Extending the Ladder of Stances: Comments on Chakravartty's *Scientific Ontology*

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ABSTRACT: I raise questions about Chakravartty's voluntarism about stances: supposing that we recognize a hierarchy of stances, voluntarism might be at once true (in an ultimate sense) but misleading when it comes to the practical tenability of pursuing certain debates in the philosophy of science, such as the debate about scientific realism or how to 'naturalize' metaphysics.

RÉSUMÉ : Je soulève des questions concernant l'approche volontariste défendue par Chakravartty à l'égard des positions : supposant que nous reconnaissons une hiérarchie des positions, la position volontariste peut être à la fois vraie (au sens ultime) et trompeuse en ce qui concerne la viabilité pratique de certains débats dans le domaine de la philosophie des sciences, en particulier le débat sur le réalisme scientifique ou sur la façon de «naturaliser» la métaphysique.

Keywords: Chakravartty, scientific ontology, epistemic voluntarism, classificatory norms, naturalized metaphysics, scientific realism

1. Explaining Intractability

The intractability of the scientific realism debate is legend. It is also rather remarkable, considering the impressive set of resources available for its resolution. How is it that we have not yet reached a firm consensus on this question? Doesn't this failure cry out for explanation? Anjan Chakravartty's *Scientific*

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Ontology provides such an explanation with significant ramifications for a whole host of debates in the metaphysics of science. In short, the idea is that the disputants adopt different *stances* toward the ontology of scientific theories that are ultimately beyond more than minimal rational appraisal. No huge surprise, then, if we remain at loggerheads — ever we shall be, perhaps. Best to move on to other things.

Aspects of this basic diagnosis ring true to me; as does much else in Chakravartty's rich discussion that I won't touch on. Though I've certainly nibbled around the edges of the scientific realism debate — mostly pursuing questions related to classification[1] — I haven't felt a great urgency to prosecute the general issue. I suppose that I've staked out a sort of tepid allegiance to scientific realism mixed (and in some tension) with a certain sort of pragmatism, and have concerned myself with the details of how someone with similar commitments and inclinations could make sense of various aspects of classificatory practice. In some ways, this feels very much like beginning an inquiry from a voluntary stance. Why should it be objectionable to suppose that voluntarism applies more broadly to the whole of the realism debate?

And, yet, something about Chakravartty's voluntarism rubs me the wrong way — to put it vaguely. Without making this more autobiographical than it already is, I wish in this short commentary to articulate if not an objection to his approach, a *nuance* in how I believe that we should understand his voluntarism. Chakravartty may take this as a suggestion for a friendly amendment or as an occasion to point out a pre-existing feature of his account that I missed or identify where specifically we differ.

2. Chakravartty's Project(s)

Chakravartty addresses himself to two major projects in *Scientific Ontology*: the title project, of saying something productive about how we determine the ontology of a given scientific theory and the meta-project (if you like) of saying something about how we should characterize the limits of the former endeavour. The meta-project is, of course, closely related to debates surrounding the move to 'naturalize' metaphysics.[2] Chakravartty's treatment of scientific realism straddles the two projects, in a sense. The question of realism is clearly (in large part) a question of scientific ontology: at first glance, the realist seems to be asserting that our best scientific theories give us sufficient reason for accepting the existence of unobservable entities such as electrons, viruses, and quantum fields (despite their unobservability); the anti-realist is more circumspect, not *denying* the existence of such things, exactly, but at the very least cautioning

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[1] My focus has been on what we should think about the 'products' of scientific classifications, especially in the biological realm; see, e.g., Slater (2005), (2009), (2013a), (2013b), (2018), and (forthcoming).

[2] Viz. Ladyman and Ross (2007).

against their straightforward acceptance. In this sense, the anti-realist stands to the realist as the proponent of naturalized metaphysics stands to the 'unbridled apriorist metaphysician' (to coin a term) and so Chakravartty's analysis of the dispute between the two falls largely under the umbrella of the meta-project. It is thus, in a certain way, parallel to the debate about naturalized metaphysics.

At the risk of introducing one too many 'meta-'s (a theme in this essay), we might consider recognizing a *meta*-meta-project of asking why the meta-project of determining how to define the limits of what we can reliably ascertain about our scientific ontologies has proven so difficult. Why can we not just simply *read off* ontology from scientific theories? Why have detailed case studies in the history of science resisted univocal interpretation? Part of the reason, Chakravartty argues, is that even if the disputants share standards for interpreting a case study or evaluating the relevant arguments — and they may well not — such standards "must be interpreted and applied, and their relative importance weighed when they sometimes pull in different directions."[3] Concerning the standards themselves, they will, Chakravartty urges, often be at root philosophical — indeed, *metaphysical* — even if this fact isn't transparent to their proponents.[4]

This brings out a centrepiece of Chakravartty's analysis: the idea of a metaphysical inference. When a scientific realist infers from various observations and experiments that *there are electrons*, they are, Chakravartty claims, doing metaphysics. Metaphysics, on his accounting, is something that comes in degrees — defined, in part, by a claim or an inference's "empirical vulnerability"[5] — something akin to, though perhaps broader than, falsifiability or testability — and *a priori* content.[6] Likewise even for *empiricists*. Though they often claim otherwise, Chakravartty urges that they can't avoid doing metaphysics either: they "simply employ metaphysical inferences that are of a smaller magnitude than those they oppose."[7]

If this is true, then the difference between hard-core empiricists and realists (even the unbridled apriorist metaphysicians!) can't come down to their employment of metaphysical inferences. Indeed, Chakravartty suggests that these very disparate camps can *agree* on a "norm of naturalized metaphysics": "that the proper subject matters of scientific ontology are metaphysical inferences and propositions that are sufficiently informed by or sensitive to (scientific-) empirical investigation."[8] This helps us locate the dispute between the realist and the empiricist. Both can agree on how to characterize relevant limits to metaphysics (if any); the difference lies in their requirements for this sensitivity. And, as

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[3]   Chakravartty (2017), p. 27.
[4]   Chakravartty (2017), p. 29.
[5]   Chakravartty (2017), p. 85.
[6]   Chakravartty (2017), p. 52.
[7]   Chakravartty (2017), p. 53.
[8]   Chakravartty (2017), p. 85.

Chakravartty argues, this shared norm about line-drawing between acceptable and unacceptable metaphysics "does not by itself entail a shared view of where to draw the line."[9] Differences between acceptable (naturalized) and unacceptable metaphysical inferences, Chakravartty suggests, turn on their epistemic security which, in turn, interfaces with investigators' ontological 'risk tolerance.' Empiricists (like Bas van Fraassen) are reluctant to draw inferences to unobservables, finding them too risky to be palatable. Others may take a stance on which metaphysics floats comparatively much freer from empirical considerations — as, for example, in L.A. Paul's 'metaphysics as modeling' approach on which metaphysical inference operates analogously to scientific inference (functioning in an 'explanationist' vein).[10] Is the existence of possible worlds or abstract universals as epistemically secure as the existence of the moon? Maybe not, but is it secure enough? This is a matter on which we may reasonably disagree.

Thus, picking up on van Fraassen's[11] suggestion of characterizing empiricism as a 'stance,' Chakravartty suggests that collections of proclivities — some more or less austere, others more or less risk-prone — define different epistemic attitudes that one can take, for example, to the question of whether we should take our theories' ontological posits "at face value," as Stathis Psillos puts it.[12] This is the sense in which, as Chakravartty writes, "scientific ontology is deeply interwoven with issues in epistemology."[13] Seen this way, the dividing line between secure, close-to-the-ground 'small-m' metaphysical inferences and 'big-M' metaphysical inferences cannot be objectively drawn. What ontology we accept becomes a matter of assuming a *stance* about the epistemic acceptability of the metaphysical inferences yielding the commitments in question. A certain sort of ontological pluralism thus arises from Chakravartty's epistemology of stances as being voluntarily adopted and informed by values.

This framing provides a tidy — and unifying — explanation for the longevity and seeming intractability of both the debates over scientific realism and how (and whether) to naturalize metaphysics. And, while I'm sympathetic to Chakravartty's position on the difficulties of naturalizing metaphysics,[14] I'm less convinced that his framing of the realism debate as a standoff between stances offers the *best* explanation of this debate's intractability or counsel for its abandonment (though I'm also not certain that this is what Chakravartty is suggesting, at the end of the day). I have in mind the following sort of reaction: *Look: I just don't find the realism debate very intractable. Something in the*

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9   Chakravartty (2017), p. 66.
10   Paul (2012). For an incisive discussion of Paul's approach, see Saatsi (2017).
11   van Fraassen (2002).
12   Psillos (2005), p. 385.
13   Chakravartty (2017), p. 45.
14   See Slater (2017a).

ballpark of scientific realism is pretty clearly the most reasonable take. The '*debate' persists (though, perhaps, in somewhat muted form) because some of the disputants are being unreasonable. It is* unreasonable *not to believe in atoms or electrons or carbon nanotubes or DNA, despite the fact that these items are unobservable (in a straightforward sense, anyway).* Is this an argument that they could legitimately press on Chakravartty's framework — assuming, of course, details were appropriately filled in?

3. Stances and Values

On Chakravartty's account, stances are not mere sets of propositions. They are not themselves believed, "but rather adopted by people, held by them, and expressed in their actions. … their adoption can eventuate in belief."[15] Because stances are non-propositional in this sense, they are neither true nor false: we should think of them instead as incorporating *guidelines* (or instructions or policies) "for how to behave, epistemically."[16] While one of the core functions of epistemic stances is setting risk tolerances — something that separates the empiricist and metaphysical stances — Chakravartty notes a number of other dimensions to these "epistemic policies," including aspects that may seem more like aesthetic considerations or expressions of taste, such as:

> attitudes and orientations toward ontological theorizing that are not themselves well described as inherently truth-apt …: feelings of doubt, unease, or reservation; affinities for austerity or expansiveness corresponding to desires for fewer explanations or more; caring deeply about the pragmatic dimensions of science, or knowledge of the observable predictions of science, or the potential of science to reveal or shed light on otherwise hidden features — unobservable aspects — of the world; the sensation of proffered explanations seeming alien or occult, or helpful and illuminating; the intuitive sense that one is skating on unbearably thin ice, or that the ice is thick enough to support ontological assertions after all.[17]

These aspects of a stance are all, it would seem, dependent on *values* of various stripes. And what one values is not something that is generally subject to robust rational evaluation. Thus, to the extent that our beliefs about scientific ontology are substantially informed by effectively freely chosen stances and values, there is a sense in which our beliefs are also voluntary and invulnerable to any but the most minimal rational criticism (viz. inconsistency, self-sabotage, and so on).

I find Chakravartty's voluntarist picture appealing in various ways. My longstanding advocacy of classificatory pluralism predisposes me to his ontological pluralism. In recent and ongoing work, I've argued that what we may call

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[15]   Chakravartty (2017), p. 47.
[16]   Chakravartty (2017), p. 207.
[17]   Chakravartty (2017), pp. 214–215.

'pragmatic classificatory norms' play important but under-appreciated roles in the way scientists classify[18] — for example, whether Pluto's orbital crowding (or other properties) ought to incline us to reclassify it as a non-planet or whether to insist on monophyly for legitimate biological taxa, 'debunking' purported taxa like *Reptilia* as legitimate classificatory units. Like Chakravartty, I believe that noticing such normative features of science may go a long way to helping disputants see more clearly what's at stake in debates about scientific classification and either abandoning or recasting them.

However, it appears that I'm inclined to go further than Chakravartty in some ways and (as a result, perhaps) not as far in others. Whereas Chakravartty describes a relatively 'flat' ontology of stances, I view pragmatic classificatory norms as forming a sort of hierarchy. This is consequential when it comes to the possibility of evaluating a given set of normative commitments. For example, in the debate about Pluto's planetary status, much was made of the fact that Pluto's orbit was 'crowded' by many objects with similar intrinsic properties; discovering that Pluto appeared to have more in common with these denizens of the Kuiper Belt inclined some astronomers to articulate a norm of astronomical classification: each planet should have its own 'lane' (as it were). Alan Stern (Principal Investigator of the New Horizons mission to the Pluto–Charon system and beyond) criticized this criterion as violating what he evidently regarded as a more general norm of scientific classification: "We do not classify objects in astronomy by what they are near [i.e., by their extrinsic properties], we classify them by their [intrinsic] properties."[19] Support for Stern's claim could be adduced from actual classificatory practice — for example, classifying starless planet-sized objects like PSO J318.5-22 as ('interstellar' or 'rogue') planets.[20]

Of course, such arguments could be resisted: Stern's norm of intrinsic-only classification clearly does not apply in the biological sciences where extrinsic classification is *de rigueur*. Much of the debate within biological systematics involves *how*, precisely, to incorporate history into our taxonomies.[21] Could a similarly restrictive range of application go as well for non- interstellar planets? Whether this smacks of being excessively ad hoc looks like it might be a matter of taste. But, then again, such a stance could also have pragmatic consequences. How one responds to *these* consequences will itself presumably be a matter of further normative evaluation.

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18   Slater (2017b), Baker and Slater (manuscript).

19   Quoted in *Nature* 31 August 2006, p. 965; as discussed in Slater (2017b), pp. 6–7, I interpret Stern as characterizing a norm despite the claim being cast as a descriptive claim (this is a common phenomenon: the child badly misunderstands her parent's proclamation that 'in this house, we do not use such language!' if she were to respond 'didn't I just falsify that generalization?').

20   Liu and Magnier, *et al.* (2013).

21   Wheeler and Meier (2000), Coyne and Orr (2004).

In the end, disputants may indeed find themselves at loggerheads — fundamentally disagreeing on values and norms that animate their evaluation of lower-level stances — without any obvious means of resolution. But notice that the mere fact that one's stance involves values in a significant way does not obviously entail that it is fully voluntary and beyond critique. This is, I think, why 'voluntarism' strikes me as potentially misleading: it apparently forestalls attempts at resolution by appeal to what we might call 'meta-norms' or higher-level values. If such norms and values are, in fact, *shared*, progress can be made. When it comes to the realism debate, I see at least some arguments against the anti-realist position[22] as involving appeals to consistency with (presumptively) shared norms. Of course, in real life situations, matters are not necessarily so simple. Motivated reasoning is always a threat[23] — even among philosophers! Such inconsistencies can be resolved in a number of distinct directions, with lower-level stances driving modifications or exceptions to higher-level stances. I suspect that this will seem the more proximate and psychologically plausible explanation of the realism debate's intractability to many.

In any case, this raises a question: should Chakravartty go further in his characterization of epistemic stances? Might we not recognize a hierarchy of stances that do more than encapsulate how we approach matters of epistemic risk, that inform how we arrange these (and related) epistemic policies? One might think that he is already bound to at least include something like these 'meta-stances' — e.g., expressing the minimalist approach to rationality that he advocates for stances. Why not enrich the possible grounds for evaluation of stances with further stances (themselves presumably voluntary)? Doing so, I argue, places at the very least rhetorical pressure against the 'voluntarist' label at the lower level.

I want to raise a related and more tentative concern for Chakravartty's stance on stances that legislates for recognizing a hierarchy of normative commitments ascending (as it were) from his 'ground-level' account of stances. In his characterization of epistemic stances, there appears to also be room 'below' for more specific epistemic policies. Even assuming that we restrict ourselves to matters of epistemic risk, we can easily imagine (indeed, identify) reasoners with what I think most of us would regard as odd epistemic risk profiles: climate change deniers or flat-earthers, say. Suppose they advocate highly variegated epistemic risk policies — e.g., about the relative epistemic value of 'seeing something for oneself' or how much trust to place in testimony on certain matters. Though there's an obvious sense (I think) in which their epistemic policies and proclivities are pathological, it's not obvious that they will end up with inconsistent commitments or as Dutch Book victims.

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[22]   E.g., the one found in Kitcher (2001).
[23]   Kunda (1990).

Indeed, we might even imagine that, whereas they have an extremely high bar for risk associated with the bulk geometry of the earth (let's set aside the 'cool-earthers' for now), they have a low bar for epistemic risk associated with metaphysical inferences. They might justify this distinction on the grounds that, while the geometry of the earth has practical consequences for their lives (particularly for plane and ship travel!), whether they accept nomic necessitation relations or bare particulars is pragmatically inert. They may thus accept with abandon even the shakiest posits of our unbridled apriorist metaphysician while at the same time adopting epistemic policies radically more conservative than the stodgiest empiricist!

If any of this is on the right track, it seems to me that the obvious response is to invoke a higher-order epistemic stance that evaluates such risk profiles (as I suggested earlier). If it's norms (or stances) 'all the way up,' then there may well be no *ultimate* evaluation of stances — we *could* end up disagreeing forever. But, if it turns out instead that there is a set of sufficiently shared norms and values that permit the evaluation of a lower-level set, then stances may not be quite as voluntaristic as Chakravartty seems to suggest.

This coheres with my final point of concern — more like hesitation — about the descriptive accuracy of stance voluntarism. Consider this passage:

> How does one go about choosing a stance? Here, however, it is unclear that there is much of anything one can say. The stances of agents reflect the things they value, epistemically, including certain kinds of information and explanation, certain kinds of evidence and argument, and intuitive judgments about what kinds of information, explanation, evidence, and argument support inferences to ontological claims and to what degrees, all of which then translates into certain epistemic policies. But this seems merely to push the question back one step: how exactly does one come to have the values one has? And here it is difficult to say more, because it is hard to imagine that there is anything like a decision procedure or an algorithm that could be made somehow explicit to demonstrate how a given agent ends up with his or her values. When someone shows an affinity for a particular stance by carrying out the epistemic policies associated with it, this tells us something about what she values in connection with ontological investigation, but nothing about why or how this person came to have these values in the first place.[24]

Chakravartty goes on to note that we can speculate about relevant factors: "one's background in the form of ambient cultures and training, including the influence of teachers, mentors, and peers," but he claims that a "sociological account of how stances are adopted seems ultimately unpromising … since it is all too evident that these kinds of influences underdetermine the stances that people adopt."[25]

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[24]   Chakravartty (2017), p. 220.
[25]   Chakravartty (2017), p. 221.

Perhaps they do, but if we follow my suggestion that we think of stances more broadly (perhaps as continuous with norms of various sorts), then, plausibly, many of our scientific norms (let me speak about the general phenomenon) are to a great extent inherited or absorbed by the ongoing investigative cultures in which we are embedded, justified (in a sense) by their apparent fruitfulness. Even if we cannot say much with precision about how stances are adopted, this doesn't imply that they are invulnerable to revision or that we must consider disputes related to stances as in principle intractable. Inconsistencies with higher-level commitments can be uncovered, especially when those policies are merely implicit; classificatory norms and epistemic policies that do not serve us well can be chucked; stances that fail to bear significant fruit can be questioned. Seen in this way, they may indeed be subject to argument and criticism. I think that something like this may be true even if we construe stances more narrowly, as policies about epistemic risk on a rough par with the metaphysical, empiricist, and deflationary stances. All of this, of course, presupposes an ill-defined meta-stance about how lower-level stances may be evaluated, but this too is something that can be pursued another rung up the ladder.

On this model, the intractability of longstanding debates may be more like a simplifying legend that covers up for more mundane explanations of our failure to resolve them: that we simply got tired of climbing or came to doubt that our interlocutors were on the same ladder with us.

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