REVIEW

MICHELE MARSONET
Science, Reality, and Language
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Science, Reality, and Language sets out to defend realism against 'the anti-realist stance currently flourishing in the philosophy of science' (p.1). Undoubtedly, there is need for such a defence. Over the last two decades or so scientific realism has been under heavy attack. Times are changing.

During the late 1960s and early 1970s, scientific realism suggested itself as *the* alternative to both positivism and instrumentalism. This was basically due to its thorough defence in the work of Wilfrid Sellars, Jack Smart, Grover Maxwell, Hilary Putnam, and Richard Boyd. Against positivistic empiricism, they argued that theoretical assertions in science should not be understood as disguised talk about observables and their actual and possible behaviour. Nor should they be primarily judged *vis-à-vis* their contribution to 'prediction and control'. Scientific theories, they suggested, can be true or false, but what *makes* them true, if they are so, is the existence of the theoretical entities they posit and the correctness of the theoretical explanations they provide. Against traditional forms of instrumentalism, like Ernst Mach's and Pierre Duhem's, they argued that scientific theories are not mere instruments for the most economical mathematical systematization of a series of experimental laws. Rather, they suggested that in all probability the astonishing predictive success of scientific theories would be unaccounted for—it would be miraculous or purely coincidental—on an instrumentalist construal of scientific theories. Whereas this success is to be expected if scientific theories are well confirmed and in fact near true descriptions of their domains. This line (or, better, variants of it), came to be known as the 'no miracle' argument for realism.

This defence of scientific realism generated a thorough epistemic optimism: it is reasonable to believe in the theoretical assertions of mature and predictively successful scientific theories, for they have 'latched on to' the blueprint of the universe. But the optimism of the post-positivist era was

not to last. The grounds for such an optimism were quickly contested. The thrust of the counter-attack was this: even if, contra positivism and traditional instrumentalism, we treat theories as purporting to refer to and describe an unobservable reality, we are not licensed to believe that science delivers theoretical truth. The best we can do is to remain agnostic about the deep structural claims of science (Bas van Fraassen), or to adopt a pragmatic attitude towards science viewed as an enterprise with increasing problem-solving capacity and instrumental reliability (Larry Laudan, Arthur Fine). Three main counter-arguments were put forward and have occupied most of the debate ever since: the argument from the pessimistic meta-induction (in effect, that the history of science is the litter-bin of theories that were once predictively successful and fruitful and yet turned out to be radically false and were abandoned); the argument from the underdetermination of theories by evidence (in effect, that for any theory we possess there are other empirically equivalent rivals that are equally supported by the evidence); and the argument from the semantics of approximate truth (in effect, that even if realists retreat to some notion of approximate truth, we have no clue how to formulate and formalize such a notion coherently). Realists have tried to counter these arguments and formulate a defencible conception of scientific realism. The debate is pretty much alive, but it seems certain that realists have suitably to restrict their epistemic optimism to some (but not all) theoretical assertions made by scientific theories. Which are the kinds of theoretical assertions that it is reasonable to believe? Some realists argue that, in effect, they are only those that have been retained in theory-choice, i.e. those that have survived a number of scientific revolutions more-or-less intact (John Worrall [1989]). Others suggest that they are those that ineliminably contribute to the predictive success of theories and the well-founded explanations offered by them (Philip Kitcher [1993]).[1] At any rate, a defence of some kind of scientific realism requires, at least, engagement with these kinds of issue and argument.

Unfortunately, the book under review does not touch upon most of these issues, and where it does have something relevant to say it is brief, sketchy, and without connections with the canonical literature in the field. Admittedly, Marsonet wants to focus on the alleged bad influence of Quine and modern analytic philosophy of language as a whole on the philosophy of science and on their alleged contribution to, if not determination of, its present anti-realist stance. But, I think, little insight can be gained into current scientific anti-realism, unless one deals with the sort of issues outlined in the previous two paragraphs. What is more, *Science, Reality,*

[1] For a detailed discussion of these issues and a defence of scientific realism, cf. my [1996].

and Language is not really about scientific realism. Rather it's meant to defend metaphysical realism, the thesis that there is mind/language/thought-independent reality (p. 28). Marsonet wants to defend *this* thesis against some current arguments that have a Kantian—or as he thinks, a Quinean—origin, in particular arguments that view 'language as an a priori element which in turn determines and even *builds up* reality' (p. 54). But such arguments are not about science in particular. And Marsonet does not discuss cases in which prima facie analogous views have been defended *vis-à-vis* science, that is Kuhn's early view that the paradigm is constitutive of the phenomenal world (whatever that means) or the relevant views of some current social constructivists (the latter get a fleeting mention on p. 135). Nor is Marsonet's use of science essential for his counter-arguments, as in his examples from palaeontology and geography which purport to establish that anti-realism is wrong because dinosaurs existed long before humans appear on earth (pp. 35–36), or because the continent that Columbus discovered existed before we started having thoughts about it (p. 64).

To be sure, *Science, Reality, and Language* sets itself another broad aim, namely to show the need to take into account 'the vision of scientific activity that practising scientists hold' (p. 3). This is certainly worth stressing. In fact, it is a point that has been raised by many naturalist philosophers of science, notably Ronald Giere [1987], and has even been the guiding principle of non-naturalist philosophers, such as van Fraassen, in their attempt to motivate a view of scientific theories (the so-called semantic view) that does justice to scientific practice. But Marsonet's message is a bit different. The final Chapter 5 extensively quotes the opinions of a few eminent physicists, such as Stephen Hawking and Steven Weinberg, in order to suggest that some substantive philosophical issues can be solved by just looking at the practice of scientists. So, for instance, Marsonet wants to find an argument for metaphysical realism in the fact(?) that scientists adopt a 'basic realistic attitude' and an 'ongoing search for the first principles' (p. 126). On one occasion he suggests that 'Scientists' research is about *nature itself* because they feel that just this kind of research can explain why the world is the way it is' (p. 138). But if they felt otherwise—suppose that one quoted a few eminent scientists who are not realists—would it follow that there is no such thing as nature-in-itself? That is, if eminent scientists felt otherwise, would metaphysical realism be thereby defeated? Marsonet urges that philosophy of science should be naturalized. This is surely plausible. But naturalism is a broad church and it's well known that there are naturalists who don't endorse realism, let alone Marsonet's cumulativism: 'it is possible to penetrate the structure of reality, and this in turn means that—thanks to science

again—our comprehension of "what there is" gets better and better' (p. 143). I, for one, agree with the conclusion. But the book offers little argument for this conclusion. Nor does Marsonet argue against the fellow naturalists who resist it, without thereby jettisoning their naturalism and with arguments that have nothing to do with language.

Well, what if we leave all these worries aside and concentrate on how *Science, Reality, and Language* fares *vis-à-vis* the defence of metaphysical realism? Marsonet's targets are multiple. Chapter 1 criticizes Logical Positivism and suggests that it didn't really eliminate metaphysical questions but rather transformed them into linguistic ones: the Kantian Intellect is replaced by the positivists' Language and the traditional question of how Mind relates to the World gives way to the question of how Language gets hooked on to the World. But the main target of the book is Quine and his criterion of ontological commitment. Marsonet's claim is that Quine's philosophy—as much as the rest of the so-called analytic philosophy of language—is permeated by what he calls 'linguistic idealism': the thesis that 'language becomes, rather, an a priori factor which categorises reality' (p. 55). It's only prudent to avoid any attempt at Quinean exegesis here. But the following is worth stressing: Quine himself denies such a charge. He's always distinguished between 'what someone says or implies that there is'—to which the criterion of ontological commitment is supposed to give us the key—and 'what really is'—for which, being a naturalist, he suggests that we must look to science. He's denied, as Marsonet himself quotes, that 'what there is depends on language' (p. 39). I cannot then see how Marsonet's claim that 'according to Quine, formal logic determines ontology' follows.

What Marsonet needs to argue for in order to defend metaphysical realism against 'linguistic idealism' is that, for the most part, language describes a pre-linguistic reality, that is a reality that would have been there even if there were no language (or thought, for that matter). This last point is what motivates the whole book and especially Chapter 3. But Marsonet does not distinguish clearly (and certainly not in the following terms) between two senses in which reality can be said to be 'independent of any human being's mind/thought/language' (p. 64). Independence can be either causal or logical/conceptual. So arguments such that dinosaurs existed much before any human appeared on earth can be effective against naïve idealist views that make the presence of material objects causally dependent on the existence of human minds (backwards causation crops up, to say the least). Yet they cannot possibly be effective against the kinds of anti-realism—that of Putnam and Rescher (and Dummett and Kant, too)—that are still alive and Marsonet primarily wants to block. Their claim, as many of their excerpts Marsonet cites show, is one of logical or

conceptual dependence. The slogan that objects do not exist independently of our conceptual schemes is meant to bring out a *logical dependence* of what types of objects exist on what conceptual categories we employ to describe or refer to them and on how we might come to assert that they exist. (This, I think, makes their views different from Quine's.) Then, Columbus's discovery of America cannot be used as an argument against the latter slogan. For the thought is clearly not that Columbus' discovery caused the American continent to come to being. Rather, it's that it doesn't make sense to talk about the existence (or reality) of the American continent unless we understand this assertion to mean that . . . , where the dots are replaced by a suitable epistemic/conceptual condition. Putnam's favourite replacement of the dots would be 'it is (ideally) rationally acceptable that . . .'; Dummett's line would relate to warranted assertibility; Rescher's would relate to a 'cognizability-in-principle standard'; and Kant's own line was related to the possibility of being encountered in experience. Note that these lines would entail, pretty much like the metaphysical realist view, that dinosaurs and America and chairs and electrons exist. (Marsonet quotes Putnam saying: 'Naturally I do not intend to say that positrons are not real' (p. 61).) But they would radically differ from the metaphysical realist view in that the existence of these entities is logically tied up with the assertibility of claims about them. Whereas the metaphysical realist would be inclined to say that the existence of whatever entities exist is logically independent of our descriptions/representations of them. Then arguments of the form 'the theses of those who take nature to be mind-dependent are not consistent with scientific discoveries, because natural science shows us that nature existed when no human mind was present' (p. 73) simply cut no ice against modern philosophical anti-realism. And similarly arguments like 'why should we deem natural science important if it deals with a second-level reality, that is, with a reality that is "secondary", being merely the creation of the human (or divine) mind (or spirit)?' (p. 90) are totally ineffective. By contrast, arguments attempting to show that the required epistemic/conceptual conditions are problematic or ill conceived would be more effective, and certainly to the point. When, in Chapter 4, Marsonet discusses Rescher's 'epistemological idealism', he comes close to recognizing the foregoing distinctions (pp. 106–8), but there is insufficient fine-grained discussion and argument. At any rate, Chapter 4—basically on Rescher's philosophy—is the best of the book and certainly worth studying.

References

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