

A Sceptical Look at “A Skeptical Look at Karl Popper”^[1]

J C Lester

“Martin Gardner / Required an intellectual-sin pardoner / As a ‘skeptic’ who fell for induction
/ Despite hypothetico-deductive instruction.”
A clerihew by Juan Hoo Gnoes

It is an irony to attack a more sceptical epistemology than one’s own in the name of scepticism and defend, instead, an epistemology that is positively illogical. And yet that is what Martin Gardner has done in his “A Skeptical Look at Karl Popper.” In this reply I shall give my own responses, which might differ somewhat from those of other “Popperians” (I am happy to be called a critical rationalist, but I doubt many admirers of Popper subscribe to every Popperian theory). If I repeat similar points in places that is because Gardner repeats the same errors, and I do not want to let any of them by as though they might be acceptable. But I shall ignore Gardner’s attacks on Popper’s character as mere *ad hominem* slurs.

Gardner tells us that Popper’s “followers among philosophers of science are a diminishing minority, convinced that Popper’s vast reputation is enormously inflated”. If Popper’s “followers among philosophers of science are a diminishing minority” then so much the worse for the philosophy of science. But such a sociological statistic is irrelevant to the truth of Popper’s theories. If it is supposed to be a reason to ignore Popper’s actual arguments, as Gardner does, then it combines the fallacies of arguing from authority (a decidedly tarnished authority) and arguing from what the majority believe. It is surely not true that Popper’s “followers ... are ... convinced that Popper’s vast reputation is enormously inflated.”

Is it true that “Popper’s reputation was based mainly on [his] persistent but misguided efforts to restate common-sense views in a novel language”? To take two examples, how can Popper’s Quasi-Platonic World Three or his view that scientific theories are completely without evidential support be “common-sense views in a novel language”? Gardner wants especially to criticise the second example, Popper’s epistemology. He writes that Popper argues that confirmation “is slow and never certain”. It is not slow. It does not start. How can finite instances begin to confirm a universal theory? So “all crows are black” does not entail that “[e]very find of another black crow obviously confirms the theory.”

It is a muddle (throughout Gardner’s article) to conflate Popper’s general argument about universal cases, which cannot be observed, with particular instances, which can. We cannot see all crows being black but we might see a particular crow being black (though even this remains theory-laden). Thus “water on Mars” is not an example of Popper’s view of a universal scientific theory. But in any case, neither, strictly speaking, can there be “confirming instances” of “water on Mars.” Rather, there are only theory-laden interpretations of apparent evidence that pass the available tests. It is entirely irrelevant to the epistemological arguments whether or not astronomers themselves “do not think they are making efforts to falsify the conjecture.”

We are told that “Falsifications can be as fuzzy and elusive as confirmations.” That falsifications can be difficult in practice does not affect the simple logic of a single assumed instance refuting a universal theory. By contrast, confirmations are not possible just because even particular examples of a crow’s being black have an indefinitely large number of implicit universal aspects (such as, it is always a black crow even when no one is observing it), some being counterfactual (such as, it would die if deprived of oxygen for one hour). I take ‘confirmation’ to be an inductivist term, at least as Gardner intends it, implying support. Thus even a basic statement is not confirmed or supported. It too is a conjecture. People might think they are looking for confirmations, but epistemologically they can only ever find corroborations—in Popper’s intended sense of compatible, but not supporting, theory-laden evidence (if they are not typographical or scanning errors, I assume Gardner slips when he uses “conformation” and “conforming” a couple of times: a conformation sounds more like a corroboration).

Observations of black crows, it is stated, “can be taken in two ways; confirmations of ‘all crows are black,’ or disconfirmations of ‘some crows are not black.’” How can a single observation of a black crow (even if accurate) support a universal theory? How can it undermine the existential statement that there is a non-black crow somewhere? Gardner makes his assertions without attempting to reply to these obvious falsificationist criticisms. It is true that “Popper recognized—but dismissed as unimportant—that every falsification of a conjecture is simultaneously a confirmation of an opposite conjecture.” ‘All crows are black’ has the form of a universal theory in science. The assumption ‘This is a white crow’ falsifies it and is significant. The fact that ‘This is a white crow’ also logically confirms the theory ‘Not all crows are black’ (assuming this is the “opposite conjecture”) is without scientific significance. ‘Not all crows are black’ does not have the form of a universal theory in science. Gardner continues, “and every conforming [sic] instance of a conjecture is a falsification of an opposite conjecture.” To make sense of this I can only assume that the “opposite conjecture” to ‘All crows are black’ is now ‘No crows are black’ (or some equivalent expression). But that is a universal conjecture that “This is a black crow” significantly falsifies.

Gardner supposes that the following is an example of how confirmation and falsification are linked in practice: “If a giant atom smasher ... detects a Higgs, it will confirm the conjecture that the field exist[s]. At the same time it will falsify ... that there *is* no Higgs field.” There are various confusions here. The detection of an apparent single Higgs particle is not the detection of a universal field. That would be like saying that the detection of an apparent black crow is the detection of universal black crowness (all crows being black). So the apparent detection of a Higgs particle cannot confirm the universal theory (and it is a highly theory-laden singular, in any case). It can only corroborate it. If we assume that it is a single Higgs particle (because it might be and we cannot fault the experiment or think of an alternative theory to explain the particle), then that assumption logically falsifies only ‘there are no Higgs particles’. But the assumption is not epistemologically confirmed. Of course, we might also grant the assumption that there is a Higgs field (because there might be and we cannot fault the experiment or think of an alternative theory to explain *this type* of particle). Obviously, that assumption would logically falsify the conjecture “there *is* no Higgs field”. But, *a fortiori*, that universal assumption is not epistemologically confirmed.

So we have no sound argument from Gardner that “science operates mainly by induction (confirmation), and also and less often by disconfirmation (falsification).” And although there are logical and conceptual links between them, induction (inferring from particular instances to some general thesis) is not the same as epistemological confirmation (that single instances make a general theory more probable). Further, it is again entirely epistemologically irrelevant that with scientists and philosophers in the ‘inductive fold’ (to invert Gardner’s gibe), “[i]ts language is almost always one of induction.” What is the relevance of Gardner’s joke that “If Popper bet on a certain horse to win a race, and the horse won, you would not expect him to shout, ‘Great! My horse failed to lose!’” Gardner thinks that Popper ought to shout this if he were consistent about denying confirmations. But Popper’s point is, again, that we can observe (albeit in a theory-laden way) such singular events as a horse winning but we cannot observe universals, such as ‘My horse always wins’ (even if it has done so in all observed cases).

In what way is discovering that “smaller and smaller planets orbit distant suns” supposed to be “inductive evidence that there may be Earth-sized planets out there”? Gardner simply asserts the existence of induction without explaining how the inference could possibly work. However, ‘There are no other Earth-sized planets’ *is* a universal conjecture that the discovery of one would falsify. But the apparent discovery of one will be a singular (though theory-laden and not confirmed) observation and not itself a universal scientific theory. (But why should there not be other Earth-sized planets if no theory makes the Earth special? The absence of such a theory is what mainly makes plausible the conjecture that they exist.) So astronomers can obtain only a (conjectural) falsification of the universal theory, even if it is true that they consider themselves to be “inductivists who seek positive conformations [sic]”. It is absurd of Gardner to appeal to scientists’ opinions to solve an epistemological problem. It is like appealing to their opinions on whether genetic engineering is moral.

How, exactly, do prediction and explanation relate to “classical induction procedures”? Without an explanation Gardner may as well assert they are part of classical magic procedures. It leaves us with nothing substantial to criticise. The quotation from Nagel that Popper’s falsificationism “is close

to being a caricature of scientific procedures” again reveals the confusion of sociology with epistemology.

I cannot understand why Gardner thinks that ‘corroboration’ is just ‘confirmation’ but, supposedly like Popper’s other terms, “restated ... in a bizarre and cumbersome terminology.” The assertion that the apparent evidence merely *fits* (corroborates) some universal theory, which is possible, is clearly quite different from the assertion that the evidence positively *supports* (confirms) some universal theory, which is impossible. Is there no difference between asserting something that is possible and asserting something that is impossible? And to be impressed by the fact that a theory made novel predictions and was not falsified is not to be covertly inductivist. True theories will pass all the tests we can come up with, provided that the tests are carried out correctly. And true theories are what we seek.

Popper did not, as others had done, “point out that science, unlike math and logic, is never absolutely certain.” He pointed out that science is absolutely uncertain. Quite a different proposition (consider the difference between being ‘not absolutely bullet proof’ and being ‘absolutely not bullet proof’). And mathematics and logic are not that certain either. This is a far more extreme form of scepticism than that of most who accept “fallibilism”. However, it is compatible with this view that we can attain truth nevertheless: as truth is a metaphysical correspondence between a theory and the world it describes. Either a theory or its negation is true. So we have a 50% chance of success merely by a random selection of the two.

Popper’s *propensity* theory of probability applies to single instances and flouts determinism. As I understand it, the standard frequency theory does not apply to single instances and is compatible with determinism. Mathematicians undoubtedly use probability in a way that fits well with the propensity interpretation, but they leave it undefined. So, again, how is this, “introducing a new term which says nothing different from what can be better said in conventional terminology”?

In my view, in *The Open Society and Its Enemies* Popper’s refutation of Marx is relatively flimsy^[2] and his defence of liberal democracy is significantly at odds with his epistemology and methodology.^[3] Yet Gardner praises it as his “most impressive work” with “powerful arguments and awesome erudition” (though I concede that it does contain these as well despite the two crucial aforementioned flaws).

Gardner concludes his criticisms by saying that “[c]onfirming instances underlie our beliefs that the Sun will rise tomorrow, that dropped objects will fall, that water will freeze and boil, and a million other events. It is hard to think of another philosophical battle so decisively lost.” But since these theories were first formulated we have discovered that the sun does not always ‘rise’ each day in the North and South poles (and does not really ‘rise’, at all), that a ‘dropped’ hot air balloon will not fall, that water will not freeze or boil at normal temperatures given unusual pressures, and a million other refutations of things we thought we once knew. In any case, Gardner is again implicitly confusing sociology with epistemology. And it is even too early to give a sociological appraisal. Today’s counterintuitive theory can become tomorrow’s common sense. Perhaps the modern equivalent of Descartes’s deceiving demon is that we live in a Matrix-like virtual reality (though this has obvious parallels with Berkeley’s view of the world as well). As ordinary cinema-goers do not seem to have any problem with understanding that this is at least a logical possibility, then they presumably see that apparent ‘confirming instances’ of everyday life must count for nothing as an argument against it. (But this is not to suggest that it is true or that there cannot be cogent philosophical arguments that it is false.)

Finally, as he thinks it “one of the best” books by a “Popperian”, it is a pity that Gardner did not attempt to reply to any of the actual arguments in *Critical Rationalism: A Restatement and Defence* (1994), by David Miller (the unnamed “top acolyte”). Consider, for instance, the claim made in Chapter 3 that if you ‘confirm’ a hypothesis you learn nothing (because you had already predicted that result) but if you refute it you learn something. But then Gardner has not dealt seriously with any of Popper’s arguments either. It is much to be regretted that Gardner, who years ago published an excellent book critically dissecting *Fads and Fallacies in the Name of Science*, has now reached the stage of uncritically genuflecting to fads and fallacies in philosophy.

Notes

[1] Martin Gardner, "A Skeptical Look at Karl Popper," [Skeptical Inquirer](#), 2001, 25(4):13-14, 72.

[2] For a more robust refutation see David Ramsay Steele, *From Marx to Mises: Post-capitalist Society and the Challenge of Economic Calculation*, Open Court, 1992.

[3] J C Lester, *Escape from Leviathan: Liberty, Welfare and Anarchy Reconciled*, Macmillan/St Martin's Press, 2000, 135-142.