

Epistemic Options

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Bas van Fraassen wants to be an empiricist, but he is deeply dissatisfied with traditional versions of empiricism. So he is developing a new approach: epistemological voluntarism. Let me be blunt. Van Fraassen is an outstanding philosopher, and his new epistemology is important. But *The Empirical Stance* is a difficult book, because voluntarism is a difficult position to articulate. In what follows I attempt to clarify the situation a little, or at least to explain why it resists clarification.

The Empirical Stance develops voluntarism in large measure by worrying two problems. The first is how empiricism can avoid being self-defeating; the second is how empiricism can account for the rationality of scientific revolutions. The problems are relatively easy to grasp, but van Fraassen's solutions are somewhat elusive. Nevertheless, I will follow his lead and explore voluntarism by working through these two problems. In so doing, I will simplify without pity a rich and subtle discussion. I will thus ignore many important issues, for example concerning to what extent one is free to choose a belief or an epistemic policy, or to what extent beliefs could be replaced by weaker epistemic states. My hope is that the simplifications will make it easier to see where voluntarism is going. On the other hand, it may just take me off the rails. I trust that Bas will let me know.

The Problem of Doctrine Empiricism

Traditional doctrine empiricists aim to rule out the possibility of metaphysics or factual a priori knowledge by embracing a philosophical doctrine, something like the doctrine that experience is the only source of factual information, or that all factual knowledge is a posteriori. The doctrines may in turn be based on claims about our fundamental cognitive constitution, say that every idea is a copy of a preceding impression (if you happen to be a great 18th century Scottish empiricist).

The problem of doctrine empiricism is that the doctrine is itself a piece of metaphysics. Doctrine empiricism thus invokes metaphysics to refute metaphysics. Van Fraassen's main worry is not that the position is necessarily logically incoherent, but that it is self-defeating. Having admitted one piece of metaphysics, the empiricists are not then in a position to rule competing metaphysical claims out of court, because of a principle of epistemic tolerance to which they are committed. (Nor according to van Fraassen will it help to reconstrue the central empiricist doctrine as a high-level empirical claim.)

The proposed solution is to replace doctrine empiricism with stance empiricism. But what is a stance, and how does adopting one help? Here is the short version. Simplification though it is, let us take a stance to be an epistemic policy. For example, the empirical stance includes a policy of advocating scientific practices and denigrating metaphysical claims. Instead of embracing a doctrine, the empiricist is advised to adopt such a policy. Constructive empiricism, van Fraassen's own distinctive position in the philosophy of science (though hardly mentioned in *The Empirical Stance*), is another, more specific stance. And I take it that stances are not just for philosophers: individual scientists will have stances of their own. These will include their own take on the realism question, but also more specific policies governing the kinds of inferences they make and the kind of epistemic preferences they express in the course of their work.

We have now arrived at our first interpretative hurdle. The trouble is that it is unclear how a switch to stance empiricism is supposed to help to solve the problem of doctrine empiricism. That problem seemed to be that doctrine empiricism failed in its aim to rule metaphysics out of court, yet the empirical stance seems no more effective in this regard. If, as van Fraassen maintains, empiricists are committed to a principle of tolerance that entails that if they admit one metaphysical claim then they must take seriously other metaphysical claims as well, then it is difficult to see how they can forswear the analogous principle for stances. Having taken their stance, they are not in a position simply to dismiss all other stances.

Our difficulty is thus to locate the distinctive advantage of stance empiricism. One important clue is that whatever it is that is distinctive about stance empiricism, it cannot be simply the presence of a stance, of an epistemic policy, because everyone has a stance, including the doctrine empiricist. Indeed it would seem that the doctrine and the stance empiricist not only both have stances, but that they have at least largely

the same stance. So to spot the difference we need to look not to the stance itself, but to its source. And to do this, we need to turn to van Fraassen's general epistemological perspective, his voluntarism.

Voluntarism is the view that our stance, our epistemic policy, is underdetermined by the principles of rationality. Those principles of rationality rule out certain combinations of belief – roughly those that are inconsistent – but they do not compel any unique set of beliefs in a given epistemic situation. Once we satisfy the constraint of consistency, what and how much we believe is a matter for decision, a question of the stance we choose to adopt. Some choices may be better than others, but that is not determined by principles of rationality alone. Somebody who makes the wrong choice of stance is unwise, but not irrational.

This voluntarism is inspired by William James's 'The Will to Believe'. James makes a case for the rational permissibility of a belief in God even though such a belief is not rationally compelled by the evidence. James mounts diverse arguments, but one that is particularly helpful in the present context appeals to the trade-off between the desire to discover truth and the desire to avoid error. If all we cared about was to avoid believing falsehoods, then we should believe nothing; if all we cared about was to believe as many truths as possible, then we should be very gullible, believing as much as possible. But we have both desires, and they are in tension. How are we to strike the balance? This is not itself an empirical question. It is a matter of a choice of epistemic policy that is underdetermined by the principles of rationality. This is the sort of gap that leaves room for voluntarism .

James and van Fraassen are not arguing for the same stance, but the core voluntarist argument is shared, because this is not an argument for a particular stance but rather an argument for a kind of epistemic tolerance. As I have already observed, the point is not that there are no arguments to favour of one stance or epistemic policy over another, but just that none of a wide range of stances is ruled out by principles of rationality alone. James says that neither the theist nor the atheist is being irrational, though someone who maintained that either of these positions was either epistemically compulsory or epistemically forbidden would be. (Here perhaps James is construing the principles of rationality more widely than van Fraassen does, since such a strict individual would not have to hold inconsistent beliefs.)

A similar point applies to constructive empiricism: neither the realist nor the constructive empiricist is being irrational. The burden of van Fraassen's *The*

Scientific Image is not that scientific realism is forbidden; but that it is optional, and an option that we have some reasons not to choose. The case of constructive empiricism also shows that embracing voluntarism does not mean that arguments for one's favourite stance cannot appeal to facts about our cognitive constitution, something doctrine empiricists are wont to do, since the constructive empiricist's epistemic policy is articulated in terms of what humans can observe. Such an appeal is nevertheless compatible with voluntarism, because although what we can observe may be determined by our biology and may be used to argue for an epistemic policy that would limit belief to only a part of what our best scientific theories assert, the facts of our cognitive constitution cannot fix a level of belief that is uniquely rational, because there is no such level. And the case for one level over another, for one stance rather than another, will depend also on our values and our goals. For example, whether or not we are willing to give up on realism may depend on whether we aim to discover unobservable entities and processes, an aim that some may have even if it is not an essential feature of the scientific enterprise.

We will return to the nature of voluntarism below, but we are now in a position to see more clearly how stance empiricism can be seen as a solution to the problem of doctrine empiricism. The two positions are alike in promoting an epistemic policy in support of scientific methods and against metaphysics, but they differ about both the justification and the status of the policy they share. As far as justification is concerned, for the doctrine empiricist the policy is entailed by very general claims about our cognitive constitution, for example that we can only learn from experience, and the principles of rationality that flow from this. For the stance empiricist, by contrast, the case for the policy must appeal to more than the principles of rationality. It must, for example, also appeal to the consequences of adopting one policy over another and to the value one places on these consequences. As far as status is concerned, whereas the doctrine empiricist aimed to show that the empirical policy is rationally obligatory, the stance empiricist denies this but aims rather to show the policy to be the most attractive option relative to one's values.

If I have understood the situation correctly, the inability of the doctrine empiricist to destroy metaphysics in one go thus turns out to be something of a red herring. The solution to the problem of doctrine empiricism is not to find a more effective way to show that metaphysics is forbidden, but to aim for something different, a position that admits that the metaphysician is not irrational, but gives

arguments for preferring an anti-metaphysical policy. Indeed I think that for van Fraassen one of the signal advantages of stance empiricism is that, unlike doctrine empiricism, it does not maintain that metaphysics is rationally forbidden, but only that it is an option that we are better off not choosing. A second advantage of stance empiricism is that it locates the debate between the empiricists and their opponents in the right place: in a comparative discussion of the consequences of adopting different epistemic policies. A third advantage is that the stance empiricist can do all this without making a metaphysical claim.

The Problem of Scientific Revolutions

I turn now to the other focal problem of *The Empirical Stance*, the problem of scientific revolutions. Unlike the problem of doctrine empiricism, this is a difficulty that affects doctrine and stance empiricism alike. The nub of the problem is how a scientific revolution can be rational, when the later theory or research programme is incomprehensible or absurd from the point of view of the earlier theory. This is a problem of prospective unintelligibility. (There is also a problem of retrospective intelligibility, of how the new theory can explain the old theory's successes, but I leave this to one side.) The proposed solution is to emphasise that the control of theory by experience – the empiricist's battle cry – has two aspects, because experience is both good news and bad news for the old theory. This is not the familiar point some observations may support a theory while others may undermine it. It is rather that the very same observations that support the old theory by showing its predictions to be correct, may also weaken that theory. This may sound surprising at first, but while the old theory's empirical successes initially immunize it against revolution, the appeal to experience also foregrounds the extent to which the old theory goes beyond the evidence in its favour and so the extent to which the claims of the old theory are optional and may be suspended in favour of a revolutionary alternative. The glass is both half empty and half full: the data that support the theory also reveal the extent to which the theory is underdetermined by those data.

This double aspect of experience is of considerable epistemological interest but, as in the case of the problem of doctrine empiricism, it is not clear that van Fraassen has provided a straight solution to the original problem. If the challenge to rationality is, as he says, that the new theory is incomprehensible or absurd from the perspective of the old theory, the challenge cannot be met by appealing to the double

aspect of experience, since in neither aspect will experience provide an interpretation of the new theory or a translation manual linking it to its predecessor. And if the problem is not how anyone can understand the new theory, but rather how they could have a rational motive to develop it, then I would have thought that the first point to emphasise about the role of experience is Thomas Kuhn's, namely that the persistent failure of the old theory to deal with the anomalies it throws up eventually supplies a motive for some scientists to try something completely different. (To this one might add the importance of committing to a new point of view in order to develop it to a stage when it can be properly tested by experience, a point reminiscent of one James makes in his defence of voluntarism, about the importance of 'meeting the hypothesis half-way' if we want to find the evidence to evaluate it.)

For my money, what is most salient about scientific revolutions in the context of voluntarism is not the challenge they pose but the advertisement they provide. For the rationality of scientific revolutions is a strong argument for voluntarism, especially as they have been discussed by Kuhn. Indeed on a reading list of seminal texts in epistemic voluntarism, one might well put his 'Objectivity, Value Judgement, and Theory Choice' right after 'The Will to Believe'.

Kuhn's analysis of rationality in action during scientific revolutions is a kind of constructive proof of voluntarism. The principles of rationality cannot determine a single cognitive course because different rational agents actually choose different courses, some opting to promote a new approach to their subject while others tenaciously defend the old theory. In addition to proving voluntarism by example, Kuhn suggests how a divergence in epistemic policies performs an essential epistemic function, by enabling the scientific community to hedge its epistemic bets. Most importantly, Kuhn provides us with a very suggestive account of some of the sources of epistemic divergence that we can use to explore the ways in which epistemic policies are formed. Some of Kuhn's semantic and metaphysical claims are notorious, but a great deal of what he says about epistemic policies ought to ring true to even the most die-hard scientific realist.

Here I can only remind you in telegraphic form of some of the factors Kuhn cites that reveal how much slack is left by shared principles of rationality. In *The Structure of Scientific Revolutions*, he observes that scientists in a revolutionary period are forced to compare the relatively old and well-developed against the new and relatively undeveloped. The old theory has many successes to its credit, but also

some persistent failures. The new theory has achieved a few striking successes where the old theory failed, but is otherwise underdeveloped. In short, one is comparing achievement against promise, and this is a matter over which rational scientists will disagree. Kuhn also observes that there will be disagreement arising from differing assessments of the potential of the old theory to get itself out of its crisis. The problems that induce crisis are the same as the puzzles that form the bread and butter of normal scientific research, only particularly recalcitrant, and scientists will differ over whether they will ultimately be soluble within the old framework. A third source of divergence will be disagreements over which are the central problems to be solved and what exactly are the standards for an adequate solution.

In his later 'Objectivity, Value Judgement, and Theory Choice', Kuhn extended his account of epistemic divergence in a discussion of the ways in which shared epistemic values (he cites accuracy, consistency, scope, simplicity, fruitfulness, an intentionally unoriginal list) may nevertheless support incompatible judgements. Some of these values taken singly may be imprecise, not dictating a unique choice. And taken in combination, some of these values, such as scope and simplicity, are in tension with each other, and scientists who share them may yet weigh them differently. The result is again common values issuing in divergent choices. Thus imprecision and variations in weightings mean that even shared values do not uniquely determine epistemic judgement. On top of that, Kuhn makes a strong case that the values themselves may vary from scientist to scientist and from scientific community to scientific community, all within the bounds of rationality.

Principles and Policies

Scientific revolutions provide a powerful argument for voluntarism by offering scenes of dramatic divergence in epistemic judgement that nevertheless clearly lie within the bounds of rationality. Kuhn's account makes this case in a particularly vivid form, and it provides a valuable resource for explanations of some of the ways in which the gap between principles of rationality and epistemic policy gets filled. In addition to the specific explanations for divergent judgment that I listed above, Kuhn's general exemplar mechanism at the centre of his account of scientific development can naturally be seen as a mechanism by which specific epistemic policies are created and implemented. Scientists select problems on the basis of perceived similarity to the exemplary problems and apply standards of solution that

the exemplars exemplify. Since exemplars are local and variable, this again brings out the gap between principles of rationality and epistemic policies. All that is good news for our project of developing the voluntarist position. But Kuhn's account also reveals difficulties that remain in saying just what voluntarism entails, and I will end my remarks by indicating where some of these lie.

There are several reasons why the distinctiveness of voluntarism is difficult to pin down. As we have seen, it is not captured by appeal to the presence of a stance, since everyone has a stance as I have construed it: everyone has an epistemic policy. What distinguishes the voluntarist is not the presence of a stance but its basis. As I have said, the crucial question is whether principles of rationality determine the stance: the traditionalist says yes, the voluntarist says no. But notice that there is here another reason why the distinctiveness of voluntarism is difficult to make out, namely that it is easy enough to conflate principles of rationality with epistemic policies. If we do this, however, voluntarism disappears from view: policies cannot be underdetermined by principles if they are the same thing.

So a crucial question is whether we can make sense of a distinction between principles of rationality and epistemic policies. One way of trying to draw the line is to say that only the principles are obligatory; but this demarcation is not straightforward. One problem that the obligation here is some kind of rational obligation – someone who flouted these obligations would be irrational – and so there is a risk of circularity, with the principles of rationality defined only as what rationality requires.

To avoid the circularity, we may add that the principles of rationality are obligatory not because they are principles of rationality, but because to flout them would be a mistake, whatever one's epistemic values and goals. Thus one might claim that it is always a mistake to have inconsistent beliefs or, where degrees of belief are in play, to violated the principles of probabilistic coherence. Following the principles of logic and probability is obligatory because failing to follow them is demonstrably counterproductive (typically because it involves throwing one's money away). Insofar as epistemic policy goes beyond this, it is optional. Inductive policies, for example, must count as policies that are not principles, since flouting them cannot be demonstrated to be a bad idea, as David Hume showed.

But is anyone who admits that we can have no demonstration of the reliability of induction (and also admits that we must use induction) automatically a voluntarist?

What are we to say those who claim that certain inductive policies are nevertheless obligatory, since someone who reasons counterinductively is by that fact alone irrational? The line between the obligatory and the optional remains difficult to draw. This is one of the reasons that I found it helpful to replace a focus on the distinction between what is rationally obligatory and what is rationally optional with a focus on the distinction between uniform and divergent epistemic practices.

But this does not take us all the way out of the woods. How do we tell whether two agents have the same or different epistemic policies? Difference of inference does not entail difference of policy, since the agents might have the same policy but different evidence. And even different inferences from same evidence are probably not sufficient to show difference in policy, since the difference might be explained by a difference in background belief rather than a difference in policy. To this one might add the worry that even the distinction between policy and substantive background belief is not really secure. Voluntarism requires that we distinguish epistemic policies from principles of rationality on the one hand and substantive beliefs on the other, and this is not easy to do.

One of the nice features of case of scientific revolutions is that these are situations where the divergence in judgement takes place against a largely shared context of evidence and background belief. But Kuhn's discussion shows that even here variation in judgement does not clearly entail variation in policy. When scientists differ over the fruitfulness of the new theory, or over the potential of the old theory to pull itself out of crisis, is this a manifestation of different policies, or a difference of judgement under the same policy? Kuhn observes that scientists may share epistemic values, yet weigh them differently. Do different weightings amount to different policies? Even if they do, we still have Kuhn's point that even a value that everyone weighs the same may be imprecise, and thus support divergent inferences. Different judgements may arise not because there is more than one policy, but because the policy is vague. Kuhn's account of scientific revolutions shows voluntarism in action, but is also shows that the very notion of a stance or epistemic policy is not yet as clear as we might have hoped, because it is not yet clear how policies are to be counted.

Working through *The Empirical Stance*, especially through the problem of doctrine empiricism and the problem of the rationality of scientific revolutions, illuminates the significance of voluntarism. Our insight into the view depends on the

idea of a gap between the principles of rationality and our epistemic policies. Cases of actual epistemic divergence such as scientific revolutions are excellent tools for exploring this gap, but we still need to elucidate the range of our principles and the individuation of our policies before we can see clearly what voluntarism comes to. If at this stage I find myself in the not unprecedented position of accepting a philosophical view without fully understanding what it is, this should serve as a spur to further work on a topic whose importance Bas van Fraassen's stimulating book has helped me to see.

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