REVIEW

MAKING A METAPHYSICS FOR NATURE

Alexander Bird, *Nature's Metaphysics: Laws and Properties*. Oxford: Clarendon, 2007. Pp. xiv + 231. £27.50 PB.

By Anjan Chakravartty

Recent decades have produced an ever greater emphasis in philosophy of science on work steeped in concrete details of scientific practice, as opposed to abstract theorising about scientific knowledge, theory, and method. In the light of this emphasis, the current fashion for 'the metaphysics of science' may appear to some as a reactionary trend. The abstractions and *a priori* dimensions of metaphysics, resting in part on conceptual analysis and intuition, may seem ill suited to a consideration of the sciences. Indeed, some might wonder what it could even mean to do metaphysics of science, as opposed to metaphysics *simpliciter*. Alexander Bird aims to provide "a metaphysics designed to further our scientific understanding of nature" (p. 202), but to some that may seem a contradiction in terms. Presumably if it is *scientific* understanding one seeks, one had better turn to the sciences. Nevertheless, metaphysics may be well suited to an examination of the conceptual foundations that underlie scientific claims, where scientific methodologies do not penetrate. The theses for which Bird argues are no better confirmed by the sciences than their rivals, but even if 'scientific metaphysics' is a twenty-first century oxymoron, metaphysics *simpliciter* may well yield insights worth having, especially when done in conjunction with an awareness of our best science. Bird's effort is an exemplary instance of precisely this sort of metaphysics, and an excellent contribution to the burgeoning literature undertaking it.

The goal of the work is to explore and defend a dispositional essentialist (DE) account of properties, and a conception of laws of nature arising naturally from this view. DE properties, not surprisingly, are ones with dispositional essences: what makes such

properties the properties that they are, are the dispositions they confer on the things that have them. To this generic characterisation Bird adds two qualifications that importantly shape his own version: first, he is concerned only with the subset of sparse or 'natural' properties (as opposed to mere concepts or things corresponding to predicates) that are 'fundamental' (causally or nomically non-redundant, providing a supervenience base for all other properties); second, he takes these properties to be universals. Bird then characterises his dispositional essentialism as follows:

The essential nature of a property is given by its relations with other properties. It wouldn't be that property unless it engaged in those relations. Consequently, those relations cannot fail to hold (except by the absence of the properties altogether, if that is possible). The laws of nature are thus metaphysically necessary (p. 2).

If properties have a dispositional essence then certain relations will hold of necessity between the relevant universals; these relations we may identify with the laws of nature. The necessity here is metaphysical (p. 43).

The precise characterisation of necessity on this formulation of the DE view is, I think, potentially and interestingly controversial. Dispositions are only manifested in conditions conducive to those manifestations. Bodies with the same electric charge do not always repel one another, solutes are not always dissolving, and so on. Given that a property may be described dispositionally quite independently of any manifestation, what sort of necessity of laws is afforded here? Bird describes the relation between a property associated with a disposition (D), the property or properties associated with its stimulus condition (S), and the property or properties associated with its manifestation (M), generically in the following way (p. 60): $\forall x(\text{\textit{ceteris paribus}}((\text{D}x \ \& \ \text{S}x) \ \rightarrow \ \text{M}x))$. Now consider a relation between universals that is appropriately described in this way as a law; what sort of necessity characterises it? The prospect of a necessary relation here between D, S, and M is thoroughly undermined by the presence of the *ceteris paribus* clause: even if one were to grant that the universally quantified law statement is necessarily true, it would remain the case that the relation between universals it describes may or may not obtain, depending on the circumstances. Thus, it is not necessary. These universals need not 'engage' in the relation generally; it may 'fail to hold', to recall the language of Bird's characterisation of the DE view.

Only if it were the case that that all things are necessarily equal – that is, only if the *ceteris paribus* clause did not apply of

necessity – might one entertain the idea that such relations are in some sense necessary. Bird speculates (p. 63) that in the case of the most fundamental properties this may be so, but whether it is actually so is very much an open question. And if one follows this strategy where it leads, retreating to ever more basic properties in hopes of finding relations that obtain necessarily, not merely *ceteris paribus*-ly, one thereby recognises fewer and fewer relations as laws, raising interesting questions about whether such a view can plausibly furnish a metaphysics for science, as opposed to ultra-basic physics. Alternatively, one might observe that the *ceteris paribus* clause is removable in principle by replacing 'Sx' in the conditional statement '$\forall x\ (Dx\ \&\ Sx)\ \rightarrow\ Mx$' with a disjunction of elaborately specified conditions under which the relevant manifestation (or manifestations – similar elaboration may be required here) occurs, but this is hardly promising as an analysis of the concept of laws of nature.

The core of the book comprises a series of positive and negative arguments. The positive arguments concern the virtues of the DE account, which are motivated by considering the shortcomings of its rivals. Since the goal is to champion a DE approach to both properties and laws, Bird examines rivals in both areas in turn. The main alternative to the DE view of properties is, as Armstrong calls it, categoricalism: the view that the identity of a property is a primitive feature of it, unconnected (and *a fortiori*, not necessarily connected) to any dispositions it may confer. Bird argues against the idea of primitive identity, invoking and extending analogous arguments by Chisholm to illustrate the counter-intuitiveness of possible worlds in which properties have swapped their dispositional profiles, and Shoemaker's arguments to the effect that such a view would engender a form of skepticism regarding our knowledge of properties (pp. 73–81). I share Bird's distaste for categoricalism, but it seems doubtful to me that this clash of intuitions is resolvable. Many philosophers including Armstrong, Jackson, Langton, and Lewis do not share this distaste, accepting with varying degrees of equanimity the very consequences Bird finds intolerable. Turning from properties to laws, the main rivals to the DE approach are identified as the regularity view, associated with Mill, Ramsey, and Lewis, and the nomic necessitation view, associated with Dretske, Tooley, and Armstrong. Most of the putative shortcomings of these accounts are well known, but highlighted nicely here (pp. 81–97).

The positive argument for the DE view is that it scores best, on balance, with respect to reasonable intuitions (concerning, for example, what needs explaining), but having suggested that what is reasonable in this context is very much up for grabs, I will not comment on this further here. More significant, I think, is the lovely work Bird does in elaborating central objections to the DE view, and in defending it. Most prominent among the objections is the worry that the DE account of properties is susceptible to a vicious regress or circularity: it ostensibly analyses the identity of a property in terms of its relations to other properties, whose identities in turn must be understood in terms of relations to other properties, and so on. Bird's response begins by granting that the advocate of the DE view "wants the essences and hence the identities of her entities to be determined *relationally* rather than purely intrinsically" (p. 139). He then appeals by analogy to Dipert's proposed analysis of the world as an asymmetrical graph ('The Mathematical Structure of the World: the World as Graph', *Journal of Philosophy*, 1997): a mathematical object consisting in vertices and nodes, in which the identity of each node can be viewed purely as a function of its place in the overall structure of the graph. The question of whether properties and their relations actually do have the structure of an asymmetrical graph is again, however, entirely open. I suspect that a more promising response to the charge of regress or circularity might begin by denying that the DE view requires that properties have their identities determined relationally *per se*, but that is a prospect for another discussion (Chakravartty, *A Metaphysics for Scientific Realism*, 2007, pp. 139–141).

In addition to the issues mentioned here, Bird gives careful consideration to the worry that some properties (geometrical, spatial, temporal) are not dispositional, the concern that metaphysical necessity is too much necessity for laws, the intuition that laws are contingent, and more besides. The discussion is always clear, and careful to acknowledge where its favoured theses are merely compatible with or in tension with current physics, or hostage to developments in future physics. It may be that current work in the metaphysics of science assumes too much ambition in its attempt to wield what are arguably and ultimately primitive, philosophical intuitions as weapons with which to vanquish other, fundamentally opposed ones. As Bird himself observes, "intuition is far from reliable, especially in metaphysics" (p. 10). But whether or not anyone

should be convinced of these details of nature's metaphysics, this book certainly provides a wonderfully lucid understanding of what its properties and laws might be like if dispositional essentialism were true.

IHPST, Victoria College
University of Toronto
Toronto, ON
Canada