

The Problem of Induction

Harjit Bhogal

The problem of induction is, roughly, the problem of how the past gives us evidence for the future. For example, how do past scientific experiments give us evidence that certain scientific theories will continue to hold in the future. This is a major issue in epistemology and the philosophy of science.

The classic discussion of the problem comes from Hume.

Hume's Fork

Hume starts by distinguishing two types of facts: (i) Relations of Ideas and (ii) Matters of Fact.

Relations of ideas are things like mathematical and logical truths – like $2+2=4$. The negation of true relations of ideas are contradictions. We can learn these facts without looking at the world.

Matters of fact are empirical facts about the world – things like ‘the sun will rise tomorrow’. The negation of these facts is not a contradiction. We can only learn these facts by observing the world. (20-21)

Hume's focus is on matters of fact.

Matters of Fact and Causation

Question: What evidence do we have about matters of fact? (21)

Hume thinks that all evidence about things that go beyond our immediate sense are based on claims about *causation*. For example, when someone tells you their friend is in France this is only good evidence if part of what caused them to say this is the fact that their friend is in France. Similarly, if I seem to remember that my phone is on the desk then this is only good evidence if it was actually caused by seeing my phone on the desk. (22)

(Perhaps even the evidence of our immediate senses requires causal assumptions too.)

But we only know causal facts by experience. For example, the only reason we know that one billiard ball moves when hit by another, or that an unsupported stone falls is experience. (23-25)

How does Experience give us Evidence?

How does experience give us evidence (about the future)? This is the central question. Hume is going to give a negative answer to this question. (28)

‘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.’

‘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.’ When we see past events we think that similar things will happen in the future, this is how past experience can tell us things about the future. But why think that things in the future will resemble the past? (29)

Call the claim that the future will resemble the past is called the *uniformity principle*.

Is the Uniformity Principle: the claim that the future a relation of ideas or a matter of fact? Isn't not a relation of ideas, because its negation is not a contradiction – it's not a contraction that things go very differently in future. So it's a matter of fact.

So just like other matters of fact, we learn it by experience. But, as we just established, in order to learn something by experience we need to assume to UP. So in order to learn the UP we need to assume the UP, this is circular. (30)

So, we don't have good evidence that the past will resemble the future. And therefore, it looks like there's a problem with learning anything based on past experience.

Possible responses??