

Lee Hardy, *Nature's Suit. Husserl's Phenomenological Philosophy of the Physical Sciences*

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The debate about scientific realism (henceforth: *SR*) has occupied center stage in philosophy of science since its very inception. The main question is whether or not scientific theories are (at least approximately) true descriptions of the world. Or, to give the question a slightly different spin: What grounds (if any) do we have for believing in the reality of the unobservable entities postulated by contemporary science (photons, fields, J/ψ -mesons, etc.)? Although the main arena of this debate is analytic philosophy, it is clear that these questions are no less important for philosophers with phenomenological leanings. Should phenomenologists advocate *SR* or should they opt for scientific anti-realism (henceforth: *SAR*)? And, on a more historical note, which of these options is most appropriate from the viewpoint of Husserl's work?

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Such are the questions that Lee Hardy tries to answer in his book. Hardy's main thesis is "that Husserl was indeed an instrumentalist, but that his instrumentalism is restricted to an interpretation of scientific laws, not theories" (p. 4). Hence, proceeding from a sharp distinction

between laws and theories, Hardy argues for a hybrid view: Husserl was an anti-realist as far as the interpretation of laws is concerned. But his phenomenology, according to Hardy, is “wholly consistent with a realistic construal of scientific theories” (pp. 206–207).

There is much to like about Hardy’s book. To begin with, Hardy’s argumentation is clear throughout and he makes every effort to present Husserl in a language that is accessible to philosophers from different backgrounds. I also applaud Hardy’s intention “to give an answer to this question [of SR] that is both intelligible within the contemporary Anglo-American discussion of science and faithful to Husserl’s phenomenological approach to science” (p. 5). And although I am not entirely convinced that Hardy is successful with regard to the first aim (more on this below), his interpretation of Husserl is well informed and to the point. Husserl scholars will also appreciate the rich unpublished material that appears, in German, in the endnotes.

However, there are also reasons for concern. In what follows, I will concentrate on two issues: First, I shall address the question as to whether Hardy, in focussing on instrumentalism as the only alternative to SR, fights a straw man. Secondly, I will scrutinize Hardy’s portrayal of a phenomenological theory of rationality.

In order to address my first concern, let me begin by taking a closer look at how Hardy defines SR:

A realist account of scientific theories claims that scientific theories are intended to be true, and that theoretical terms are intended to refer to physical realities. Thus the evidence we have for the truth of a theory will at the same time move us to accept the existence of the entities as postulated by that theory (p. 6).

I take this definition to imply two things: On a semantic level, SR says that scientific theories are truth-valued descriptions of reality and that the respective truth-values are fixed by empirical reality. This holds

true, in particular, for claims about unobservable entities such as photons or J/ψ -mesons. On an epistemological level, SR implies that science provides us with methods to determine the truth-values of our theories. This again holds true, in particular, for claims about unobservables. Hence, on this picture, to accept a theory means to believe that it is literally true on both sides of the observable/unobservable divide.

According to Hardy, the difference between SR and SAR concerns the “semantic level” (p. 6). On his portrayal, SAR amounts to the view that “a scientific theory is not the kind of thing that is true or false” (p. 6). Rather, “theoretical entities ostensibly postulated in scientific theories are to be understood as convenient fictions that merely serve to enhance the predictive scope and power of empirical science” (p. 130). On this picture, then, theories are *tools* or *instruments*, not unlike hammers or screwdrivers (hence the name “instrumentalism”). To accept them only means to employ them as the appropriate tool for a given job. But, obviously, instruments and tools are not the kind of thing that can be true or false or that can be believed or disbelieved.

A novice in the SR debate who only relies on Hardy’s presentation may come away with the impression that rejecting the semantic thesis is indeed the only way to resist SR. Given Hardy’s framing of the issue, SAR appears to be synonymous with instrumentalism. But if one looks at the actual course of the debate, this is far from the case. Today there is almost universal agreement (also among defenders of SAR!) that the classical versions of instrumentalism are dead ends. Apart from technical problems, this has to do with the manifest counter-intuitiveness of the instrumentalistic assumption that a doxastic attitude towards theories is in principle inappropriate. Nowadays even staunch defenders of SAR admit that “[a] scientific theory must be the sort of thing that we can *accept* or *reject* and *believe* and *disbelieve*” and that “[a] typical object for such attitudes is a proposition, or a set of propositions, or more generally a body of putative information about what the world is like, what the facts are” (van Fraassen 1989, p. 190). It is thus commonly agreed in contemporary philosophy of science that

“[t]he debate [about SR] took a distinctively epistemic turn” (Psillos 2011, p. 85). This is to say that contemporary defenders of SAR are usually happy to accept the semantic thesis. What they reject is the epistemic thesis.

Why should any of this matter for our understanding of Husserl’s philosophy of science or for an evaluation of Hardy’s book? It matters for at least two reasons: First, Hardy’s interest is not primarily exegetical in nature. He is rather “concerned with the *contemporary* prospects of Husserlian phenomenology within the philosophy of science” (p. 8; my emphasis). But if this is the case, rejecting a position that no one today holds seems like a victory too easily gained. If we, as contemporary phenomenologists, wish to decide between SR or SAR, would it not be natural to choose between the versions of SR and SAR that people today find the most plausible? Moreover, there is a second, more fundamental reason: Shifting the discussion to an epistemic level has fundamental repercussions on what is actually at stake between SR and SAR. Instead of discussing the true nature of theories or the question of whether unobservables exist, proponents of SR and SAR quarrel over whether the methods of science are powerful enough to yield knowledge about putative unobservable layers of reality. Defenders of SR think they do. Proponents of SAR disagree. This brings me to my second point.

Granting the epistemic thesis to be the real focus of the dispute between SR and SAR, what reasons are there for adopting an anti-realist stance? Traditionally, empiricism has been one of the main driving forces behind SAR: If one believes that our empirical knowledge stems from sense perception and if one also holds that theoretical entities such as photons or J/ψ -mesons are in principle unobservable, then a literal understanding of scientific statements containing theoretical terms like “photon” or “ J/ψ -meson” might be seen as a metaphysical hypostatization of scientific activity. However, it is, as Hardy acknowledges (e.g. p. 78–79; 164), not *prima facie* implausible that similar conclusions also follow from Husserl’s phenomenology, especially from his conception of rationality. Let me elucidate.

One of the most fundamental distinctions in phenomenological epistemology is that between “signitive” (or “empty”) acts on the one hand and “fulfilling” (or “intuitive”) acts on the other. Here is an example: Suppose I judge that “My bike is in the office”—first while I am in the cafeteria and then again after I have returned to my office. Both acts exhibit the same intentional essence, i.e. the same intentional matter and the same intentional quality. But, obviously, there is a crucial difference as well: While the judgment about my bike’s whereabouts may just be a wild guess as long as I am still in the cafeteria, the direct acquaintance with my bike warrants the judgement about my bike’s location beyond all reasonable doubt. Phenomenologically construed, it is only in the latter case that I “experience how *the same* objective item which was ‘merely thought of’ in symbol is now presented in intuition, and that it is intuited as being precisely the determinate so-and-so that it was at first merely thought or meant to be” (Hua XIX/2, p. 566/206). This is what phenomenologists call *fulfillment*.

The notion of fulfillment is crucial because it marks what phenomenologists consider to be the real difference between knowledge and mere belief. This, however, is not all. Since Husserl thinks of fulfillment as the overarching *telos* towards which all of our cognitive activities strive, fulfillment is also the centerpiece of Husserl’s conception of reason, or, more narrowly, rationality: “[*T*]he posited characteristic has as its own a specific rational character”, Husserl writes, “if and only if it is a position on the basis of a fulfilled, originarily presentive sense and not merely on the basis of just any sense.” (Hua III/1, pp. 315–316/327) How is this to be interpreted? If what Husserl seeks to express here ought to be understood as a general condition of rationality, he cannot mean that it is rational to believe that p if and only if the intention towards p is intuitively fulfilled. Since most of what we know derives from our knowledge of other propositions and not from the direct cognitive contact with the intended objects, a rationality condition that is not modally qualified certainly appears to be too strong. Hence, what Husserl has in mind must be something like this: It is rational to believe that p if and only if *it is possible* that an intention towards p can be intuitively fulfilled. This

formulation also corresponds to Hardy's "first rationality condition" (henceforth: *RC*): "A person, S, is justified in believing a proposition p if and only if p can either be evident or be demonstrated on the basis of what is evident" (p. 108).

According to *RC*, it is rational to believe that p if and only if it is possible that the intention towards p can be intuitively fulfilled. However, as I shall point out in more detail below, phenomenology cannot remain on this high level of generality. It is necessary for a phenomenological theory of rationality that it also **spellspells** out the concrete conditions of fulfillment that pertain to different types of objects or states of affairs. Of particular interest for our current purposes are those conditions that specify what "intuitive fulfillment" means with respect to physical objects. And here Husserl's position seems pretty clear: Husserl defines a physical object "as the possible object of a straightforward percept" (Hua XIX/2, p. 679/285). Hence, it is part of their essence that physical objects "can be given [...] sensuously in sensuous 'modes of appearance'" (Hua III/1, pp. 112–113/120), that they are "essentially *capable of being perceived*" (Hua III/1, p. 95/99). Husserl even goes so far to declare that any understanding that runs counter to this "absolute norm for all rational discourse about physical things [...] is *countersensical* in the strictest signification of the word" (Hua III/1, p. 111/118; my emphasis).

Where does this leave us with respect to the debate about SR? On the most general level, *RC* states that it is rational to believe that p if and only if it is possible that the intention towards p can be intuitively fulfilled. If, on a more concrete level, "p" is an assertion about physical objects and their properties, then *RC* states that it is rational to believe p if and only if it is possible that "the object 'itself' appears" (Hua XIX/2, p. 588/220) and presents itself in its "bodily selfhood" (Hua III/1, p. 15/9; translation modified). But if the possibility of originary givenness is indeed a necessary condition for the rationality of assertions about physical objects, then *RC* is most certainly violated in the case of unobservables such as photons or J/ψ-mesons. While it is possible to bring chairs, tables, mercury columns and planets to direct, intuitive

givenness, the micro-world of modern physics clearly is beyond our perceptual grasp.¹ Hence, if one accepts this interpretation, an epistemic version of SAR seems to be a natural consequence of RC. This is also acknowledged by Hardy:

[I]f it is the case that theoretical entities could never be given to perceptual consciousness, if it could never become evident in the phenomenologically preferred way that they exist, then we could never be justified in believing that they exist. On this account, it is still possible that such entities exist. But it would not be possible for us to be justified in believing that they exist (p. 83).

There have been attempts to show that this is indeed the most appropriate stance for a phenomenological philosophy of science (cf. Wiltsche 2012). According to Hardy, however, such an interpretation is untenable. It is untenable because it misconstrues the modal qualification in RC. Let me turn to this crucial issue now.

According to what has been said before, there is nothing wrong with believing an assertion without actually carrying through to the ideal of intuitive fulfillment. The rationality of an assertion is merely tied to the *possibility* of intuitive fulfillment. But this raises an obvious question: What kind of possibility is being invoked here? Hardy's answer is as clear as it is far-reaching:

For a person, S, to be justified in believing a proposition, that proposition need not be evident to S, nor need it be possible that it be evident to S, nor need it be possible that it be evident to any existing person belonging to the same historical community or even the same species as S. It need only be possible that it be evident to or demonstrated in *some possible consciousness* (p. 109; my emphasis).

As this quotation shows, the kind of possibility that underlies RC is, on

Hardy's view, an "ideal possibility" (p. 109), i.e. a kind of possibility that is completely detached from those constraints that delimit the sphere of fulfillments that are realizable for concrete (i.e. bodily, socially or historically situated) subjects. And this, of course, seems to turn the tables on those who think that SAR is a direct consequence of RC: It may be impossible for us, as actual, embodied egos, to bring photons or J/ψ -mesons to direct, intuitive givenness. But if the modal qualification in RC is to be understood in an ideal sense, then it suffices that the direct, intuitive givenness of unobservables *is no logical or essential impossibility*. Hence, on this interpretation, RC does not lend direct support to SAR.

So, to summarize, the point of Hardy's argument is this: If the notion of possibility that is in play in RC were to be understood as *real* possibility, then, as Hardy acknowledges, RC would lead to SAR. But, on Hardy's view, RC must not be interpreted in such a way: The modal qualification in RC must be read in an *ideal* sense. Hence Hardy's conclusion that nothing in the phenomenological theory of rationality suggests SAR. In what follows I will try to show that this reading of Husserl is questionable, especially in the context of a phenomenological philosophy of science.

What is a "phenomenology of reason" supposed to accomplish? Quite generally, the aim is to describe how reason and rationality manifest themselves in consciousness. The question that needs to be answered is thus "the question of what the 'claim' of consciousness actually to 'relate' to something objective, to be 'well-founded', properly signifies" (Hua III/1, p. 297/308). Or, to put it differently: The goal of a phenomenology of reason is to unravel the essential laws that determine "what rational showing signifies, [...] of what *rational consciousness* consists" (Hua III/1, p. 314/326).

If one takes a closer look at how Husserl tackles these issues in the later parts of *Ideas I*, it becomes immediately clear that the project of a phenomenology of reason must be carried out in a number of steps and on a number of different "levels of universality" (Hua III/1, p. 337/349). Naturally, the most general of these levels is concerned with "the most

universal eidetic distinctions” (Hua III/1, p. 333/345) pertaining to *any consciousness whatever*, being intentionally directed to *any fact whatever*. Here, we are exclusively dealing with judgments about pure essences, i.e. with “universal judgments [that] have the characteristic of *eidetic universality*, ‘pure’ or, as it is also called, ‘*strict*’, *absolutely ‘unconditional’ universality*” (Hua III/1, pp. 17–18/13). On this level of analysis, “[n]o judgment [...] is a natural judgment presupposing the positing of natural actuality as background” (Hua III/1, p. 336/347). This also implies, of course, that “the possibility of rational showing” that is in play in the most general version of RC “should be understood, not as empirical, but as ‘ideal’, as an essential possibility” (Hua III/1, p. 314/326).

So there is a sense in which Hardy’s ideal interpretation of RC is entirely appropriate. On the most general level, an eidetic description of rationality and reason must, on pain of relativism, be restricted to considerations pertaining to *any consciousness whatever*, being intentionally directed to *any fact whatever*. But the question is whether phenomenology must, should, and can restrict itself to this level of generality. As far as I can see, Husserl is quite clear that it cannot. “*The universal eidetic theory of evidence* with its analyses related to the most universal eidetic distinctions”, Husserl writes, “fashions a *relatively small* [...] piece of the phenomenology of reason” (Hua III/1, pp. 333/344–345; my emphasis). This clearly indicates that there is more to a phenomenology of reason than the analysis of eidetic laws pertaining to *any consciousness whatever*, being intentionally directed to *any fact whatever*. Phenomenologists must also describe how these laws manifest themselves in different epistemic projects. Of particular interest for our current purposes is, of course, “the phenomenology of reason peculiar to physics” (Hua III/1, p. 333/344).

What distinguishes a purely eidetic phenomenology of reason from a phenomenology of reason peculiar to physics? Although Husserl is not very explicit on this point in part four of *Ideas I*, there is, I think, abundant textual evidence that the difference is to be understood along the following lines: A purely eidetic analysis of reason and rationality

is, as we have seen, concerned with essential laws that govern any consciousness whatever, being intentionally directed to any fact whatever. Now, if we are interested in how these laws are instantiated in the epistemic context of the physical sciences, we are no longer concerned with claims about *any fact whatever*. Rather, we are concerned with theoretical claims about planets and mercury columns on the one hand and photons or J/ψ-mesons on the other. But, as I would like to suggest, we are also no longer concerned with essential laws that pertain to *any consciousness whatever*. Rather, we are concerned with the instantiations of these laws in a community of actual (bodily, socially and historically situated) egos that employ scientific theories in order to represent and manipulate certain layers of empirical reality. Consequently, on this level of analysis, the kind of possibility that is relevant for RC can be no ideal possibility. It is rather a *real* or *motivated* possibility, i.e. a possibility that is motivated through and thus has “evidentiary weight” only on the basis of previous courses of actual experiences. Let me now give you some textual evidence that this interpretation indeed captures what Husserl is up to in *Ideas I* and elsewhere.

The debate about SR belongs in the wider context of “the phenomenology of reason peculiar to physics [...], which traces back to their phenomenological sources the ontological and noetic rules belonging to experiential science” (Hua III/1, p. 333/344). As far as the ontological rules are concerned, one of the most important insights is, as I have pointed out, that “*whatever physical things are [...] they are as experienceable physical things*” (Hua III/1, p. 100/106) and that, consequently, “[i]t is experience alone that prescribes their sense” (ibid.). But now consider how Husserl proceeds:

[S]ince we are speaking of physical things in fact, it is actual experience alone which does so in its definitely ordered experiential concatenations. [...] *Experiencableness never means a mere logical possibility*, but rather a possibility *motivated* in the concatenations of experience. This concatenation itself

is, through and through, one of “motivation,” always taking into itself new motivations and recasting those already formed (Hua III/1, p. 101/106–107).

Or take the following passage:

The hypothetical assumption of something real outside this world is, of course, “logically” possible; obviously, it involves no formal contradiction. But when we ask about the essential conditions on which its validity would depend, about the mode of presentation taken universally essentially determined by the positing of something transcendent [...], we recognize that something transcendent necessarily must be experienceable *not merely by an Ego conceived as an empty logical possibility* [my emphasis] but by any *actual* Ego as a demonstrable unity relative to its concatenations of experience (Hua III/1, p. 102/108).

I think that these (and similar) passages speak for themselves. Drawing on the crucial notion of motivation (cf. Hua XVIII/1, pp. 30–35/183–186; Hua III/1, §140; Hua IV, §56), Husserl forcefully argues that the rationality of assertions about physical things does not, as Hardy claims, merely depend on the ideal (or empty) possibility that these things could be experientially given *to some possible consciousness*. In order for such assertions to be rational, something more is needed, namely that the possibility of experiential givenness is a *motivated* one. But which experiences could motivate me or any other member of my epistemic community to consider the direct, intuitive givenness of photons or J/ψ -mesons a real possibility? Whatever we do and wherever we go, photons and J/ψ -mesons remain beyond our experiential grasp. Hence, if this is indeed the correct reading of Husserl, RC seems to suggest SAR after all.

Assume for the moment that my interpretation is correct and that there are crucial passages in Husserl that do not fit Hardy’s interpretation. Of

course, this alone would not settle the *systematic* question of whether SR or SAR is the more appropriate choice for a phenomenological philosophy of science. In order to answer this question, it would be necessary to re-evaluate the dominant traits of the SR debate from a genuinely phenomenological perspective. How should phenomenologists think about underdetermination or the no-miracles-argument? What role should phenomenologists assign to the history of science? It is unfortunate that questions such as these are virtually absent in Hardy's book. Hardy's entire discussion seems to rest on the presupposition that SR is the only game in town and that phenomenology, if it is really committed to SAR, "has [not] much to contribute to an understanding of science as it is practiced today" (p. 206). However, since Hardy gives no argument for this harsh verdict, card-carrying anti-realists (such as myself) will likely remain unmoved.

References

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¹ One could wonder whether this view is not actually undermined by technical instruments such as electron microscopes and cloud chambers. Aren't such devices means by which we constantly expand our perceptual grasp? Hardy is very clear on the shortcomings of this view: "For by perception Husserl means the bodily presentation of the thing itself. What we are presented in the cloud chamber is not the ion itself, but a line of condensation, which, against a background of a theory, serves as an indicative sign of the ions presence." (p. 206).