

## Chapter 2

### In Search for Rules

A traditional philosophical problem appears in diverse contexts and situations: by what rule is navigation possible between dogmatism and relativism? Russell confessed he struggled with it all his life in frustration. He found absolutism too dogmatic and too stringent, relativism too lax and too superficial. He always followed his tremendous common sense but he sought a rule. He observed that science demolishes the *naïve* version of realism and wished to replace it with commonsense. Now he objected to the commonsense of commonsense philosophy as too highbrow. This raises the question, what commonsense did he seek? Answer: he sought a scientific worldview, one that is as near to the best of science as possible, as free of dogma and realist. He was right, especially in considering all this a challenge rather than a satisfactory solution.

Nowadays philosophers of science tend to avoid expressing their preference for science over the competition. Nor is the preference of science enough: scientific philosophy concerns not only science: it is a worldview that values science as a human achievement, though as one of the highest, because it is eminently rational. This is part of traditional western philosophy. Now what is the right worldview? Ernst Mach expressed a widespread view when he said, my worldview is the sum total of current science. Willard van Quine expressed a widespread view when he said, as science tells us what there is, discussion of this question is redundant. These are examples of efforts to apply the rules of scientific inquiry everywhere. There remain thus only two serious philosophical questions: What are the rules of scientific research? What is their end? Traditionally, the chief aims of the rules were first to prevent error and second to reveal the truth. This is an excess. Fallibilism tries to rectify the situation.

The central problem that Fallibilism raises is, what error is allowable, reasonable, or even fruitful? What rule, then, helps prevent errors that we find improper, careless, irresponsible? Finally, given alternative options, which should we examine critically first? The law of the land offers rules concerning these matters. Judges apply rules about duties according to law-books. Juries decide on questions of fact; they often have to decide with no reasonable doubt. What rule renders doubt unreasonable the law does not say. Philosophy says, all doubt is reasonable, even doubt about our very existence. The law deems a corpse and a

smoking gun sufficient evidence for murder. Johnson's story, "The Man Who Shot Liberty Valance" (1949), describes a case of a very reasonable a mistake in such circumstances. Her story is impressive, but it does not lead to a legal reform. It does help see why traditional philosophy was not content with the law: it looked for a perfect rule. Fallibilism allows for satisfaction with the law but only while trying to improve upon it (Popper 1945, Chap. 17). How?

The rules characterizing improper error should allow for error in the rule and in its application. An allegation of impropriety may require official inquest. As Mark Twain noted, improper error whose outcome is not disastrous escapes such treatment. This holds also for silly scientific errors that regrettably pass severe tests by some sort of fluke. As against this, the literature on the philosophy of science centers almost exclusively on the question, what judgment is proper, as if every judgment that is not obviously proper is condemnable. This makes life intolerable. Thus far, fortunately, all efforts to characterize propriety—of validation—have failed. And yet the literature on the philosophy of science still considers the absence of such a rule a disaster, allegedly since the absence of such a rule dooms us to an inability to discriminate between ideas. This is easy to refute by observing that we usually judge—propriety or beauty or many other qualities—heeding no rule.

The search for rules is laudable nevertheless. It is obviously hard to find one for differentiating between valid and invalid conduct. It is easier to seek a rule for differentiating unimpeachable from impeachable error. Most philosophers of science seek rules for validation, considering the invalid improper. They are in error: in modern society only the obviously invalid is judged improper. Most philosophers of science condemn all action that rests on any not-yet-validated idea; fallibilists deem permissible acting on what has not been declared invalid, stressing that validation may turn out to be erroneous. It often is: there is no *utopia*. Rules for propriety, as given in law-books, are thus open to criticism. As neither relativism nor dogmatism accounts for ideas entertained tentatively—of the law or of anything else for that matter—philosophers ignore the tentative. Democratic legal systems decree rules as to what kind of error is improper; that renders them inherently fallibilist. They employ diverse rules for judging error improper, to apply with increasing measures of stringency to citizens, to the press, to government officials, the police, the district attorney and law courts, and above all to legislatures.

As to science, whatever is improper in civil society is improper there too, but not the other way around. Reporting unrepeatable observations is improper only in science: it is quite impossible to apply that rule universally. Repeating old errors is likewise improper only in science—regrettably not in politics. Applying repeatedly small modifications to an old error is permissible, but science may dismiss it as scholastic.

The philosophical literature treats information as unproblematic and as providing empirical support for theories. However, just how this support works is deemed an open problem. We need support to prevent arbitrariness as we deem the arbitrary improper: the propriety of an assertion is its "warranted assertability". In

some inquests warranties for some assertions are required—usually in order to exonerate people who relied on them with disastrous results. Philosophers of science want to warrant successful scientific assertions and they take success as warrantee. This is very much after the event; if we only knew in advance the rule that leads to success then we would be unbeatable.

Philosophers of science deem science a success story and seek its rules for total success. Taking this seriously is hardly imaginable. Paul Feyerabend exposed this seriousness as a serious error; he challenged peers to articulate it. Moreover, since the freedom of speech includes the freedom to assert whatever one wishes, there is no need for permission to speak, from Wittgenstein or from any other philosopher. Yet they seriously seek reasons for trusting predictions that rest on scientific theory.

Different people, from Hume to Wittgenstein and Popper, said this is impossible. In response most philosophers of science say, in observed fact observation reports support theories that serve as grounds for trustworthy predictions. They study the question, what is support? How does it raise the credibility of predictions? They still do not know.

Approach then the problem from the opposite direction: what makes some error fruitful? Of course, the idea that science is admirable makes this problem include as a special case the problem of the demarcation of science, which has fascinated many great modern philosophers. They said science is certitude but failed to show the rules for attaining it. Peirce and Popper declared science fallible. Peirce's answer to the problem of demarcation is unclear. Popper has offered the rule to consider scientific all the theories that are open to empirical criticism. Most philosophers of science judge his rule insufficient: they want assured rules for assurance and annoyingly he offers none.

Most philosophers of science want perfect assurance. This does not exist. Yet assurance does exist. How do we achieve it? This question concerns facts, and so it is not exactly what philosophers of science have in mind: they seek perfection rather than observe. We who observe see that different people are assured in different ways and with different degrees of response to assurances. We likewise observe that to circumvent this fact in problematic cases we appeal to socially received rules about assurance. These rules are imperfect and so they undergo reforms repeatedly.

Science does seek perfection: the absolute truth. Technology does not: it receives its ends from its developers. The end of the test of whatever technologists test is to find some fault in constructions. Finding faults is context dependent: faults that science may find may be too small to matter to technologists. The search for faults is often deemed cantankerous. This never holds in science; in technology it does hold, regarding immaterial faults. Better find serious faults, important ones, like the defects that we expect diagnosticians to find in the state of health of their patients. Ignoring them is an error, often judged improper. Patients dislike being ill; they may resent their diagnosticians for telling them that they are. Alberto Coffa remarked on this when he discussed the philosophy of science of Moritz Schlick, who had said, people resent being told that they were in error. Not always,

responded Coffa: we are glad to hear refutations of gloomy diagnoses. (Coffa 1991, 421)

Science takes all errors seriously as its end is to trace God's blueprint of the universe, to use Einstein's metaphor. And for this strictness tradition offered strict rules, for observations leading to theories (bottom up) and for theories leading to observations (top down) but not both. For, the two sets of rules may clash. As science was supposed to be infallible, clash was unthinkable. Fallibilists may endorse both methodologies, playing them one against the other, as already Democritus of old has suggested. In politics, the unreliability of an institution leads to limiting the reliance on institutions by applying other institutions against them in a system of checks and balances. Likewise, the political system and the free market limit each other. The same may hold for the foundations of science. We may try to emulate Kant's dialectic of pure reason that played one metaphysical system against another. His aim was to prove metaphysics futile. As Popper has suggested, it is better to pitch different lines of reasoning against each other and to pitch against each other the two methods, of reasoning and of observing, and to do this systematically and fruitfully. It is also possible to pitch metaphysics against science. A metaphysics that can conflict with science should be considered friendly to science. The rules that Imre Lakatos has offered are laudable despite their shortcomings, as he took seriously the contribution of metaphysical systems to scientific research. Alas, he ignored conflicts.

The chief common argument against metaphysics in my younger days was Wittgenstein's positivist theory of meaning that ousted metaphysics as meaningless. Later on his school has reluctantly granted some metaphysics rehabilitation and gave up discussion of meanings. Grand Oxford logician Dummett thus spoke disparagingly of the positivist "theory of meaning—more accurately, their proposal for the construction of a meaning-theory" (Dummett 1993, 211). So back to the central metaphysical discussion of philosophy: what rule will help science avoid the regrettable, excessive indifference to criticism that dogmatism and relativism share?

We have thus far left unanswered the question of assurance. Do fallibilists recognize the commonsensical everyday assurances that are all round us as, say, when we avoid unnecessary risk? The answer is in the affirmative; it is the majority of philosophers of science who do not recognize commonsense assurance: recognizing its shortcomings they pretend to replace it with the perfect assurance that they hope science grants us. Their hopes for such assurance are forlorn. Science can at best improve our systems of assurances by correcting some of its errors; it offers no guarantees (Agassi 2014). If anything, it does the opposite. As Russell observed (Russell 1948), if what science tells us is anywhere near the truth, then life is more precarious than it was ever envisaged.

It puzzles me that I had to explain all this. That some people want rationality to prescribe rules of conduct that absolves them of the need to take responsibility is obvious; but there are people who do not fear taking responsibility and who nevertheless have difficulty to hold a fallibilist view of human conduct. It is a tribute to Popper's recent popular critics that they do not concern themselves with

all this: they discuss the possibility of rules, especially of conduct regarding matters scientific. They should have said, Popper proposal is of less rules than any of his competitors: they wish to have a complete set of rules and he declared this impossible. (It would comprise a solution o the problem of induction, of course.) is his proposal nonetheless too stringent? Possibly. This suffices for looking at them with appreciation that they deserve more than their predecessors.

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Thomas Kuhn, Paul Feyerabend and Imre Lakatos

Agassi, J.

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