

Hume's Uniformity Principle

The Scottish philosopher David Hume investigates the epistemological questions that arise when investigating how to know the world around us in his book *An Enquiry concerning Human Understanding*. Hume ends up concluding that all the knowledge that we acquire through inferring from the past is not rationally justified, but rather based entirely on experience. We will first reconstruct his argument and then examine it closely.

Hume divides objects of human reason into two kinds: Relations of Ideas and Matters of Fact (p. 11). The first kind can be known directly with the mind, without depending on the outside world, whereas the latter arise from observation. Hume distinguishes the two by using the contradiction test: while matters of fact can be conceived without falling into a contradiction (they are contingent truths), relations of ideas are absolute truths that can be known a priori (p. 11). He then goes to examine how we acquire all reasonings concerning matters of fact, and argues that they are all based on the relation of cause and effect (p. 12). For example, we see a billiard ball approaching another, we infer that it is going to infuse motion on it because we have seen in our experience. Hume then asks: what is the justification behind applying this inference rule? That is, we all seem to accept the principle that the future resembles the past, and so that if we see something occurring to an object 100 times, the next time we see this object we will infer that this same thing will occur to it again. This is what he calls the *uniformity principle*, and Hume then argues that this principle is not based on reason, but rather on custom. The key behind his reasoning (also known as the “problem of induction”) is that induction cannot be used to justify induction itself.

He starts by separating reasonings into two kinds: demonstrative reasoning (which are concerned with relations of ideas), and moral reasoning (concerned with matter of fact) (p. 16). In the case of the uniformity principle, it is moral reasoning what applies, since it is concerned with matters of facts, not relations of ideas. But we showed before that the inferences between matters of fact are based on cause and effect and that such knowledge is based on experience. Hence, the fact that we can apply the uniformity principle to justify a relationship between the cause and the effect is itself based on the principle that the past resembles the future (the inductive step), and hence to explain the uniformity principle we need to invoke again the uniformity principle. But this is not valid, since we cannot use the proposition we are trying to prove in the proof of the proposition, since this would be a circular argument. Therefore, the uniformity principle cannot be justified through reason (p. 16).

Hume then concludes that the uniformity principle is based on *Custom*, or *Habit* (p. 20). That is, whenever we see a frequent operation, we show a propensity to believe in its future repetition based on custom, and so all inferences from experience are consequences of custom, not reasoning. Moreover, Hume argues that the principle of custom is the “great guide of human life”, and that without it we would never be able to infer the effects from the causes (p. 21). Going further, he claims that it is founded on our natural instincts, and so that the principle of custom is also not invoked through reason (p. 22). We will now step out of Hume’s argumentative line and examine his final conclusion to see if it is a satisfactory answer to the initial question about our acquirement of knowledge.

What seems logically undeniable is that, once we accept Hume’s distinction between ideas and matters of fact, and between demonstrative reasoning and moral reasoning, the conclusion that knowledge about relations between matters of fact is based

on custom and experience is the only possible one. If we are satisfied with Hume arguing that the uniformity principle arises from experience, then it must follow that the reasoning behind the uniformity principle arises from experience as well, and so on, precisely because it is a repetition of the same argument, as Hume points out. Therefore, in order to point out the possible flaws of the argument, we need to trace back. What does not follow logically are the following two premises: that the contradiction test is what distinctly differentiates relations of ideas and matters of fact (i.e. that only matters of fact can be conceived as a negation that leads to a contradiction), and that the uniformity principle follows from experience and custom alone and does not combine with reason (i.e. Hume proves that the uniformity principle cannot arise from reason alone, but he does not rule out the possibility that the uniformity principle needs a mixture of experience and reason in order to make the inferences).

I will first address Hume's distinction of relations of ideas and matters of facts. His claim that these two objects can be differentiated through proof by contradiction alone assumes that the negation of matters of fact can be conceived and will not lead to a contradiction, whereas this is not the possible for ideas. But this method of proof by contradiction does not take into account that contradictions are always *relative* to an axiomatic system, but never inherently contradictory. Even in Mathematics, all propositions are embedded within an axiomatic system that we have established. For example, it is true that the angles of a triangle add up to 180 degrees in Euclidean geometry, but this is no longer true in the system of hyperbolic geometry. Therefore, one could conceive both the statements "the sum of the angles in a triangle is 180 degrees" and "the sum of the angles in a triangle is *not* 180 degrees" to be true at the same time. More dramatically, the mathematician Kurt Gödel proved in 1931 that in *any* consistent axiomatic system there exist propositions that can neither be proved or disproved; i.e. no

possible reasoning exists to take us to the conclusion that the proposition is true. Hume also claims that propositions regarding relations of ideas are “discoverable by the mere operation of thought [...] without dependence on what is anywhere existent in the universe”. But this seems to be an unjustified premise that already begins to answer what he is trying to prove: if matters of fact are not discoverable by the mere operation of thought, the only alternative is that experience comes into the game.

The second arguable point in Hume’s argument is that the fact that the universality principle is not grounded *entirely* on reason implies that it is grounded *entirely* on experience. Nowhere in his argument does he seem to disprove that the cause-effect principle actually arises from a combination of custom, experience, and reason, and that reason can be totally excluded from its foundations. Hume concludes that “this principle [of inferring from causes] is custom of habit” (p. 20). However, this does not fully account for the different levels of complexity in inferring effects from a cause. Intuitively, it is not equivalent to deduce that we should not touch a flame or else it will hurt us (which is an inference that toddlers and animals make) than to deduce the first law of thermodynamics after observing several experiments. In both cases, these inferences are grounded on the uniformity principle: that the past resembles the future. However, we would not say that deducing the first law of thermodynamics is something that we do by habit, in the way that we do when we stay away from burning flames. To infer the first law of thermodynamics, not only do we need to perform several experiments to observe cause and effects, but we then need to use reason to put together all these inferences. In other words, while Hume shows that the very basic principle that the past resembles the future is not rationally justified, we should still acknowledge that we need reason to put together all our observations in a deductive way to eventually obtain complex inferences. Hence, it would be more nuanced to finish Hume’s discussion on the uniformity principle by

acknowledging that while the uniformity principle is not grounded on *entirely* on reason, most of our inferences (and certainly the most complex ones) arise from a combination of the custom *and reason*. Only the most basic inferences arise entirely from habit.

In conclusion, even if we accept Hume's definition of matters of fact and thus that the cause-effect principle must have experience in order to operate, Hume does not disprove that our inferences are grounded on a combination of experience and reason rather than experience alone, and that nuanced necessary connections (for example, physical laws) require reason in order to be conceived in addition to custom.