Open Peer Commentaries

on Michael Beaton's "Sensorimotor Direct Realism"

Realities in the Plural

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> Upshot • Direct realism can be better distinguished from objectivism and naïve realism, by recognizing the radical plurality of the incommensurable realities that can be enacted by living organisms in coupling with their environment.

« 1 » The target article by Michael Beaton makes an important contribution by articulating sensorimotor theory and direct realism, to their mutual benefit. However, to my mind, Beaton's position remains uncomfortably close to "naïve realism" or "objectivism." Objectivism is the position according to which, ontologically, there is a single well-defined reality that exists and is what it is independently of any relation to an observer, and epistemologically, that scientific knowledge can and should aim at providing a perfect representation of this reality. Naïve realism is the common-sense version of objectivism concerning everyday non-scientific knowledge. Constructivism is the antithesis of objectivism. It is therefore crucial to be clear how the direct realism proposed by Beaton is distinct from objectivism. In spite of his sophistication, it seems to me that Beaton does come uncomfortably close to objectivism, and in particular to making the assumption that there is indeed a single well-defined reality that exists and is what it is independently of any relation to an observer. Thus, in §65, he writes: "[…] seeing a book is […] an interaction with the public, shared book, with the book itself forming an integral part of the experience. Not, per impossibile, the "thing in itself" lying behind the book, but just […] the book." In a similar vein, in §58 he takes up his favourite example of "an apple":

> "Consider the case of an apple. An apple, for me, can only ever be apple-as-I-understand-it. My own understanding of 'apple' will always depend on my own idiosyncratic learning history. Thus, someone else may well not agree with me on exactly what counts as an apple; perhaps they include quinces, which I do not; or do not include crab-apples, which I do. Indeed, I think, for almost any type of public object there will be borderline cases that show that none of us ever exactly agree on anything. But exact agreement is not required. What is required is sufficient agreement, in commonly encountered cases, for shared reference to be possible. This, I think, is perfectly achievable. You and I can successfully discuss whether or not quinces should be counted as apples."

In spite of Beaton's intelligent disclaimers and qualifications, I consider that there is here an undigested remnant of objectivism.

« 2 » As a possible antidote to this latent objectivism, I would like to make what is hopefully a constructive proposal. This consists of bringing out, more clearly and explicitly than Beaton himself, the radical *diversity* of the "realities" (in the plural) that can be enacted by living organisms in structural coupling with their environment. A classical prototype of the "lived-worlds" that can be brought about by living organisms actively engaged with their environment is provided by the "world of the tick" as described by Jakob von Uexküll (1992: 319). "Reality," for the tick, consists of three chained sensorimotor cycles: "butyric acid → drop; hairy surface → crawl; smooth surface → stick in proboscis and, if liquid is at 37°C → suck." By enacting this very simple lived-world, consisting of just three elements, the tick achieves the extraordinary feat (essential for its trans-generational viability and therefore for its very existence) of catching a mammal (thousands of times larger, and able to run hundreds of times faster) and getting to suck its blood. Now the point I want to make is that, to a fair approximation, there are as many "lived-worlds" or "realities" as there are biological species – i.e., a countable but open-ended and unlimited infinity. Moreover, these various "realities" are quite radically incommensurable. Imagine, for example, the impossible dialogue between an oak-tree and a worm. The oak-tree: "The reality is, that you have to have a strong trunk, and branches and twigs with leaves to catch the sunshine, and strong roots to withstand winter storms." The worm: "My dear friend, you're just not with it. The reality is that you have to have a small, elongated, supple body so that you can burrow in the earth to find your food and escape from predators." Humans may be able to engage in a dialogue as to what properly counts as "an apple" (more on humans just below); but the worm and the oak-tree do not have a snowflake's chance in hell of even coming close to any sort of compromise agreement. Throw in the tick to make it a three-way discussion, and there is nothing but pandemonium.

« 3 » So what about humans? One of the particularities of humans is that we find a radical plurality of enactable but incommensurable realities *within a single species*. To kill several birds with one stone, imagine the hopeless "dialogue de sourds" between a scientist and an ordinary, common-sense human being; to make it more precise, between a classical physicist and an illiterate peasant. The peasant: "The reality is, that you first have to get a plot of land – better if you can own it, otherwise rent it from a landlord. Build a house for the wife and the kids. Then you have to prepare the land, plant and harvest the crops; and keep a herd

http://constructivist.info/11/2/265.beaton

of cows (for milk and cheese), some pigs (for the meat), some chickens (for the meat and the eggs). And if you want to get fancy and philosophical, real experience is available through the senses: lights and colours, sounds, things you can touch and get a hold of." The physicist: "Land? Landlords? Crops? Cows and chickens? Lights and sounds and tangible objects? I'm sorry, but those are all mere superficial appearances. Reality, ultimately, consists of matter (atoms and molecules) and energy (mechanical and kinetic energy, heat, electromagnetic radiation); but those are not directly available to the senses, only to the intellectual mind equipped with scientific instruments." With the best will in the world, a consensual agreement here just is not on the cards. I am not trying here to *discredit* science; science, if done properly (but this holds for *all* constructable lived-worlds) does enact a perfectly legitimate reality. But what I *do* want to do is to put science back in its proper place: "scientific reality" is only one among a multitude of incommensurable realities, and it has no ontological privilege.

« 4 » This last point is worth elaborating, because a formidable stronghold of objectivism is "scientism": the view that science does have a privileged access to ultimate ontological reality. This is where radical constructivism can come to the rescue. In their book *Laboratory Life,* Bruno Latour and Steve Woolgar (1979) identify the processes of "splitting" and "inversion" by which a scientific hypothesis takes on the appearance (!) of being a "fact," a faithful representation of ontological "reality-in-itself." *Every* scientific fact starts out its career as a speculative hypothesis in the mind(s) of one or several scientists. At this stage, there is no doubt about its status: the hypothesis is a pure statement, neither more nor less; there is no question of it being a "reflection of reality." Now the overwhelming majority of these hypotheses die out: many die a rapid and painless death, because they are refuted by empirical observations and/or logico-theoretical considerations; and most of the rest die a more lingering death, because the scientists concerned do not take the time and trouble to perform experiments designed to refute/confirm the hypothesis, so it just withers away and is forgotten. However, in a small minority of cases, things work out differently. It does happen, sometimes, that the community of scientists takes sufficient interest in a hypothesis to design and carry out experiments designed to test it. The longer the hypothesis avoids refutation by such experiments, the greater the interest, and the greater the motivation to design and perform even more powerful and exacting experiments. If this goes on for long enough, there are *two* distinct events – "splitting" and "inversion" – which generally follow so quickly on each other that a crucial sleight-of-hand goes un-noticed. First, then, a "splitting": the hypothesis projects a "double copy" of itself into "the real world out there" where it becomes "a real object." If one can catch the process at this stage – when the doubling has happened but the inversion has not yet followed – it is blatantly clear that the "real object" is indeed nothing other than a pure copy of the hypothesis (at most disguised by a simple paraphrase). At this point, it is not possible to say *anything* about the "real object out there" that is not simply a copy of the terms of the hypothesis. Thus, the status of "the real object" (the scare-quotes are deliberate) is that of a *construction* in the collective mind of the scientific community concerned. This "doubling" is followed by an "inversion": everyone starts to talk, rhetorically, as though the "real object" had been there all the time, patiently waiting to be "discovered" by the scientists in question. We arrive at the position that those who have participated in the process call "realist," whereas it would be more precise to call it "objectivist." The "referential impression" is strengthened by the rhetorical device of suppressing all the traces that identify the "real object" as a construction. Of course, this "inversion" process is itself a construction – an ultimate stage in the construction, but a construction nevertheless. If one does not catch the crucial stage when "doubling" has occurred, but has not yet been succeeded by an "inversion," it is virtually impossible to disclose the sleight-of-hand, and the "real object" no longer appears to be a construction. There is, however, a last resort if one takes the longer-term view of the history of science. The key cases are those when *after* the doubling-plus-inversion have occurred, some new evidence is produced that does now refute the hypothesis. In such cases, what happens is actually quite amusing: the "real object" obediently dissolves and quietly goes away, reverting to its primary status as a hypothesis (which has now been refuted). Of course, if the "real object" really had corresponded to "reality-in-itself," correctly discovered by the scientists in question, this could not happen; any self-respecting "real object" that actually did correspond to ontological "reality-in-itself," would not meekly "go away" in this fashion.

« 5 » To be fair, in §60, Beaton himself does openly address the issue of "the privileged (or otherwise) status of the scientific world-view." In this paragraph he frankly admits that his latent physicalism may just be due to a failure of imagination. And even more importantly, he not only recognizes but fully endorses the claim that "doing science is a very abstract, and – in a certain sense – very non-fundamental way of interacting with the world"; in other words, that science is indeed a very specific and peculiar way of enacting a lived-world, and one that lies outside the primary realm of "direct realism." This leads me, in conclusion, to reiterate my main point. I suggest that it may be helpful to recognize more thematically the *radical plurality* of the incommensurable realities that can be enacted by living organisms in coupling with their environment; to include science within this plurality as an item that certainly has its own particularities (but then so does each of the other "realities"); and to state upfront that these particularities do not confer on "science" any ontological privilege. In this way, we may be able to take a significant step away from the pitfall of objectivism.

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