

Probable reasoning has no rational basis

The **uniformity of nature** is the principle that the course of nature continues uniformly the same, e.g. if X is the cause Y, then Y will *necessarily* exist *whenever* X exists. In particular, the uniformities observed in the *past* will hold for the *present* and *future* as well. Hume's query in *Inquiry* IV/ii is whether our belief in this principle is founded on reason or not.

After rejecting the notion that its certainty derives from *demonstrative reason* (because there is no contradiction in the thought that nature does not continue uniformly the same), Hume asks whether it can be supposed to rest on *probable* (i.e. *empirical*) *reason*. He argues that this assumption leads us into a vicious circle, and therefore must be false...

1. Through empirical reason, we use known matters of fact and real existence to infer the existence of others (e.g. if I hear voices in the next room, I infer people are present in it; If I see I knife in someone's back, I infer he was murdered; If I am standing on a mountain top, I infer that I am far from Greenwich Village; if a certain cloud chamber reaction is recorded on film, I infer that there was a Higgs Boson). The inferred matter of fact or real existence is, by itself, no more probable than its negation (i.e. from a purely logical standpoint, both outcomes are possible); yet, the given matter of fact or real existence on the basis of which it is inferred makes its occurrence/existence highly probable. Since such constantly correlations between distinct matters of fact or real existence can be found throughout nature, we can infer from them that nature is uniform in its operations:

conclusions regarding matters of fact and real existence

belief in the uniformity of nature

2. Hume notes that we draw conclusions regarding (i.e. reason about) matters of fact and real existence because we believe that the items about which we reason stand in **necessary connections of cause and effect** (I believe that something had to produce the voices I am hearing, and the most probable cause is people talking; something had to put the knife in the victim's back, and the most probable cause is someone other than the victim; to cause myself to move from the mountain top to Greenwich Village, I would have to be transported across many more intervening places than if I were in, say, Pittsburgh; the impression on the photograph could not have been caused by anything but a Higg's Boson). Absent these causal relations, I would never make the inferences I do. Hence, empirical (probable) reasoning presupposes that there are causal relations between distinct existents/matters of fact:

belief in causal relations connecting distinct existents

conclusions regarding matters of fact and real existence

3. The source of our belief in causal connections is not direct insight into things or their connections, for this is impossible: causal connections cannot simply be “read off” from the appearances of things or discovered by scrutiny (e.g. analysis) of the ideas they leave behind in our minds. Instead, we rely on **past experience**, and, in particular, our experience of the **constant conjunction** between distinct existents/matters of fact before we believe them to be causally connected:

constant conjunctions revealed by past experience

belief in causal relations connecting distinct existents

4. However, we would not base our beliefs in causal connections on constant conjunctions discovered in past experience if we did not *already* believe that how things have been in the past is a reliable basis on which to draw inferences about how things will be now or in the future. That is, the confidence we place in our past experience of constant conjunctions as a guide to present and future matters of fact and real existence *presupposes* that we believe that the course of nature does not arbitrarily change, i.e. that it continues uniformly the same. For suppose we did not believe this, or believed the contrary: we would then not regard past constancy as being in any way related to any present or future matter of fact or real existence. Thus, the assumption that our belief in the uniformity of nature has a basis in empirical (probable) reason leads us straight into a vicious circle:

belief in the uniformity of nature

constant conjunctions revealed by past experience

belief in causal relations connecting distinct existents

conclusions regarding matters of fact and real existence

belief in the uniformity of nature

5. On the basis of the foregoing proof, Hume concludes that belief in the uniformity of nature must have a nonrational basis. In *Inquiry* V/i, he identifies this basis as psychological: **custom** founded on **natural principles of association**. In particular, belief in the uniformity of nature is the cumulative result of countless individual habits ingrained in us by the constancy of the conjunctions of distinct existents and matters of fact encountered in experience.¹

¹ Hume acknowledges “that no only in philosophy, but even in common life, we may attain the knowledge of a particular cause merely by one experiment, provided it be made with judgment, and after a careful removal of all foreign and superfluous circumstances. Now as after one experiment of this kind, the mind, upon the appearance either of the cause or the effect, can draw an inference concerning the existence of its correlative; and as a habit can never be acquir’d merely by one instance; it may be thought, that belief cannot in this case be esteem’d the effect of

6. Only such a source as custom can explain how the belief in the uniformity of nature can arise in us even in our infancy. This it must do. For if the human ability to be improved by experience and education is not to lay forever dormant in us, we must be able to arrive at new beliefs inferentially, on the basis of past experience; and if such reasoning, far from being the foundation of our belief in the uniformity of nature, presupposes that belief, it follows that belief in the uniformity of nature must be present in us very early in life. Thus, a natural, automatic operation like customary association, capable of generating beliefs in infants and animals, seems the only credible source for our belief in the uniformity of nature (otherwise, “I must acknowledge myself a very backward scholar; since I cannot now discover an argument which, it seems, was perfectly familiar to me long before I was out of my cradle”).

7. In sum, the basis of our belief that the past matters to the present and future rests, according to Hume, simply and solely on the way human nature is formed; it is the natural effect (not rational consequence) of our having the nature we do. If human nature (psychology) operated according to different principles, it would never occur to us to reason on the basis of past experience; and if it did not naturally occur to us to do so, how – by appealing to which principle– could anyone ever become convinced of it? Consequently, it is impossible to argue that our principles of reasoning are the truest or even the best; we go by them only because it is our nature to do so, not because we are vouchsafed any special insight into the nature of things, and that they work for us is no proof that they would work for all rational beings. (Who is to say that creatures with a different nature than ours would be less well equipped to survive than we are? Perhaps, from their point of view, our reliance on the past in drawing inferences might seem utterly paradoxical, and they might be amazed that we are able to survive at all.)

8. The following, then, is the structure of empirical rationality according to Hume:

I. *Reasoning from one matter of fact or real existence to another* takes the form of an *inference from an impression to an idea*. The first anchors it in actuality (real existence) rather than possibility (fictive being), the second is what makes it reasoning rather than perception. Reasoning of this form is always founded on...

II. *Necessary connections between cause and effect*, “The only connexion or relation of objects, which can lead us beyond the immediate impressions of our memory and senses” (THN I/iii/§6). These relations are never objects of immediate sense perception (sensation or reflexion) or knowledge. Instead, our awareness of them is founded on...

III. *Past experience and our remembrance of the constant conjunction of distinct, successive, contiguous objects*. Yet, a mere repetition, in and of itself, could not bring us any

custom. But this difficulty will vanish, if we consider, that tho’ we are here suppos’d to have had only one experiment of a particular effect, yet we have many millions to convince us of this principle; *that like objects, plac’d in like circumstances, will always produce like effects* [= the uniformity of nature]; and as this principle has establish’d itself by a sufficient custom, it bestows an evidence and firmness on any opinion, to which it can be apply’d. The connexion of the ideas is not habitual after one experiment; but this connexion is comprehended under another principle, that is habitual; which brings us back to our hypothesis. In all cases we transfer our experience to instances, of which we have no experience, either *expressly* or *tacitly*, either *directly* or *indirectly*.” (THN 104-5)

closer to an awareness of a causal relations than our initial experience of it did if experience did not furnish the occasion for a probable inference to the existence of a causal relation between the conjuncts founded on...

IV. *Our belief in the uniformity of nature.* By this means, our experience is able to yield us a rich bounty of causal information, which in turn permits us to connect up the reality with which our senses acquaint us (impressions) to the greater reality that lies beyond the purview of the senses, yet, in truth, exists only in our imaginations in the form of vivid ideas. However, although the uniformity principle is the foundation of all empirical reason as such, it is not itself founded on reason, demonstrative or probable, but on...

V. *Customary association.* When a conjunction of successive, contiguous objects has been repeated with sufficient frequency and constancy to ingrain a habit, it “produces a new impression, and by that means ... affords me the idea of necessity” (THN I/iii/§14). Pronouncing the one object ‘cause’ and the other ‘effect’, we straightaway affirm “*that instances of which we have no experience, must necessarily resemble those, of which we have*” (THN I/iii/§8).