 2001, 298). The main idea is that Hume concludes the problem of induction by saying that instances of induction are not caused by some

other inference. The relevant inference that might cause us to use induction would be an argument for the uniformity principle. There is no non-circular argument for the principle. Thus, there is no extra piece of reasoning that causes us to move from the observed to the unobserved. When Hume says inductive inferences are not determined by reason he really means such inferences are not caused by reason (Garrett 1997, 92). This interpretation clarifies the main puzzle about Hume's conclusion. Hume does not say that probable reasoning is not an instance of reasoning or that it is unreasonable (Garrett 1997, 94). Instead, he provides a negative conclusion about what *causes* us to use induction. We do not use induction because of an argument for it.

One might initially worry that Hume does not mean "determine" in the way we mean "cause." Yet historical evidence supports interpreting "determin'd" as a near synonym for "caused." Locke, for instance, says that testimony "causes his Assent to this [geometric] Proposition" (Locke IV, XV. 3). He uses causal language to describe reasoning about geometry (Owen 1999, 51). When Hume describes his own positive account of induction he says the propensity to use induction "is the effect of *Custom*" and that we use induction "without being impelled by any reasoning" (*Enquiry* 43). The word "impelled" presumably means something like a strong force, or a cause. Hume's positive account of induction clearly states that inductive inferences are the *effect* of Custom; we are caused to use induction *because* of Custom. It seems that both Locke and Hume are interested in the causes of our inferences.

I will now present three more advantages to the caused-by-reason interpretation. First, it provides a univocal reading of reason. Reason means one thing for Hume: comparing at least two ideas to find the relations between them. Both demonstrative and probable reasoning can operate on just two ideas. If instances of probable reasoning are not determined by reason, then this means that no comparison of two or more ideas causes us to make an inductive inference.

Secondly, this reading coheres with the rest of the *Treatise*. Immediately preceding the problem of induction, Hume says "If reason determin'd us, it wou'd proceed upon [the uniformity principle]" so therefore "let us consider all the arguments upon which such a proposition may be suppos'd to be founded" (T 89). Hume then shows why neither demonstrative nor probable reasoning can support the uniformity principle. After the problem of induction, Hume says inductive inferences are not determined by reason (T 92). Reading "determined" to mean "caused" in both passages preserves the meaning and force of the problem of induction. If a piece of reasoning causes us to make an inductive inference, then such reasoning would proceed upon the uniformity principle. We know there is no non-circular argument for the principle. Therefore, no extra argument or instance of reasoning causes us to use probable reasoning.

In his positive account, Hume tries to explain how we use induction. In the past we have experienced pairs of impressions or ideas that are constantly conjoined. When we are presented with a single impression or idea that resembles past conjoined pairs, we are "led by the gentle force of association" to have an idea that would normally be conjoined with the experienced impression or idea (Owen 1999, 152). Hume's positive account of induction is about the force or cause of inductive inferences. Therefore, it makes sense that Hume's negative account would show what does not cause inductive inferences. Hume sums all this up by saying "[a]ll inferences from experience, therefore, are effects of custom, not of reasoning" (*Enquiry* 43). In both his negative and positive accounts, Hume is interested in what does and does not cause us to make inductive inferences.

The third advantage is that this account explains how the problem of induction targets Locke. According to Owen, part of Hume's goal is to offer a new account of probable reasoning (Owen 2000, 330). Owen claims that Garrett's account does not explain how Hume provides a new account of reasoning (Owen 2000, 330). I disagree. The account offered by Garrett (2001) explains the historical evidence equally well as Owen's account.

For Hume, reasoning occurs between two or more ideas. For Locke, reasoning occurs between three or more ideas. Hume's account of reasoning incorporates all instances that Locke considers reasoning. The problem of induction shows that no argument, on Hume's account, can be given for the uniformity principle. Therefore no argument on Locke's account of reason could support the principle either. On the caused-by-reason explanation, Hume has a powerful argument against something that Locke really cares about.

Conclusion

Hume's conclusion to the problem of induction seems puzzling at first. Hume seems to suggest that probable reasoning might not even be an instance of reasoning. We can avoid this puzzle if we interpret the "determin'd by reason" passage to mean "caused by reason." I maintain that the problem of induction shows why an extra piece of reasoning cannot cause an inductive inference. Reading Hume this way preserves the force of Hume's negative argument as well as his positive account of induction. It also demonstrates how Locke's account of induction is flawed. In a sense, the problem of induction is an argument for Hume's positive account. He eliminates past theories, which thereby lends support to whatever positive account he develops. Together, the negative and positive accounts provide a compelling explanation of an indispensable and unavoidable fact about human psychology; they explain how we have beliefs about the unobserved.

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¹ All citations to the *Treatise* are abbreviated as T.