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Science-based Metaphysics: On Some Recent Anti-metaphysical Claims

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Résumé : Cet article se concentre sur le débat concernant la question de savoir si et, le cas échéant, de quelle manière la métaphysique doit être acceptée à côté de la science. On examine certaines objections récentes lancées, entre autres, par Bas Van Fraassen, contre la métaphysique entendu comme une entreprise autonome et intelligible digne d’être menée à bien. Des réponses à ces objections sont formulées. On présente ensuite de manière plus détaillée une métaphysique basée sur la science : on définit celle-ci essentiellement comme une étude *a priori* d’un espace de possibilités, ce qui requiert que la métaphysique soit pour ainsi dire « étoffée » sur la base de la science, mais qui la rend en même temps nécessaire pour l’interprétation, et donc la compréhension correcte, de la science elle-même. Le cadre résultant met en question l’idée que le naturalisme implique nécessairement l’élimination de la métaphysique ou sa réduction ontologique/méthodologique à la science.

Abstract: This paper focuses on the debate concerning whether and, if at all, in what way metaphysics should be accepted alongside science. It examines some recent objections levelled, among others, by Bas Van Fraassen against metaphysics as an intelligible and autonomous enterprise worth pursuing. Replies to these objections are formulated. Science-based metaphysics is then defined in some detail, essentially as an *a priori* study of a possibility space that requires metaphysics to be “fleshed out”, as it were, on the basis of science, but at the same time renders it necessary for the interpretation, and thus proper understanding, of science itself. Crucially, the resulting framework questions the idea that naturalism necessarily entails the elimination of metaphysics or its ontological/methodological reduction to science.

1 Introduction

That there is no sharp divide between science and scientific method on the one hand and philosophy and a priori reasoning on the other is quite often reported as an established fact. Interestingly enough, however, the opposition between supporters and detractors of metaphysics survives today more or less in the form imposed by neopositivists, i.e., as a divergence with respect to the alleged fact that metaphysics lacks the “connection” with reality that science, instead, undisputedly possesses. True, many claims for and against metaphysics have been recently made from a renovated empiricist perspective, now free from the constraints set by unworkable criteria of meaningfulness based on direct access and verifiability, and which aims instead (quite sensibly) to make philosophy aware of the results of science. Nonetheless, a shared basis of explicit assumptions and definitions remains absent. It is therefore not surprising that the contenders have been so far unable to truly solve the problematic tension, even in the restricted domain that seems to qualify as “naturalistic” philosophy (more on which in a moment). Something that deserves to be mentioned in this connection, in particular, is that metaphysics seems to have been defined only implicitly, via a loose and vague reference to traditional schools and historical figures in philosophy; and the same holds for the very concept of naturalistic, science-based philosophical methodology.

In view of the foregoing, it seems obvious that both enemies and friends of metaphysics should, first of all, seek to better define their views and present sharper arguments in favour of them. In this paper, a small attempt in this sense will be made from a metaphysics-friendly, yet naturalistically-inclined, viewpoint. More specifically, without entering into the larger, and more impervious, domain constituted by issues of demarcation and naturalistic methodology in general, the present essay will look at some specific objections that have been recently formulated against metaphysics from the empiricist perspective—Bas Van Fraassen being the primary target. In doing so, some widespread presuppositions will be identified which are, as a matter of fact, more problematic than critics of traditional analytic metaphysics seem to believe. At the same time, the need to re-think metaphysics itself, and make it more continuous with science, will be acknowledged and elaborated upon. Indeed, the discussion of certain anti-metaphysical positions and claims will represent the starting point for a (necessarily partial and provisional) definition of what one might call “constructive” or “liberal” naturalism—the latter being the form of naturalism whereby the continuity between science and philosophy is forcefully upheld and implemented, without ipso facto endorsing any form of eliminativism or strong reductionism with respect to metaphysics itself.

2 Naturalism

Very generally put, a naturalistic approach to philosophy and its sub-disciplines consists in seeking continuity between philosophy and science. In practice, there are various ways to understand this and translate it into something more specific.

On some construals, for instance, the idea that all knowledge comes from the empirical domain and its treatment via the scientific method leads directly to eliminativism with respect to metaphysics. The idea is simple: if empirical observation and direct testing are necessary for genuine knowledge, only entities, processes and mechanisms posited by science should be taken seriously; therefore, philosophical analysis cannot add anything to science. So understood, then, naturalism leads more or less straightforwardly to a radical form of methodological and ontological reductionism—so radical that it eliminates non-science in favour of science. Other approaches are not eliminativist, but nevertheless recommend a form of reductionism given which metaphysics turns out to be little more than the mechanical extractions of (allegedly) metaphysical claims from scientific theories. Here, the thought seems to be that there is in fact more to scientific theories than their “immediate ontology” (i.e., the theoretical entities that play a direct role in the explanations that the theories provide based on empirical inquiry), but whatever one adds to that is in any case to be “read off” from, and motivated on the basis of, science itself. In this case, if preserved at all, the autonomy of ontological categories and philosophical methodology is, obviously enough, severely limited.

Prima facie, no other options are available. Indeed, on the basis of this, some came to believe that naturalism is ultimately a non-starter when it comes to philosophy: for, either it consists in the acceptance of the priority of science at the level of ontology and methodology—but then one is led to the sort of “scientism” just discussed, which entails either reductionism or eliminativism and, consequently, that philosophy plays no real role any longer; or, alternatively, it is maintained that one’s ontology and methodology need not be reduced to those of science, but then one is not a full-blown naturalist, as the sought continuity with science appears to vanish. Of course, this latter option would be acceptable for supporters of traditional analytic metaphysics. It is equally clear, though, that it would at the same time undermine the project of a science-oriented metaphysics. But the very general thought behind naturalism, that is, that philosophy cannot be completely separated from and independent of empirical science, seems hard to object to. Hence, one seems to be at an impasse, unable to skirt the above dilemma between too-radical-naturalism and non-naturalism.

It is, however, possible to endorse and defend a third-way, a form of “constructive” or “liberal” naturalism that—while rejecting the possibility of acquiring knowledge about the material world via exclusively *a priori* methods and ruling out everything that may count as “supernatural”—avoids the ab-

sorption of philosophy (and metaphysics in particular) by science. Or so it will be suggested here. This will be done based on the idea that, essentially, the constructive naturalist “just” has to separate the request for continuity from the idea that there should be only one methodology and one ontology. What remains of naturalism under such a construal is the idea that all knowledge of reality does indeed come from experience and certainly has to be evaluated against the tribunal of experience. Room is left, however, for an elaboration and construction of such knowledge that goes beyond what can be gathered “mechanically” from scientific theories, and that conceives it as not entirely of an a posteriori nature. Of course, the articulation of such a form of naturalism requires a lot of work, and the discussion of a number of issues that cannot be dealt with in the space of a short paper. What is certainly crucial for the defender of metaphysics, though, is the need to provide compelling answers to certain overtly anti-metaphysical claims and objections that have been formulated in the more or less recent literature, and that seem to convey at least some of the basic ideas underlying radical naturalism. By so doing, it is hoped, any further work in favour of a more sophisticated naturalism will be made easier. This is, then, the limited task of the rest of the present essay (for a more extensive treatment, I allow myself to forward the reader to my [Morganti 2013]).

3 Objections

Here are a few objections recently moved against metaphysics.

Remoteness. Van Fraassen argues that their remoteness from empirical considerations makes metaphysical questions not meaningless but certainly useless [Van Fraassen 2002]. He notes that science is constantly and harshly tested, and often falsified, but this doesn't affect, but rather grounds, its practical relevance; while metaphysics seeks the truth, but is never in a position to establish whether what it says is actually true or false, and therefore turns out to be a merely formal exercise.

Vacuity. Additionally, Van Fraassen claims that metaphysical questions are irredeemably context-dependent and such that they lack well-defined “answering strategies”. He uses the example of the question “Does the world exist?”; others (see, for instance, Putnam's discussion of the mereology-related question “How many objects are there in a universe with only three particles?” [Putnam 2004]) offer similar examples.

Obscurity. A connected objection made by Van Fraassen is that metaphysics accounts for “what we initially understand [in terms of ...] something hardly anyone understands” [Van Fraassen 2002, 3], and consequently turns out to be a superfluous addition to the indications coming from empirical science.

Modality. Ladyman & Ross support their own form of radically reductive naturalism by claiming, among other things, that philosophers have often been wrong in deeming something possible or impossible, and it is thus best to learn directly from scientists [Ladyman & Ross 2007]. Relatedly, Callender also laments the lack of a clear definition of the *sui generis* conceptual space that metaphysics is supposedly concerned with [Callender 2011], supporting instead the view that it is ultimately physical modality that determines what we regard as metaphysically possible, necessary or impossible (this directly relates to claims such as Leeds' [Leeds 2007], who argues that physically possible worlds are all the possible worlds that there are).

These four expressions of scepticism with respect to metaphysics clearly converge towards a deflationary form of naturalism, whereby a priori metaphysical inquiry loses relevance. The resulting perspective meshes perfectly with Van Fraassen's constructive empiricist attitude. Since s/he doesn't attach any truth value to any claim about what is not observable (or, at any rate, accessible by empirical means in a sufficiently direct way—the notion of observability and the observable/unobservable dichotomy are notoriously problematic) already in the case of undisputedly scientific claims and hypotheses, the constructive empiricist will *a fortiori* take all claims about, say, universals or object-stages as not even worth thinking about. Notice, however, that realists (Ladyman, Ross, and Callender seem to qualify, and see themselves, as such; perhaps Putnam too, even though in his case the story is more complicated) can go in a similar direction. For, they can take questions about unobservable entities and their existence seriously, but be at the same time committed to the existence of some unobservables only. More specifically, they can draw a principled distinction between scientific unobservable posits and metaphysical unobservable posits, and systematically demote the latter to the role of mere by-products of intellectual games that have no connection whatsoever with reality.

What can defenders of analytic metaphysics say about this? What can they do in order to resist the above charges? How is a more liberal and comprehensive form of naturalism to be defended? Here are some suggestions.

Remoteness appears far from conclusive. In particular, since it informs the interpretation of science, metaphysics is in a sense at least *indirectly testable*, i.e., it is not entirely immune to, and indifferent towards, the empirical input. Consider, for instance, the issue concerning the (non-)individuality of quantum particles, crucial in the context of the interpretation of quantum theories, non-relativistic quantum mechanics in particular. To be sure, quantum theory tells us things that are fundamental for establishing (or at any rate making conjectures about) what reality is like, and thus what sorts of entities there really are “out there” and what sort of identity conditions they exhibit. But this empirical/theoretical input does *not* give us any well-defined, conclusive indication with respect to the issue at hand. Any analysis aiming to tell us what the entities quantum mechanics is about really are, and whether these qualify as individuals more or less in the same way as their classical

counterparts do or instead call for radical conceptual revision, will have to rely more or less implicitly on *extra-scientific* assumptions—“extra-scientific” meaning here that these assumptions can only be spelled out in philosophical terms, not in the vocabulary of physical theory. And it is here that what we called “indirect testability” kicks in. Think, for instance, of properties and the infamous “problem of universals” in metaphysics. Realists about universals who do not also postulate substrata/bare particulars are (more or less—we will avoid discussing the details here) compelled to endorse Leibniz’s principle of the Identity of Indiscernibles. But the latter is exactly what seems to be put into doubt by quantum mechanics: the physical world appears to be such that there are numerically distinct physical systems with all the same properties. In reaction to this, one might then try to modify the Leibnizian approach to individuality, or have recourse to different ontological frameworks (say, with tropes rather than universals, or bare particulars, or primitive identities). It is, thus, metaphysical categories that inform our interpretation of the theory. In this connection, two crucial points must be made explicit: first, as the above case of the advent of quantum physics and of realism about universals shows, metaphysical conjectures and theories can *turn* into empirically relevant theses—at least in the sense that they *become* indirectly testable, i.e., relevant for the interpretation of science, at specific junctures in the history of science (and philosophy); secondly, even in this setting it is not (normally) the case that science provides univocal indications as to what metaphysical system provides the right interpretation, and thus “philosophers should just listen to scientists”. Rather, the comparison of the various possible interpretations is itself a non-mechanical, purely philosophical process—one which involves a consideration of pragmatic virtues, the definition of criteria for theory-choice, the comparison of different hypotheses and explanations and so on.

If the above is correct, Chakravartty makes a compelling point when he claims that—while a scientific antirealist *may* coherently refrain from doing metaphysics—scientific realists, or at any rate those who have a serious interest in the interpretation of scientific theories, should not do the same [Chakravartty 2007]. Indeed, strictly speaking, the remoteness objection cannot be neutralised: whether or not one takes metaphysics as an enterprise worth pursuing is just a matter of choosing one’s “stance”. Still, in a realist context (that is, in a context that naturalists certainly cannot rule out and probably regard as default) metaphysics does seem to have an important role to play. And the same goes for the (probably rare in practice, but logically possible) positions that consider the interpretation of our best science relevant and/or philosophically interesting but do not subscribe to scientific realism.

Having said this, can aptly naturalised metaphysics be characterised more precisely? Yes: this requires dealing with the other objections listed above. First of all, *Vacuity* can be answered by pointing out that the detractors of metaphysics usually portray metaphysics as a sort of Quinean search for what exists in a way that need not be regarded as compelling. For instance, Lowe convincingly distinguishes between “bad” (Quinean) metaphysics and

good metaphysics [Lowe 2011], and Schaffer compellingly argues that defending metaphysics on the basis of the Quinean view is a non-starter [Schaffer 2009]. The idea is, roughly, that if one is to compile an inventory of what exists it is indeed best to listen to expert scientists. Yet, at least if one doesn't regard this listing task as primary for metaphysicians, there might be more to say. As for possible alternatives, these authors suggest that metaphysics is essentially a study of possibilities and of dependence relations, respectively. That is, that rather than (or, before) trying to put together a list of the things, or sorts of things, that exist, metaphysicians should aim to individuate possible ways things might be; first and foremost, possible ways in which things might be structured together on the basis of fundamental priority and dependence relations. This is tantamount to saying that existential questions of the Quinean type play only a secondary role. And that answers to them can (and perhaps should) be sought by looking at science, but only provided that the latter is "philosophically filtered", hence interpreted, on the basis of general categories of things that are

- a) more encompassing than those of science;
- b) essentially provided with the features that account for the priority or dependence of certain facts with respect to others.

Consider, for instance, the above example of identity in quantum mechanics: do identity facts depend on qualitative facts, as Leibnizian would have it? Or can the former be autonomous and perhaps more fundamental? It is these, clearly philosophical, questions that turn out to be fundamental for answering questions of interpretation of the relevant physics. And similar questions can be asked with respect to issues concerning composition, persistence, space-time and matter, dispositions and a lot more: most, if not all, of which—it would seem—can be made directly pertinent to the interpretation of actual scientific theories.

Going back to the main argument, then, it looks as though, once it is understood in the post-Quinean fashion just sketched, metaphysics can be made immune to the vacuity objection. And that this is so essentially because of what we contended earlier, namely, that by grounding interpretations of scientific theories, metaphysics finds at least an indirect connection with the "empirical input" that is rightly considered fundamental by empiricists/naturalists.

Moving on, as for *Obscurity*, it could be replied to Van Fraassen that scientific theories are not "initially understood", for they cannot be understood unless interpreted and interpretation, as we argued, requires tools coming from outside of science. Before those tools are applied, at most one has the sort of instrumental ability and knowledge that can only be deemed satisfactory—besides scientists themselves—by thorough antirealists. Of course science doesn't need philosophy when it comes to building faster rockets or better particle accelerators. But does this really count as understanding? In addition to this, it seems fair to also say that the concepts and categories typical

of metaphysics are not (necessarily) obscure, but rather the opposite: for, in general, they follow from a conceptual analysis with respect to questions about reality which is closer to common sense than its scientific counterpart. For instance, is the notion of a universal, say, any more obscure than that of a Higgs boson? The answer is by no means obviously affirmative unless one equates clarity with measurability or something like that. But, again, this is not what one normally intends by “understandability” and “clarity”—not even, notice, in any sensible antirealist context.

Getting back to metaphysics as a study of possibilities, and moving on to the *Modality* objection, Ladyman & Ross’ criticism is not convincing either, as it rests on an ambiguity: true, philosophers have been often wrong in claiming that x is (not/necessarily) the case; but only the weaker claim is relevant here that metaphysics identifies the range of conceptual possibilities that will have to be evaluated on the basis of our best knowledge of reality, and tells us whether or not x is among these. Only in limiting cases can metaphysicians claim that reality must, or cannot be, conceived of in such and such a way, but this is only to be expected. For, conclusive claims about the way things are can only be reached by a priori means in those realms in which the empirical input is not relevant (e.g., logic, or geometry), or in the rare (if at all conceivable) cases in which all hypotheses except one are internally inconsistent. Thus, even if actual philosophers may have thought and done otherwise, this is the way metaphysics can and should be understood by liberal naturalists: namely as an enterprise dealing with possibilities that—so to put it—are not in competition with those identified with the sciences but, rather, are more general than these and, therefore, play an essential preliminary role with respect to them. In connection to this, two interrelated remarks are worth making:

- (i) Scientific theories too, fallible though they might be, are presented—at least at the popularisation level—as true; scientists too have in this sense been wrong in the past;
- (ii) If fallibility is a positive aspect of science, why not say the same about metaphysics, and instead condemn the latter exclusively on the basis of examples of specific actual philosophers with incorrect opinions?

This directly connects to another important point. If metaphysics is not acknowledged as an a priori study of possibilities, this has unwelcome consequences for all forms of strong naturalism that are not coupled with scientific antirealism and eliminativism with respect to metaphysics. For, where do the specific non-scientific claims that those naturalists put forward get support from? For instance, Ladyman & Ross’ own positive metaphysical view (a form of so-called “ontic structural realism”, according to which reality is fundamentally a complex structure of “real relations” with modal weight, and science gradually uncovers such structure) is presented as a direct consequence of our best current science. However, it is undeniable that ontic structural realism is in fact a distinctively philosophical thesis, which is arrived at, and

can be argued for and against, via a critical comparison of metaphysical alternatives. But if this is so, then it seems that the work of those “Scholastic” metaphysicians that Ladyman & Ross are eager to get rid of is in fact useful, if not necessary, for scientifically-minded philosophers after all (at least, to repeat, if they want to steer clear of antirealism and instrumentalism, and provide a metaphysical interpretation of scientific theories). For, instead of being inevitably “disconnected from reality”, at least some of the metaphysical constructions that are openly dismissed as uninteresting by detractors of metaphysics (may) turn out to prove able to inform our interpretation of scientific theories, thus being at least indirectly tested against the empirical input in the sense defined earlier. (Quick example: Ladyman & Ross ridicule philosophers talking about “gunk” and infinite layers of ontological dependence, but then claim that it could be the case that “it is relations all the way down”!)

The worry remains that, even if an independent set of questions, concepts and methods might be acknowledged that qualifies as metaphysics, physical/nomological modality might be all that counts. However, far from establishing that metaphysics should be eliminated or absorbed by science, this only shows that there might, at root, only be one kind of possibility/necessity in reality. And this sort of monism (or at any rate reduction of metaphysical modality) is by no means sufficient for dispensing with metaphysics altogether. For, it might well be the case that all sorts of possibilities and necessities that play a role in the actual workings of the universe are of the sort inquired into and accessed by empirical science. But this does not mean that it makes no sense and is, in particular, irrelevant for the interpretation of scientific theories whether, say, properties are universals or tropes, whether identity facts supervene on qualitative facts, whether Humean Supervenience is true, what ontological status time has, and so on. In other words, whether or not one defends the autonomy and irreducibility of metaphysical *modality*, one can in any case defend the autonomy and irreducibility of metaphysical *discourse* (provided, of course, that the latter meets certain methodological requirements). (In connection to this, it must also be mentioned that the reduction of metaphysical modality is less straightforward than one may think: Fine, for instance, provides sophisticated arguments against the reduction of the metaphysical and normative modalities to natural modality [Fine 2002].)

4 Methodology

We have contended that appropriately naturalised metaphysics must aim to identify possibilities that are—at least potentially—relevant for the interpretation of actual scientific theories, and that are not (merely) compared on the basis of a priori considerations. And we have also suggested that a good way of doing this is by working with general categories and trying to find the mutual relationships of priority and dependence that hold between these. What else

can be said in this sense? What principles (if any) can and should guide us in evaluating and selecting metaphysical hypotheses in the light of the indications coming from science, so also providing the most plausible interpretative background for scientific theories themselves?

As is well known, criteria for theory-choice in science have long been identified and widely discussed in the past, and it is agreed that they are essentially the following, well-known at least since the work of Kuhn: empirical adequacy, logical consistency, breadth of applicability, simplicity and fruitfulness. In the case of metaphysical theory-choice, *prima facie* it seems that these criteria can be preserved, albeit with some obvious modifications connected to the fact that one doesn't have direct testability or unification of independent empirical hypotheses and models but, rather, what we called indirect testability and unification of (at least partly) non-empirical hypotheses and models, respectively. However, there is more to say.

First of all, it might be thought that one of the things that are obtained by switching to a naturalistic metaphysics is the possibility to conclusively discard certain metaphysical options, and perhaps regard certain others as certainly correct, based on the empirical data, no matter how close to entrenched beliefs these might be—some think, for instance, that this is the case with presentism based on relativity theory. This would mean that empirical adequacy trumps (or may override) all other factors in a decisive way. However, this is not so—in fact, we have already indirectly questioned this when discussing the example of quantum individuality. Indeed, there is (almost) never a direct relation of logical entailment between a scientific theory and (the negation of) a metaphysical hypothesis. Indeed, this is why we have claimed that metaphysics cannot just be read off from our best science. But if the criterion of compatibility with the empirical data cannot be intended as something with a mechanical application, and, possibly, conclusive “yes” or “no” answers then it must be applied in parallel with the other criteria mentioned above.

Without discussing all the criteria one by one, let us say something about one of them in particular. In the above context of theory-comparison and theory-choice at the point of intersection between science and metaphysics, it seems interesting to explore the prospects for a non-naïve criterion of conservation of entrenched beliefs. To be sure, one should not aim for a defence at all costs of commonsense intuition, especially not for the defence based on pseudo-science that Ladyman & Ross believe to be a distinctive mark of most contemporary metaphysics. Rather—without this being tantamount to being conceptually conservative come what may, let alone always trusting less revisionary hypotheses—one might try to construct one's metaphysics, and put metaphysics and physics together, in such a way that the least possible amount of revision is implemented. Indeed, something like the following reasoning seems to hold generally. Since the acceptance of any new hypothesis required for explanation implies acceptance of its consequences, our need for explanation entails acceptance of conflict between old and new beliefs. Therefore, some revision in our web of beliefs is always required. But our aim must be

(obviously enough) to eventually obtain a new web of beliefs which is internally consistent and includes the new explanatory hypothesis. And changing as little as possible while obtaining this latter result is not only advisable but almost necessary given the amount of conceptual work needed as well as the fact that new explanations are continuously sought and, consequently, new adjustments and conceptual revisions always required. Hence, we should (and in fact do) aim to minimise conceptual revision based on the available evidence. This way of thinking was openly endorsed, for instance, by the pragmatist William James. According to James,

The most violent revolutions in an individual's beliefs leave most of his old order standing. [...] We hold a theory true just in proportion to its success in solving this "problem of maxima and minima" [...]. Their influence [that of the older truths] is absolutely controlling. Loyalty to them is the first principle—in most cases it is the only principle. [And ...] new opinion counts as "true" just in proportion as it gratifies the individual's desire to assimilate the novel in his experience to his beliefs in stock. [James 1907, lecture II]

Similar ideas about "minimising conceptual revision" have been developed and defended by Quine and Ullian [Quine & Ullian 1978] (a clear elaboration, of course, of Quine's criterion of "minimal mutilation" of established beliefs).

Whatever one thinks of this, let us look at criteria of theory-choice more generally before closing. Evidently, a careful evaluation of all the relevant factors is crucial, and it is not obvious that procedures for precisely quantifying the parameters to be taken into account in order to then compare the various alternatives are available. But why should criteria of theory-choice only be applicable to the extent that their respective weights can be precisely quantified? After all, what we are looking for are some indications for how to carry out the critical evaluation of alternative options. That these criteria should lead to uncontroversial, objective and shared conclusions seems to be an additional request, and failure in this respect doesn't entail the collapse of the entire project. Indeed, a similar lack of an objective "measure" certainly doesn't entail—at least not in any obvious and agreed upon way—that talk of pragmatic criteria and theoretical virtues should be given up in the case of scientific theory-choice.

An objection might be that one cannot in fact have recourse to theoretical virtues and pragmatic criteria for assessing metaphysical conjectures because metaphysical theories are underdetermined with respect to all possible observations ("strong underdetermination") and not just all observations ("weak underdetermination") carried out until now, and thus there is no ground for believing that pursuing theoretical virtues such as simplicity and the likes leads to epistemic improvement in metaphysics. But this would mean to ignore the response suggested above to the remoteness objection. There, we have put a

fundamental emphasis on the idea that those theoretical levels which are more abstract and farther away from the evidence and the available/possible empirical data must be supported by being systematically put into relation with other levels, typically scientific ones, which are closer to such data. What this means is exactly that the seemingly strong underdetermination besetting metaphysics might (albeit perhaps not in all cases) be shown to be almost as weak as that obtaining in science after all, as conjectures that previously seemed entirely abstract and disconnected from reality (may) turn out to make a difference when it comes to interpreting specific theories. In light of this, it appears sensible to apply to those conjectures the same criteria for theory choice that are employed in the case of plainly scientific hypotheses. After all, what principled way could there be for determining when a given hypothesis is *necessarily* strongly underdetermined? Wouldn't one run the risk of making a claim analogous to the claim that, while mathematics is generally useful for the development of physics and so the pursuit of mathematics for its own sake is generally justified, there is a specific bit of mathematics that is in principle useless for, say, physicists? (I think the analogy between metaphysics and mathematics is useful, but there is no space to develop it here).

5 Conclusions

Overall, it looks like metaphysicians can and should steer clear of both agnostic/sceptical empiricism and naively understood naturalised metaphysics by endorsing the following theses:

1. Metaphysics cannot be read off from science;
2. Metaphysics is a priori while science is based on observation and experiment;
3. Both metaphysics and science employ inference to the best explanation and have recourse to pragmatic/theoretical considerations when evaluating competing hypotheses;
4. Metaphysics seeks the most fundamental and general truths, and therefore has to employ peculiar concepts and categories;
5. Metaphysics studies a space of possibilities characterised by dependence and priority relations, (likely to be grounded in the (metaphysical) essences of the (metaphysical) sorts of things being postulated);
6. Metaphysics obtains answers either via pure logical analysis or, much more importantly, via logical analysis plus a consideration of our best current science;
7. Naturalism about metaphysics should be understood as the view that metaphysics should preserve its autonomy but be studied in parallel with science, being put to the test of the empirical evidence while at the same time defining the tools for the interpretation of science itself;

8. Pragmatic criteria of theory choice can and should be employed when it comes to choosing between different ways of putting metaphysics and science together (and this, among other things, may allow for a motivated defence of common sense beliefs).

If one adds to this a form of agnosticism about whether or not metaphysical modality is autonomous and irreducible, one obtains at least the sketch of an approach to metaphysics which pays enough attention to science to qualify as naturalist but, at the same time, preserves a degree of autonomy sufficient for avoiding the most radical forms of naturalism and the kinds of criticisms against metaphysics formulated on the basis of them.

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