

Constructive empiricism revisited

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Constructive Empiricism (CE) quickly became famous for its immunity from the most devastating criticisms that brought down the logical empiricist view of science. But at least early on, CE was widely assumed to have inherited essentially the same epistemological grounding: empiricism teaches us that there are limits imposed by experience, and so our conception of science had better respect those limits or undermine the widely held assumption that scientific inquiry is rational. But in the thirty-odd years since he introduced CE, it has become increasingly apparent that Bas van Fraassen's conception of CE's epistemological backdrop represents at least as much departure from the past as does CE itself. In particular, CE is formulated and defended from within a 'voluntarist' epistemology, according to which the only constraints on rational opinion are logical and probabilistic consistency, beyond which remarkably meagre limits anything is permitted. It is very much to his credit that in his book *Constructive Empiricism: Epistemology and the Philosophy of Science*, Paul Dicken emphasizes the role that voluntarism plays in van Fraassen's views. It is also to his credit that he recognizes that one could endorse CE while rejecting voluntarism and takes steps to characterize an alternative CE view along such alternative lines.

The first three chapters of Dicken's book directly address the relationship between voluntarism and CE. In the first chapter, Dicken surveys some of the standard criticisms of CE concerning the epistemological value of the observable/unobservable distinction. While he is unimpressed by those arguments on their own merits, Dicken is primarily concerned to emphasize that voluntarism undermines their relevance: if anything goes beyond logical and probabilistic consistency, then no argument can be made out from the distinction's being arbitrary to our being obliged to manage opinion in the same way on both sides. The second chapter

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reviews what Dicken takes to be van Fraassen's three primary arguments in favour of voluntarism and finds them wanting. The third chapter aims to undermine voluntarism as a suitable epistemological basis for CE. And in the fourth chapter, Dicken proceeds to formulate and defend an acceptance/belief distinction, claiming that this distinction can fill the lacuna left by the rejection of voluntarism in the characterization and defence of CE.

The first three chapters survey a wide range of issues related in one way or another to van Fraassen's views. Much of it would be instructive for those unfamiliar with these issues in relation to CE. It is unclear, however, that the structure that Dicken imposes upon it all is either illuminating or dialectically effective in the way he suggests. The second argument for voluntarism Dicken identifies in the second chapter, for example, runs from the various well-known sceptical arguments that van Fraassen has mounted against various forms of ampliative inference. The upshot of Dicken's response is that these arguments threaten to undermine even his own very permissive epistemological framework. But I do not see how. Van Fraassen's sceptical arguments are designed, not to undermine the rationality of ampliative inference—which the constructive empiricist employs as does the realist, albeit to a more limited extent—but to defuse the realist's insistence that the demonstrable reliability of such inferences mandates their application across the board (to unobservables in particular). Those arguments generate scepticism only if the rational is bounded by those inferences whose reliability we can demonstrate. Voluntarism is, however, precisely the view that the limits of rationality extend well beyond that boundary. So, van Fraassen has no need to limit the force of his arguments in the way that Dicken suggests. For example, Dicken claims that van Fraassen will undermine his own epistemology if he does not endorse the 'ranking premise' that we can at least reliably rank potential explanations (even if we cannot ensure that the correct explanation is among them, as per the famous 'best of a bad lot' argument). But I do not see why van Fraassen cannot cheerfully claim that how one ranks explanations is as much a matter of pragmatics and background philosophical inclination as is one's selection of candidate explanations. What 'radical scepticism' with respect to both the ranking premise and the 'no-privilege' premise (that the truth is among those explanations under consideration) demonstrates is not the irrationality of the employment of IBE but rather the permissibility of not doing so when it suits one.

The other two arguments for voluntarism that Dicken identifies in the second chapter concern van Fraassen's argument for diachronic coherence constraints (encoded in his 'reflection principle') and his conception of empiricism-as-stance. But the first argument, if successful, would only demonstrate a constraint on rational opinion in addition to (synchronic) logical and probabilistic consistency; that can hardly constitute an argument for the greater doxastic freedom beyond those constraints advocated by the voluntarist. And van Fraassen's primary argument for stance empiricism—which Dicken challenges—has little to do with voluntarism. It appeals instead to a supposed incoherence in conceiving of empiricism as a doctrine in conjunction with the (for van Fraassen, laudable) intention to deliver a critique of metaphysics. This is not to say that voluntarism and empiricism-as-stance are incompatible (although the critique of metaphysics does seem a rather un-voluntarist

thing to attempt). But it is far from obvious that there is an argumentative line from one to the other as Dicken seems to suggest, such that an argument against empiricism-as-stance simultaneously undermines an argument for voluntarism.

The same concern arises with respect to the third chapter. In it, Dicken reviews Alan Musgrave's well-known objection that 'electrons are unobservable' is about unobservables, and so appears to be un-endorsable by the constructive empiricist who believes only what a theory says about observables (Musgrave 1985). Dicken makes much of this argument, seeing in it a pattern repeated in arguments against the compatibility of CE with modal and mathematical anti-realism (Ladyman 2000 and Rosen 1994, respectively). He claims that the voluntarist's response to Musgrave depends on the response to Ladyman, which in turn depends on the response to Rosen—and that voluntarism lacks the resources to provide the last response. I worry, however, that this artificially links three independent problems. For example, it is true that empirical adequacy concerns what is observable, not just what is actually observed, and that 'observable' is at least *prima facie* a modal concept, thereby ensnaring the constructive empiricist in questions concerning what to make of those parts of a theory that appear to represent observable but unobserved reality. But this—the apparently modal dimensions of observability—is not Musgrave's problem, which concerns only what someone who believes a theory to be empirically adequate—thereby apparently limiting belief to representations of observables—can make of 'electrons are unobservable'. For what it is worth, it seems to me that Musgrave's problem is satisfactorily handled by simply expanding to 'electrons, if they exist, are unobservable'. To believe a theory to be empirically adequate is not really to be agnostic concerning all a theory's assertions about unobservables; it is to be agnostic about all such claims that assert their existence. At any rate, this issue is independent of the modality issue.

Dicken is right to emphasize the significance of voluntarism in van Fraassen's views and to apply pressure upon those views by criticizing it. But it seems to me that the most trenchant criticism is the easiest to state: voluntarism is so wildly permissive that it countenances as rational belief-sets that are obviously completely crazy, including belief-sets which completely disregard all empirical evidence. So if voluntarism is the only epistemological basis upon which CE and associated views can be erected, then so much the worse for CE and those associated views. Dicken does emphasize this concern with voluntarism at various points; but its presentation is overshadowed by the more convoluted critique of the second and third chapters.

The fourth chapter is, however, different. In it, Dicken formulates a distinction between acceptance and belief, argues that the distinction has utility aside from issues concerning the viability of CE, and provides at least the outline of a response to the three arguments against CE reviewed in chapter three. The gist is that acceptance is a voluntary act, something that one does, in contrast to belief which (Dicken claims) is involuntary. Dicken then suggests that the constructive empiricist can respond to Musgrave's, Ladyman's, and Rosen's concerns in essentially the same way: we accept, but do not believe, those consequences that concern unobservables (including 'electrons are unobservable'), unactualized possibles (called 'modal agnosticism'), and mathematical entities. (The latter is, in fact, only barely discussed on pp. 208–209). This amounts to extending the agnosticism

originally applied to unobservables broadly enough to encompass other entities that are problematic from an empiricist standpoint, certainly a plausible move to make for one drawn to CE.

There are, of course, problems. *First*, as with most such manoeuvres, it is hard to know when to stop. Why not merely accept those portions of theory that concern actual, but in fact unobserved, objects and events (a view Rosen once called ‘manifestationalism’; see Rosen 1994; Alspector-Kelly 2001; and Alspector-Kelly 2006)? Indeed, why not only accept even claims concerning the actually observed? This would be incoherent on van Fraassen’s account of acceptance, which is initially predicated of a theory and incorporates belief concerning observables. But Dicken’s formulation appears to be predicated primarily of sentences rather than theories, and it is at least not obvious that one could not simply accept—voluntarily act on its basis but not believe—everything the theory says, even when it speaks of the observed.

Second, Dicken insists that one can accept what one does not believe. But then one’s acceptance of ‘electrons are unobservable’ is compatible with one’s not believing that electrons are unobservable: one could well believe that they are observable while accepting that they are not. But then belief that the theory is empirically adequate would not generate agnosticism with respect to electrons, since that agnosticism is intended to apply only to those entities represented by the theory that are—that one believes to be—unobservable. The same concern applies to Dicken’s intention to accept modal claims: my acceptance of ‘if I lived then I would see the dinosaurs’ is compatible with my believing that conditional to be false. But to construe dinosaurs as observable—and so as accurately represented by an empirically adequate theory—is to believe that they are so; nothing follows from our merely accepting their observability. Perhaps Dicken would respond by claiming that we accept the modal conditional, but believe the observability claim. But this would presumably require that modal agnosticism does not capture the semantics of modal claims, which Dicken intends it to do (pp. 206–207).

Third, it is unclear that reliance on the acceptance/belief distinction will address the accusations of arbitrariness often directed against van Fraassen’s views. The voluntarist’s response, in essence, is that there is nothing wrong with being arbitrary, so long as one’s choices deliver a coherent view of scientific practice, are compatible with one’s own philosophical commitments, and satisfy the minimal constraints imposed by logical and probabilistic consistency. Without voluntarism, however, those objections seem to return in full force; the viability of an acceptance/belief distinction itself provides no reason to believe only so much and accept the rest. Dicken recognizes in the last chapter that his distinction is compatible with voluntarism. But perhaps his version of CE employing that distinction needs voluntarism as much as does that of van Fraassen.

These are not knock-down criticisms. But they do suggest that the book might have been more rewarding if it had concentrated less on the construction of the overly elaborate critique of the second and third chapters, and instead developed the acceptance/belief distinction and its role in the formulation and defence of CE more fully.

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