

Experience becoming fully literate

Van Fraassen on the verge of constructivism

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1. Introduction

The observable/unobservable distinction, realistically construed, is a feature which lies at the very heart of van Fraassen's constructive empiricism. The aim of this paper is to approach it by taking a close look at van Fraassen's concept of observation. We will argue that if van Fraassen's most recent writings about "literate experience", especially his remarks on the status of observation reports and his general a-metaphysical stance, are taken into account, his realistic interpretation of the observable/unobservable distinction paves the road for inconsistency. In particular, we will show that a dilemma emerges to the effect that van Fraassen is forced to accept skeptical consequences blatantly at odds with constructive empiricism and its restatement of the aim of science. We will finally suggest that the only way out for van Fraassen involves giving up his realistic construal of observability and thus taking sides with constructivism.

2. The Concept of Observation

The first task will be to find out what van Fraassen alludes to when he uses the terms "observation" or "experience".¹ In his most recent writings van Fraassen explicitly criticizes concepts of observation which accommodate metaphysical realism. According to van Fraassen, an advocate of metaphysical realism claims that, while observing, one is able to catch a glimpse of what the structure of nature is really like (LE, 347 f.), i.e. of "properties, attributes, Universals, Relations—in short, [of the] real structure present in the things" (LE, 347) themselves which are completely independent of any judging and classifying activity of the observer.

Van Fraassen challenges such a view. He thinks that all natural phenomena are "received as symbols, words or sentences in a language, of which we already have some pre-

¹ Van Fraassen takes it that "'observation' is the code for scientifically relevant experience" (LE, 355).

understanding” (LE, 353). Every observation or experience we make involves a judgment about the structure of nature that is couched in our own language. (LE, *ibid.*) What we characterize as the structure of nature is not independent of the observer’s “creative activity” (LE, 348) and interpretation, as the language she uses is highly theory-infected. Consequently, structure is attributed to nature whenever we describe it via our classifying and reporting activities. (LE, 350) In the following passage van Fraassen underlines this consideration by drawing a parallel between discerning structure in nature and understanding a text:

“As for us, we discern structure in nature; but the structure we discern there, we discern in the same way as we discern a story when looking at ink marks on a page. We read it initially in the language we already have [...] [and based on those] theories with which that language was already infected at our birth”. (LE, 354)

Another aspect central to van Fraassen’s conception of observation, namely the distinction between *observing* and *observing that*, is illustrated by a short fictive story in *The Scientific Image* (SI, 15): Observer, B₁, who has been educated as a member of the modern 21st century, knows everything about tennis and is familiar with the term “tennis ball”. Imagine that B₁ stands in the relation of observing with an entity X and that he points at the entity and gives the following observation report²: “This is a tennis ball”. Observer B₂, who is a member of the Stone Age people, has never heard anything about a game called “tennis” nor does he know what the term “tennis ball” refers to. He will probably make a completely different observation report, when he stands in the relation of observing to X. For instance, he might report something like “This is yellow and not edible” or something along those lines.³ If two observers B₁ and B₂ stand in the relation of observing to an entity X, it does apparently not follow that both will automatically frame the same observation report. Depending on their different background theories and the concepts they rely on, depending on the language game they live and breathe in and from which they cannot escape, both observers will express different statements.

The observation *that* an observed entity is actually a tennis ball as well as the expression of the corresponding observation report in which the term “tennis ball” occurs can only be made by someone who is familiar with the game of tennis. Both presuppose a background theory of tennis and mastery of its central concepts. But the observation of the tennis ball, i.e. the mere

² It goes without saying that this observation report is totally correct and in accordance with the classifications he and his contemporary language-users use.

³ Here, the same as in the previous footnote applies. Depending on his ontological commitments and his practical interests, he might even say something like “Look, small sun-like roundness” or “non-edible instantiation of yellowness”.

fact that a relation of observing between an observer and a particular entity X obtains, is something which is independent of the observer's language and theories. This point which implies a realistic understanding of the property of being observable will be subjected to further analysis in the third part of this paper. Even if it seems that B₁ and B₂ could agree on some basic facts about the entity perceived—its being yellow or its being round-shaped—this possible agreement does only reflect some degree of similarity of the language games they use. There is nothing like basic perception involved and nothing follows from a possible similarity of language games for the real structure of the entity in question.

Accordingly, van Fraassen claims that the relation between the *content* of an observation report and the *conditions* of observing is neither necessary nor a priori. (VC, 15, 17) Rather, he construes it as a highly reliable sort of measuring which has been established by some (however specified) process of conditioning. (ibid.) However, observation reports or judgments “are not epistemically secure foundations” (VC, 20), they are “full of empirical risk” (ibid.). They do not warrant objective certainty, but only confer a high probability that certain conditions of observing obtain—whatever those may be—to which the observer has been conditioned to react in a specific way. For instance, if an observer reports “I see a tennis ball”, there is a high probability that the kind of conditions obtain, to which the observer has been conditioned to react with this kind of report. Again, nothing more is implied about the entity observed. The content of the statement “I see a tennis ball” has no a priori link whatsoever to what the entity observed is really like. The entity in the real world and its properties could well have differed from what the observer reported it to be like. The fact that the observer states an observation report only signalizes that some observable entity was probably present to him and that the circumstances were probably ‘just right’, so that the relation of observing was established. Nothing about the report implies infallibility in the observer's judgment or understanding, though. (ES, 136)

As far as our observations of trees, tables, tennis balls and the like are concerned van Fraassen apparently holds that we have pragmatic reasons to be epistemically optimistic, as “we can only start from where we are”. (MM, 480) From a philosophical perspective which takes van Fraassen's general remarks about observation into account, though, even reports about those objects cannot refer to nature as being independent of us but only to nature as it is represented by us. However, van Fraassen does not take his position to be a “debilitating form of skepticism”, but rather as a description of our “actual situation”, our “human condition”, from which we cannot escape. (ES, 133)

The seemingly all-pervading theory- and language-dependence to the contrary, van Fraassen explicitly allows for “elements that are not text at all” (ES, 136), something that “is ‘really going on’” (WE, 133), “events which happen to us” (ES, 134), „the facts themselves“ (LE, 354) that exist independent from our theories and our language. In his paper *Literate Experience* he makes that very explicit, claiming that his position does not amount to subjective idealism:

“Let us begin by asserting unequivocally that what nature is like does not depend on what we think, or how we view it, or even on our existence at all” (LE, 352)

„What nature is like does not depend on what our experience or representation of nature is like.” (LE, 354)

It seems that van Fraassen denies that we have any kind of epistemic access to structural elements of nature that are conceptually independent of us. Whatever structure we come to discern in nature can only be conceived of as something we attribute to nature in describing what happens to us. Still, van Fraassen does not deny the very existence of an independent nature as such, as he unambiguously presupposes the existence of entities independent from us, entities with which we can—the right circumstances being actual—stand in the relation of observing.

3. Property-Realism regarding the Observability of Entities

As has been shown, van Fraassen opposes metaphysical claims such as metaphysical realism. He challenges forms of ontology in which the existence of certain structures in nature which are independent from us is postulated.⁴ Only the theory- and language-dependent phenomena should be accepted as real and all the rest could well be “a unifying myth to illuminate our path”.⁵ The aim of this section is to show that van Fraassen’s opposition against metaphysical postulates about the existence of structure in nature does not correspond to his claim according to which observability is a property⁶ which entities have independent from our

⁴ This becomes also very much explicit in ‘The Empirical Stance’: “As I see it, the targets [of empiricist critique] are forms of metaphysics that (a) give absolute primacy to demands for explanation and (b) are satisfied with explanations-by-postulate, that is, explanations that postulate the reality of certain entities or aspects of the world not already evident in experience.” (ES, 37)

⁵ WE, 133

⁶ Strictly speaking, observation should be understood as relation with at least three relata. As such, observation is a relation between an entity X, an observer B (or rather: an epistemic community E) and certain circumstances (C₁, C₂, ... C_n). As van Fraassen points out, observability is the principle that „There are circumstances so that if X is present to us under those circumstances, then we observe it.” (SI, 16). As observability should apparently be considered a property of entities which is not permanently exhibited it seems appropriate to call it a dispositional property. Anyway, it seems that this point can be neglected for now as it is not relevant for the course of this paper.

background theories and the language of the observer. Such a claim, we argue, does itself presuppose a form of metaphysical realism. More to the point: Van Fraassen presupposes the existence of entities which may or may not have the property of being observable for us. Moreover, they exist independent from the language game we play and independent from our background theories and independent from our pre-understanding of our own language:

„What can be observed, and what there really is to be observed, is a matter of fact—it is not theory-, mind, or language-dependent, but is there regardless of whether we even so much as pay attention to it.“⁷

A statement of the form ‚B sees X’, so van Fraassen claims, is extensional.⁸

The boundaries of this realism of van Fraassen’s are clearly defined, though. It is ontological in nature, not epistemological. An observer has no epistemic access regarding the property of being observable or not, which goes beyond all possible doubt. That is, he cannot only be mistaken about the adequacy of his observation report as far as its content is concerned⁹, but he can also err about the answer to the question whether he actually stands in a relation with an observable entity or not.

We as observers surely have an opinion about whether certain entities are observable (trees, tables, tennis balls, mountains and the like) or not (electrons, leptons, propositions, whatever you like). We thus have at least an intuitive answer to the question where the observable-unobservable-demarcation must be. But this is just an opinion which “depends on the historical character of the language” and it is “heavily perspectival”¹⁰. It is deeply theory-dependent¹¹ and thus fallible: „The question of *what there is to be observed* is a question which in each of our mouths takes on the meaning of the language in which we live and breathe and have our being.“¹² Accordingly, to claim that our *knowledge* about the observability of entities (for us) depends on the theories and language we have is something else than to claim that the property of being observable for us *itself* is theory- and language-dependent. Whether a certain observer (qua being the member of a certain epistemic community) can observe the entity X, i.e. whether a relation of observing can - under the right

⁷ LE, 355

⁸ VC, 19

⁹ MM, 484 ; SP, 524 ; ES, 136

¹⁰ VC, 20

¹¹ VC, 20

¹² LE, 355

circumstances - be established or not is independent of the theories and concepts the observer has and independent of the language game he plays.¹³

There is, we conclude, a striking tension between van Fraassen's realism about the property of being observable on the one hand, and his opposition against metaphysical claims about structure in the world, which exists independent from observers, on the other. Van Fraassen talks in an obviously quite realistic fashion about the property of being observable which may or may not be attributed to entities. But this implies the existence of a certain structure in nature. There are different types of entities. Some entities are observable, others not.¹⁴ Some of them are observers, others not. And for observable entities there exist circumstances such that if the observable entity is present to an observer under those circumstances, then he observes it. And all this shall be the case independent from any theory or language whatsoever. When van Fraassen claims that the world consists of entities, properties (or: relations) and maybe even circumstances (facts? states of affairs?), he clearly introduces structure. In the light of what has been said regarding van Fraassen's challenge against metaphysical realism such a realistic claim about structural properties of the world sounds quite strange. If a classification we make is used as a premise in order to infer that "there is in the things classified a real basis for demarcation"¹⁵, i.e. that there is a kind of structure in nature which is independent from us, then this is exactly the move which van Fraassen had challenged as the fundamental error of the metaphysical realist. Why then, we ask, should it be appropriate to make an exception? Why should the claim that entities differ at least numerically or the additional claim, that some of those entities may be attributed the property of being observable fare any better than the other metaphysical realistic claims van Fraassen denies?

4. Running into a dilemma

In the preceding section we have shown that van Fraassen attributes theory-independent structure to nature, at least with respect to the distinction between its observable and unobservable part. Thereby, he seems to make the same move as the metaphysical realist who regards the truth of theoretical classifications as being grounded in theory-independent, real structures in nature. But whereas van Fraassen finds the metaphysical realist guilty of making unwarranted substantial postulates and reifications of structures, he claims for himself to

¹³ VC, 13

³⁸ Even if it is claim that there are only observables, then different observables still differ numerically and to say so is also to attribute structure to the mind-independent nature.

¹⁵ LE, 347

„walk[s] a fine line“¹⁶ between realism as regards observability on the one hand, and some sort of constructivism as regards nature’s structure on the other. We take this simply to be a euphemism for an internal inconsistency in van Fraassen’s conception of experience. But let us suppose, for the sake of the argument, that van Fraassen’s realism regarding observability can be consistently held together with an assimilation of experiencing nature to interpreting literary texts. Even if so much is granted, another serious problem arises as to whether we can ever have any knowledge about what is observable in nature.

Van Fraassen’s realistic conception of observability is part and parcel of constructive empiricism, in that it gives rise to an epistemically relevant distinction between an observable and an unobservable part of nature and, therefore, makes empirical adequacy a plausible aim of science. Hence van Fraassen, as well shall assume, will not give up this conception lightly, but will try to reconcile it with his more recent considerations on the language- and theory-dependence of structure. But it is exactly in light of this synthesis that worries about running into a dilemmatic scenario emerge. If observability is to be interpreted as ontologically realistic, i.e. as being independent of language, theories, or the human mind, two epistemic standpoints seem to be possible. Either van Fraassen remains skeptical about our epistemic access to the property of being observable and thereby neglects that we will ever be in a position to justifiably and truly believe that certain things are observable. Or he adopts a more or less optimistic stance towards our ability to ascertain the observability of things in nature—better and more comprehensively in the ‘hermeneutic course’ of scientific progress.

The skeptical option, as we will proceed to argue now, makes up the first horn of a dilemma. The motivation for adopting a skeptical attitude towards observability may be taken to be expressed in van Fraassen’s claim that structure is not something to be attributed to reality in itself, but something that is imposed on reality by us, in particular by our language and theories. As was shown in section 3, the distinction between an observable and an unobservable part in nature undoubtedly falls under the heading of structure. Consequently, the ascription of observability to particular parts of nature cannot be conceived of as the result of a discovery of a language- or theory-independent property. So it seems that no reason for epistemic optimism with regard to observability and observation as objective structural elements of reality is left. Moreover, it seems to be impossible to enter the constructive empiricist’s “hermeneutic circle” (SI, p. 57) between tentative beliefs about observability and future scientific findings about it. If in principle there is no warrant that at least some objects are clear cases of observable entities it makes no sense to hope for further scientific results as

¹⁶ LE, 355

to the question where the line between observable and unobservable things in nature has to be drawn. A skeptical attitude towards observability and observation seems to be unavoidable, if one assumes that any structure we ascribe to reality has to be regarded as language- and theory-dependent.¹⁷

However, acceptance of this skeptical consequence will inevitably erode the very basis of van Fraassen's constructive empiricism. To claim that it is the aim of science to give us theories that are empirically adequate, and to ground the notion of empirical adequacy on an objective distinction between the observable and the unobservable, makes sense only on the assumption that we have knowledge of the observability of at least some objects. What plausibility could one claim for reconstructing science as an activity aiming at the adequate description of observable phenomena, if there were no pieces of knowledge at all about observability?

At this point the second horn of the dilemma is threatening. Let us grant that by future scientific theories we will ascertain more detailed information about the functioning of human sense organs and, thereby, will learn more about what is observable for us. Whatever these theories will look like they will necessarily include ascriptions of structure to certain parts of reality, namely to the physiological make-up of human beings relevant to the observation of external objects. Here again, one has to take into account van Fraassen's considerations on the theory-dependence of any structure we ascribe to reality. Scientific theories, including those which will give us the precise structure of sense organs, cannot be regarded as detectors of theory-independent structures of reality. From this it follows that theory-mediated knowledge of the borders of observability cannot be counted as knowledge of a theory-independent observable/unobservable distinction in nature. According to van Fraassen, observation reports, being adduced to confirm or corroborate theories, turn out themselves to be theory-dependent classifications and structure ascriptions. So, unfortunately, we are at last thrown back to the first horn of the dilemma, namely to a skeptical attitude towards observability. As was already shown, this attitude is inappropriate to van Fraassen's anti-realist approach in the philosophy of science. Whatever epistemological point of view van Fraassen wishes to take with respect to observability as construed realistically, he seems in either case to be forced to accept skeptical consequences blatantly at odds with constructive empiricism and its restatement of the aim of science.

Let us take stock. If the preceding analyses of van Fraassen's concepts of observability and observation are correct, he is faced with a serious internal tension, or rather inconsistency, in

¹⁷ Of course from a pragmatic point of view there may be no choice but to enter the hermeneutic circle. We can only start from where we are, so much can be granted. The point is, that there is no reason to believe, that the hermeneutic circle brings us any step nearer to a description of the true observable/unobservable distinction.

his overall account of experience and its importance for determining the aim of science. We suspect that it is van Fraassen's strong loyalty to the project of empiricism and parts of its history, especially to the search for a fundament of all knowledge in experience that makes him come to a purportedly sustainable compromise. On the one hand he readily accepts a nearly all-embracing theory-dependence of experience, on the other he clings to a realistic understanding of observability and observation as the cornerstones of empiricism. But if this compromise leads to inconsistency, wouldn't it be more promising for van Fraassen to leave his "fine line" and take sides with constructivism altogether? Perhaps experience won't become fully literate until it is realized that observability is a classification completely made by us, rather than being a structure in nature itself.