
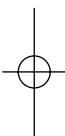




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Introduction


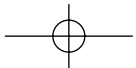
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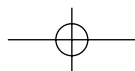


If you are trying to be an empiricist today, you would be hard pressed to do better than look to the work of Bas van Fraassen. In his seminal 1980 book, *The Scientific Image*, van Fraassen rehabilitated scientific anti-realism, which he sees as a core tenet of empiricism. This book provided an answer to the question: ‘What should an empiricist think about science?’ It did not, however, address the question: ‘What is it to be an empiricist?’ Van Fraassen has been working on this latter issue, and this work led to his 2002 book, *The Empirical Stance*.

The essays in this volume focus on issues that van Fraassen discusses in these two books. While van Fraassen has done important work in areas like logic, probability theory, and the foundations of quantum mechanics, those areas will not be a central focus in this volume. To an extent this mirrors the extant literature: despite van Fraassen’s voluminous work, commentators keep coming back to the issues surrounding scientific anti-realism as discussed in *The Scientific Image*. More recently, we are starting to see essays responding to the novel ideas developed in *The Empirical Stance*.

The essays in the first part of this volume make important contributions to the developing understanding of what van Fraassen achieved in *The Scientific Image*. The essays in the second part are on the cutting edge of the new literature discussing *The Empirical Stance*. But the issues discussed in the two parts are not completely independent of one another—throughout this volume you will see interconnections between the ideas about empiricism in science and about empiricism generally.





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While the early essays in this volume focus more narrowly on some of the detailed issues that arise in van Fraassen's anti-realist stance toward science, the latter essays take up general issues about whether empiricism can be construed as a philosophical stance, and more generally about what it is to have a philosophical stance at all. It is clear that van Fraassen has synoptic ideas about the virtues of empiricism and the nature of philosophy, but it is not always clear what van Fraassen's ideas are. The concluding essay, from van Fraassen, provides useful commentary on each of the preceding essays in this volume, as well as on van Fraassen's own past work. This essay helps us in our quest to be empiricists—or at least, in our quest to understand what empiricism is and should be.

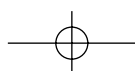
Part I: *The Scientific Image*

One of the virtues of *The Scientific Image* is that van Fraassen does not try to address the difficult question of what it is to be an empiricist. Instead he focuses on the narrower question: what is it to be an empiricist about science? Van Fraassen's answer is that one should endorse the doctrine of *constructive empiricism*:

Science aims to give us theories which are empirically adequate; and acceptance of a theory involves as belief only that it is empirically adequate.

Van Fraassen's rough characterization of empirical adequacy is as follows: a theory is empirically adequate if and only if what it says about the *observable* things and events in the world is true.

One of the reasons *The Scientific Image* is viewed as significant is that it carries on the tradition of the logical positivists, without being saddled with the problematic aspects of the positivists' positions. Van Fraassen follows the logical positivists in rejecting metaphysical commitments in science, but he parts with them regarding their endorsement of the verificationist criterion of meaning, as well as their endorsement of the suggestion that theory-laden discourse can and should be removed from science. Before *The Scientific Image*, some philosophers had viewed scientific anti-realism as dead, because logical positivism was dead. Van Fraassen showed that there were other ways to be an empiricist with respect to science, without following in the footsteps of the logical positivists.





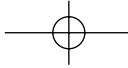


Nowadays, there is a growing consensus that van Fraassen has argued to a stalemate against the scientific realists. Scientific realists cannot conclusively show that belief in the literal truth of scientific theories is epistemically warranted, but constructive empiricists cannot conclusively show that the aim of science is limited in the way they describe. Nevertheless, there are a number of unresolved issues when it comes to understanding constructive empiricism, even issues that are relevant to the most basic aspects of the doctrine. This can be seen in the discussions of the various contributors to this part of the volume.

Maarten Van Dyck examines the issue of what arguments van Fraassen actually gives for constructive empiricism. As Van Dyck correctly points out, van Fraassen is often presented as giving some version of the argument from underdetermination: the argument which holds that, since theories always have empirically equivalent rivals, empirical evidence can never adjudicate between a theory and its rivals, and hence belief in any theory is unfounded. Van Dyck conclusively makes the case that van Fraassen does not give any version of the argument from underdetermination, and moreover, that the argument from underdetermination is incompatible with van Fraassen's epistemological views.

Nancy Cartwright examines what motivation van Fraassen has for restricting his scientific theoretical commitments to claims about observables. Many critics have argued that the observable/unobservable distinction van Fraassen draws on is either an illegitimate distinction, or can't play the important philosophical role van Fraassen wants it to. Cartwright, in contrast, offers a novel defence of why the distinction is an important one. Her basic argument is as follows: what we fundamentally care about is what we will experience under the possible courses of action open to us, and hence we have a (non-epistemic) reason to try to control what we will experience. This gives us special reason to form beliefs about what we are capable of observing.

James Ladyman questions what epistemic reason van Fraassen has for focusing on empirical adequacy. Ladyman contrasts van Fraassen's constructive empiricism with a pragmatic empiricism, where one gives pragmatic, not epistemic, reasons for believing in the claims of a theory. Ladyman suggests that van Fraassen does not give adequate justification for why belief in the empirical adequacy of a theory could ever be epistemically warranted. Ladyman further makes the case that van Fraassen is relying on a priori knowledge—a charge with which van Fraassen would presumably be unhappy.



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Alexander Bird also looks at the epistemological foundations of constructive empiricism. Bird endorses the view of Timothy Williamson that all and only knowledge is evidence. Using this view, Bird calls into question the empiricist thesis that all evidence is observational. Bird maintains that constructive empiricism ought to endorse epistemic scepticism concerning unobservables, but a thesis of his paper is that the most natural argument for that sort of scepticism is mistaken.

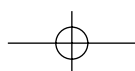
Philip Percival focuses on the aim of science according to constructive empiricism. He argues that empirical adequacy is not the only scientific non-instrumental theoretical value. He points out that a tautologous theory is empirically adequate, and yet such a theory would not be valued in science. Also, Percival argues that the scientific evaluation of theories is context-dependent. For example, at the time that Newton came up with his theory of gravity, that was deemed a success, even though the theory was empirically inadequate. If someone were independently to come up with that theory now though, that would not be admired.

Peter Lipton takes van Fraassen's controversial concept of acceptance and argues that it can be put to good use in various contexts. Specifically, Lipton argues that acceptance is an appropriate epistemic attitude to have when one has multiple beliefs that one realizes are jointly inconsistent.

Stathis Psillos provides the final essay in this part of the volume. Psillos examines van Fraassen's 'voluntarist' notion of rationality. This permissive notion of rationality has appeared throughout van Fraassen's work, and plays an important background role for van Fraassen's views about science and about empiricism. Psillos takes issue with van Fraassen's account of rationality, arguing that it is too thin to capture rational judgement fully. Specifically, Psillos holds that irrationality can pertain to the *content* of a particular belief, not just to the structure of a corpus of beliefs, or to how one updates one's beliefs in light of new evidence. Also, Psillos defends inference to the best explanation against a criticism of van Fraassen—Psillos argues that relying on inference to the best explanation is not incoherent.

Part II: *The Empirical Stance*

In Part II of this volume, we turn to essays that discuss issues that arise in van Fraassen's general discussions of empiricism. These essays focus on the



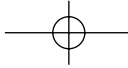
central suggestion of van Fraassen's *The Empirical Stance*, that empiricism should be construed not as a set of beliefs, but instead as a *stance*. For van Fraassen, a stance is a cluster of attitudes, commitments, approaches, and sometimes beliefs. It is not just empiricism that is a stance, according to van Fraassen; many other philosophical positions are best understood as stances as well.

Van Fraassen positions empiricism in opposition to (pre-Kantian) metaphysics. Specifically, part of the stance of empiricism is to reject forms of metaphysics that rely on demands for explanation. Van Fraassen is sceptical of such demands, especially when they lead to the postulation of entities which are not already evident in experience. (Here we see one of the ways that van Fraassen's discussion of empiricism links up with his past defence of constructive empiricism.) Van Fraassen portrays empiricism as focusing on experience, admiring science, and emphasizing an idea of rationality that does not bar disagreement.

Why should one be an empiricist, according to van Fraassen? As various authors in this volume point out, the answer is not obvious. A clue can be found in van Fraassen's essay 'The World of Empiricism' (1994: 123). Van Fraassen admits that perhaps one would 'feel a great dismay that empiricism deprives us of so much that might comfort us in a hostile world'. But he is sanguine about this: what empiricism can offer is 'the agony and the ecstasy of freedom in a world governed by no laws except those we create ourselves'.

Ernan McMullin provides the first essay in this part of the volume. McMullin begins by considering the role of emotion in scientific revolutions. Van Fraassen argues that emotion must have a place in our epistemology, because emotions must be involved when people undergo radical conceptual shifts. By looking at actual historical examples, McMullin argues that one can undergo a scientific revolution without ever facing an existentialist moment where emotion is essentially involved. McMullin goes on to take up van Fraassen's discussion of religion which occurs in the final chapter of *The Empirical Stance*. Van Fraassen associates science with objectifying inquiry, and suggests that an encounter with God is an example of an event that cannot and should not be objectified. McMullin proposes that the discussion of emotion in conceptual shifts is relevant to van Fraassen's ideas about encountering God.


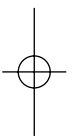
Anjan Chakravartty argues that the distinction between empiricism and metaphysics isn't as clear as van Fraassen would like to believe. Chakravartty maintains that almost all inquiry is metaphysical to a degree, including van Fraassen's stance empiricism. Chakravartty also argues that van Fraassen does



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not make a strong case against metaphysics, since the argument against metaphysics has to happen at the level of meta-stances—the level where one decides which stance to endorse. Chakravartty maintains that, utilizing van Fraassen’s own conception of rationality, metaphysicians are rational. He holds that empiricists should not reject all metaphysics, but just the sort of metaphysics which goes well beyond the empirical contexts that most interest them.

Chad Mohler critically evaluates van Fraassen’s rejection of naive empiricism. The naive empiricist holds that to be an empiricist is to believe some thesis E. Van Fraassen argues that the naive empiricist faces a dilemma. Suppose the naive empiricist holds that E is not open to debate: this violates the empiricist idea that disagreement with any admissible factual hypothesis is admissible. Suppose instead that the naive empiricist holds that E is open to debate: this prevents the empiricist from using E to challenge metaphysical claims. Mohler’s first main thesis is that van Fraassen’s stance empiricism also faces the dilemma. Mohler goes on to reject the second horn of the dilemma—Mohler argues that the empiricist can consistently maintain that the beliefs necessary to empiricism are subject to empirical confirmation/disconfirmation, while also using those beliefs as the basis of a critique of metaphysics.



Michel Bitbol presents a neo-Kantian critique of materialism, and contrasts his critique with van Fraassen’s. While van Fraassen seems open to possibility that the particulate conception of matter is true, Bitbol strongly rejects that doctrine. Bitbol also rejects the overall idea that materialism is a stance, as opposed to a particular doctrine. He proposes a demarcation line between material and non-material entities. Bitbol offers his own neo-Kantian analysis of the notion of a material body, and contrasts it with the notions that arise from both empiricism and materialism. Bitbol also contrasts the empiricist version of the charge of being ‘metaphysical’ with his own transcendental version.

Anja Jauernig explores one of the central issues at the heart of *The Empirical Stance*—whether philosophical positions should be viewed as stances. She defends naive empiricism, arguing that if one wants to be a philosopher and an empiricist, there is a specific doctrine to which one needs to subscribe. She argues that van Fraassen is either committed to a non-cognitivist view of value judgements (where value judgements do not purport to represent facts, but are instead just expressions of personal preferences) or he is committed to an undesirable position of tolerance, where he must acknowledge all value

judgements that are incompatible with his own to be admissible. She also argues that even empiricists should allow for some metaphysical theorizing to be a legitimate part of philosophy—theorizing which is integral to our understanding of the world and of the human condition.

Dien Ho finishes this part of the volume by looking at the role of value judgements in competing stances. Ho argues that, if philosophical disagreements are disagreements between stances, and stances involve value judgements, then philosophical disagreements could be in principle unresolvable. Van Fraassen says that in the ‘real world’ we see that rational discourse is possible on matters that touch our values, but Ho makes the case that the means used in the real world threaten to turn philosophy into a non-reason-guiding enterprise.

Finally, in Part III of this volume, we see what more **Bas van Fraassen** has to say about science, stances, and empiricism, as they are and as they could be.

References

VAN FRAASSEN, BAS (1994), ‘The World of Empiricism’, in Jan Hilgevoord (ed.), *Physics and Our View of the World* (Cambridge: Cambridge University Press), 114–34.

