

Assess popper's treatment of the problem of induction

Sir Karl Popper 1902-1994 is seen as the most important and profound philosopher of science since Francis Bacon in the 16th and 17th century. He was born in Vienna in 1902, but moved to England in 1946 to become a Professor of logic and scientific method at LSE for 23 years. Popper wanted to solve the puzzle of scientific method; the problem of induction expressed earlier by the philosopher David Hume.

In this forthcoming essay I intend to proceed by highlighting the original problem of induction, breaking it down into its two major components, but concentrating solely on that which Popper found most contradicting i.e. OTU induction. I will then illustrate how Popper criticises the inductive process and offer to the reader Popper's solution to it. After identifying the problem, I will then go on to set out Popper's very own deductive theoretical solution, that of falsification. I shall provide a rounded argument for and against falsification taking into account criticisms of it and support for it. To conclude I shall provide the reader with, for all its worth, my own stance on the problem of induction, that is, if after examination I believe there to be one.

The problem of induction, first illustrated in depth by David Hume in his book, 'an enquiry into human understanding' can be stated or broken down into two ways. The first is Premise, supports, conclusion or PSC and the second is Observe To Unobserved or OTU. These are both types of inductive reasoning. The first, PSC is an argument whereby the truth of the premise supports the truth of the conclusion, but doesn't absolutely guarantee it. Although the premise supports the conclusion it would not be self-contradictory to assert the premise and deny the conclusion. The second, OTU is an argument whereby a phenomenon is observed in the first instance and from this we infer that a second unobserved phenomenon has occurred. According to which definition we adopt, the traditional problem of induction arises in different ways. If we adopt the PSC method then we find it most difficult to decipher

inductive arguments. Nonetheless, if we conduct the OTU inductive process then the problem becomes: are any inductive methods justifiable?

I will follow in the footsteps of Hume and Popper and concentrate, more appropriately, on OTU inductive reasoning. The problem that occurs with OTU is that people infer conclusions from premises that do not directly and systematically escort them to the relevant conclusion. For example, if one was to hear loud bangs and flashes of light coming from an adjoining valley on the 5th November at around 7 pm then they might infer that it was fireworks that were causing it. However, Hume claims that one should not jump to this conclusion, as it is an unjustified one. The loud bangs and frequent flashes of light although probability suggests that they are fireworks, might not be. The sensory experiences could be explained by a military testing operation or an astronomical phenomenon. Hume provides us with the example of a young child who once burns his hand on the flame of a candle. After this the child is ultra sensitive to flames and does all it can to avoid them. However, Hume claims that the child has no reason to be sure that the next flame it touches will have the same effect as the last one. There is no justified evidence to suggest that the next flame will burn the child's hand just as the previous ones have. It is only probable and rational that the child should expect it to.

This causal link between the observed and unobserved causes Karl Popper a great difficulty in understanding. However Popper, an apparently far from modest man, claims that he can provide a complete solution to the problem of induction. 1, "I think that I have solved a major philosophical problem: the problem of induction (he boldly declares, before modestly adding that)...this solution has been extremely fruitful, and it has enabled me to solve a good number of other philosophical problems".

1, Popper, 1972, - Modern epistemology, pp150

Popper was a man who was not at ease with the workings of the scientific paradigm of his day. He was primarily concerned with the use of induction in science in particular, but he felt if he could change the world of physical science then he would also be able to impact upon that of the social sciences as well. The problem of induction is the OTU theory, stated above, in a simplistic form. Up until the workings of Popper the traditional scientist is thought of as making observations of the world around them, looking for regularities, patterns and consistencies or otherwise. Continuing on from these observations the scientist is able to make generalisations, and putative laws. For example, every time a pebble has been dropped from above the ground it has always fallen to the floor, assuming that the external factors, such as, wind speed are consistent. It is believed that this level of consistency in the event can lead to a natural law being justified i.e. Newton's theory of gravity. Therefore, a statement that incorporates, "All observed As have been Bs" is justifiable; it then becomes "All As are Bs". It is the move from observed phenomena to the unobserved instances via predictions, which makes inductive reasoning invalid for Popper. One can only be sure of what has happened in the past or what is happening in the present, not what might, could or should happen in the future.

Popper denies scientists two crucial aspects of what was believed to be the process of their experimental practices. Popper claims that scientists do not start without any prejudices or preconceived thoughts, they impose their beliefs, opinions and theories upon that which they are studying. They begin a search for what they need to find in order to verify a conscious or subconscious hypothesis. He denies that the scientist infers from observation putative laws and he further denies that the scientist could ever confirm these laws through increases in the number of instances whereby the law is witnessed. He gives the example of white swans. He claims that there could be a hypothesis that all swans are white, but for every extra white swan that is observed this does not justify the claim that all swans are white, it simply increases the probability of the next observed swan being white. According to Karl Popper we

should not make generalisations about the unobserved from the observed. He claims that, 2, “induction is a procedure which is logically invalid and rationally unjustifiable”.

Popper offers a very simple deductive solution to the problem. Professor Popper’s theory has been expressed in the following way:

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$$P1 \rightarrow TS \rightarrow EE \rightarrow P2$$

Where P1 is the initial problem, TS the trial solution proposed, EE the process of error elimination applied to the trial solution and P2 the resulting situation; it is essentially a feedback process. This formula illustrates how Popper believes the process of deduction should be carried out. A scientist does not try to confirm her hypothesis: she tries to refute it.. In other words an attempt should be made to disprove a hypothesis that already exists. Popper gave the example of the hypothesis, “all swans are white”. He claims that we should now engage in a deductive process, desperately searching for a non-white swan. According to Popper, if a non-white swan is found then the hypothesis has been refuted and must be abandoned or amended. This process popper labels falsification.

This highly simplistic and perfectly logical process appears, at first, to be faultless. Has Popper solved the problem of induction? A suggestion has been made that there is a gap in his reasoning! For popper talks endlessly in his workings about how we face situations with some theory or conjecture, which we wish to test. Yet if we don’t face situations using inductive reasoning then where does this conjecture come from?

The answer would appear to be because we have recognised a pattern in the environment around us and we now wish to clarify it. Using Poppers very own white swan example to illustrate, we must first observe many white swans, an inductive process. We then create a hypothesis like, "all swans are white" and then try and falsify it. To get this hypothesis in the first place we are relying on a process of induction. However, popper believes that he can answer such an objection by claiming that it does not matter that we select our hypothesis via a subconscious process of induction, rather it is the predictions about the unobserved events of the future that should not be made using inductive processes.

Secondly, after contemplating Poppers claim about falsification and assessing his theory it appears that Popper turns to induction once more in his own supposedly non-inductive reasoning. For when one has falsified a hypothesis does that person not believe that the process of falsification is infinitely repeatable given a replication of the same external variables? It is this very assumption that makes predictions of future events that I call into question. Is that person not relying on observed phenomena of the past in order to predict unobserved phenomena of the future? According to Popper's theory I should have no grounds for thinking that this falsified subject matter can ever be falsified again. Popper again disputes such a criticism saying that he never conceived that one should or could justify future claims on the grounds of falsification. One will be naturally lead to believe that the same occurrence could happen in the future, yet this does not mean that this belief is support for or justification of evidence regarding future falsifactory matters.

Finally, I criticise popper for leading others and himself to a life of scepticism. Popper describes how we should not base future events upon past findings. I ask you to join me in imagining a world under Poppers ideology. A world where you would be afraid to ride a bicycle, eat or even fall asleep. For we could not be sure that the events that we intended to participate in would lead to vastly different outcomes than the last time. How could we be sure, as Hume describes, that the next time we eat a loaf of bread that our bodies will gain the

same nutritional value from the loaf as it did last time? How do we know that the next time we close our eyes we will be able to open them again? The answer that Popper would provide to that is that his theory is not one that he intends for people to live by. Popper distinguishes, however, from reasonable belief and reasonable action. Thus he believes that it is reasonable to act as if an unjustified theory is true if it has withstood numerous attempts to disprove it. It is a theoretical vantage point, not a practical solution to everyday life. People will, according to Popper, always make unjustified predictions about the future based upon probability. Such guesses do not entitle us to valid beliefs only to a life of simplicity and normality.

Popper concluded that all we know is but 3, 'a woven web of guesses', that while empirical generalisations may not be verifiable, they are at least falsifiable. In conclusion, I feel this to be a misguided theory. After much contemplation I am resolute in my opinion that induction is a valid, logical and justifiable means by which to create hypotheses. This opinion is one that is perhaps made bias by the scientific world in which we live. I hold strong beliefs in the cause and effect relationship and insist that natural laws although perhaps not infinite are truly justified. Nonetheless I do believe that Popper's theory provides us with an incentive to test, criticise and attempt to falsify those laws that already exist. For in an ever changing world it is important to challenge long standing beliefs and normative values, otherwise I fear natural development and progression could only ever regress.