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Can Metaphysics Be Naturalized? And If So, How?

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I began to study philosophy about 30 years ago.[1] It is clear to me, as it is to every philosopher who has lived through the intervening period, that the way in which philosophy is practiced today is very different from the way in which it was practiced then. The obvious outward sign of this difference in practice is the greatly increased probability that a philosophical journal article or book will discuss or cite the findings of some kind of empirical investigation, usually a science, but sometimes a branch of history. The difference itself is the (partial) so-called *naturalization* of many branches of philosophy.

Reflection on the contemporary practice of, say, philosophy of mind, philosophy of science, philosophy of language, moral philosophy, and even political philosophy suggests that the findings of empirical investigation play two main roles when philosophy is naturalized. First, they serve as evidence intended to confirm or disconfirm philosophical theses, theses that may themselves be quite traditional. For example, such findings have recently been used to cast doubt on the traditional claim that we have infallible knowledge of our own current experiences; and other findings to support an approximately Humean sentimentalism about moral judgments.[2] Second, such findings play the role of *object* of philosophical inquiry, in effect generating new philosophical questions. For example, the perplexing results of experiments performed on patients whose left and right cerebral hemispheres had been largely disconnected have generated much

[1] I.e., Anglophone philosophy, the only kind I know.
[2] See Schwitzgebel (2008) and Prinz (2006).

philosophical discussion of how to make sense of them.[3] More recently, the success of neuroscience and cell biology in discovering the mechanisms underlying various phenomena has prompted extensive efforts to understand what mechanistic explanation is.[4]

But when we turn to metaphysics as currently practiced by philosophers who think of themselves as metaphysicians (rather than as, say, philosophers of physics), we see no such signs of naturalization. Conforming to a long tradition, these metaphysicians do not cite empirical findings to confirm or disconfirm their contentions, and they do not address novel problems generated by such findings.[5]

It might be suggested that this is because there is no *reason* to naturalize metaphysics of this sort; it is a non-empirical inquiry that is managing quite well, thank you, as it is. The most promising way to develop this suggestion is to claim that metaphysics as currently practiced is, if not exactly a branch of mathematics or logic, then at least analogous to mathematics or logic, where these disciplines are understood traditionally, as a priori. But metaphysics as currently practiced is very unlike mathematics and logic. At any point in time, a remarkably broad consensus—amounting almost to unanimity—obtains among competent practitioners in mathematics and logic concerning the truth of a vast number of mathematical and logical claims. Moreover, the scope of this consensus has grown wider and wider over time, that is, competent practitioners at later times agree on more mathematical and logical truths than did competent practitioners at earlier times. In metaphysics, by contrast, we observe neither phenomenon; we instead observe persistent disagreement concerning what is true. This disagreement is strong prima facie evidence that contemporary metaphysicians do not have reliable methods for discovering metaphysical truths.

As I see it, then, the position is this: although metaphysics has not in fact been naturalized, it ought to be, since non-naturalized metaphysics has been pursued for a very long time without yielding results at all

[3] The pioneering discussion was by Thomas Nagel (1971).

[4] See, for example, Craver (2007).

[5] Admittedly, Jonathan Shaffer (2010) invokes quantum entanglement to support his metaphysical thesis of the priority of the whole (pp. 51–5). But in fact this invocation just emphasizes the gulf between his thesis and actual science. All that quantum entanglement shows is that the cosmos has properties that don't supervene on the intrinsic properties of, plus the interrelations among, its entangled parts. From this it doesn't follow that the cosmos is prior to its parts, *in Shaffer's sense of 'prior'*, unless there's such a thing as priority in his sense; and there is absolutely no scientific reason to believe that there is.

comparable with those achieved by mathematics and logic. But *can* metaphysics be naturalized? And if it can, how exactly can the results of empirical investigation be made relevant to metaphysics—as evidence, as a source of new problems, or in other ways? How many traditional metaphysical problems will it still be reasonable to investigate? And if the answer is 'Not many,' then what sort of problems will take their place? These are the sorts of questions that I wish to explore in this paper.

I do not approach these questions, however, with the assumption that metaphysics is bound to turn out to be a viable branch of inquiry, and hence that the only live question is how it works. On the contrary, I think there is a real possibility that the activity that we call 'metaphysics' should turn out not to constitute a viable form of inquiry at all, either empirical or non-empirical. I am therefore prepared to find that the right answer to the question, 'Can metaphysics be naturalized?' is 'No, it can't.'

My procedure in what follows will be slightly unorthodox. I will allow my answers to the questions I have raised to emerge from close dialogue with the first chapter (co-authored by Don Ross, James Ladyman, and David Spurrett; henceforth 'RLS'[6]) of Ladyman and Ross's remarkable book, *Every Thing Must Go: Metaphysics Naturalized*.[7] I single out this chapter for such full examination because it is far and away the richest account to date (i) of why mainstream analytic metaphysics is objectionably non-naturalistic and (ii) of how metaphysics might be naturalized. I will be quoting from it liberally. I find RLS's critique of mainstream analytic metaphysics very powerful, but I have significant reservations about their positive conception of naturalized metaphysics, as I shall explain.

I

RLS begin their chapter as follows:

> The aim of this book is to defend a radically naturalistic metaphysics. By this we mean a metaphysics that is motivated exclusively by attempts to unify hypotheses and theories that are taken seriously by contemporary science. (1)

[6] Since 'RLS' simply abbreviates the names of the three co-authors, I treat it as grammatically plural.

[7] All page references that follow are to this book, unless the contrary is clearly indicated.

But their speaking of '*a* radically naturalistic metaphysics' (italics added) does not indicate tolerance for other kinds of metaphysics, for they immediately add this:

> For reasons to be explained, we take the view that no alternative kind of metaphysics can be regarded as a legitimate part of our collective attempt to model the structure of objective reality. (1)

Even these few remarks make it clear that not much of what contemporary analytic philosophers do under the heading of 'metaphysics' counts as legitimate by RLS's lights.

In my next section, I shall look at the details of RLS's conception of naturalized metaphysics. In this section, I shall ask three general questions about it that don't require knowing the details.

My *first* question about RLS's conception of naturalized metaphysics is why they think that *unification* is the touchstone of legitimate metaphysics. On the strength of their pp. 27–8, I think their answer can be paraphrased as follows:

> The goal of 'a relatively unified picture of the world' is pursued by actual scientists—and rightly so. But unifying whole branches of science, by figuring out the 'reciprocal explanatory relationships' between them, 'is not a task assigned to any particular science'. Doing so, therefore, is a truth-oriented task for metaphysics that is not crowded out, so to speak, by any single science.

I am all in favor of seeking 'a relatively unified picture of the world';[8] but I have two reservations about this argument.

First, I don't see why this argument should provide any reason to *restrict* naturalized metaphysics to attempts at unification. After all, the goal of discovering true answers to questions we find important is *also* a goal pursued by actual scientists; and some of these questions are also not addressed by any single branch of science. Examples are the questions whether anything ever causes anything, whether the world is fundamentally impersonal, whether anything has intrinsic properties, or indeed whether there are any fundamental individuals.[9] Thus there is, I suggest, as good a

[8] See the 'problem of the many sciences' in Andrew Melnyk (2003).

[9] Readers familiar with *Every Thing Must Go* will know that its Ch. 3 argues in detail that what contemporary physics, properly viewed, is really telling us is that there are no fundamental individuals. While this chapter is in fact integrated into the book's overall project of giving a unified account of the world as a whole, it would still, I think, be a legitimate contribution to an acceptably naturalized metaphysics even if it were not (and even if it

rationale for allowing naturalized metaphysics to seek answers to these questions as there is for allowing it to seek global unification.

Second, although RLS are right that no single branch of science is tasked with generating an account of how all the branches of science fit together, there are branches of science, for example, physical chemistry and molecular biology, that give accounts of the relations between members of particular pairs of branches of science—and that do so without philosophical assistance. The question then arises of what would be wrong with simply conjoining all these accounts (including future ones) and letting the result *be* one's account of how the sciences and their respective domains are to be unified. Why would this merely conjunctive unifying account of the world not crowd out naturalized metaphysics as RLS envisage it, leaving it with nothing to do, even if no single science crowds it out?

A plausible answer to this question, I suggest, is that the accounts of the relations between branches of science provided by, for example, physical chemistry and molecular biology are *deficient* in some way that philosophers are in a position to remedy. The best candidate for such deficiency, however, is not the obvious one, that is, that these accounts are *false*, but rather that they are *imprecise*. I shall not try to define imprecision, but the kind I have in mind is exemplified by the pervasive claims in cognitive neuroscience that such-and-such a neural condition is the 'neural basis' of such-and-such a psychological state or capacity. When such claims are made, no account of *being the basis of* is ever offered at the time, and no consensus account can be assumed, since none exists.

The thought that some of the products of science might be deficient in some way that philosophers could remedy leads nicely into my *second* question about RLS's conception of naturalized metaphysics. According to this conception, as we have seen, the only legitimate metaphysics is one 'that is motivated exclusively by attempts to unify hypotheses and theories that are taken seriously by contemporary *science*' (1; my italics). But why do RLS privilege science in this way? After all, one could agree that legitimate metaphysics must be some kind of unification project, but deny that the claims about the world that it seeks to unify be drawn only from science.

couldn't be; this would be the case if there simply was no unified account of the world as a whole).

RLS offer the following argument for the unique status of science; they repeat it at p. 30:

> Since science just *is* our set of institutional error filters for the job of discovering the objective character of the world—that and no more but also that *and no less*—science respects no domain restrictions and will admit no epistemological rivals (such as natural theology or purely speculative metaphysics). With respect to anything that is a putative fact about the world, scientific institutional processes are absolutely and exclusively authoritative. (28)

Their rationale for the premise of this argument is that scientific methods—of discovery and confirmation—are at bottom no different in kind from the methods of discovery and confirmation used in everyday life, for example, in police work, courts of law, or auto mechanics; scientific methods are simply the most refined, best developed, and most effective of these everyday methods.

Now if scientific methods are indeed the best refinements to date of certain everyday methods for acquiring knowledge, which I accept, it certainly follows that, in any *conflict* between the deliverances of scientific methods and the deliverances of those everyday methods, we should always prefer the former. But does it also follow that scientific methods are 'exclusively authoritative,' that is, that no other methods can bear on, or even settle, a factual claim? Apparently not. For all that has been said so far, scientific methods may fail to include refinements or developments of *all* everyday methods of inquiry that have cognitive value. (Why expect that they would include them all? What mechanism would ensure this outcome?) And defenders of, say, a somewhat reliable faculty of introspection, or indeed of a *sensus divinitatis*, will obviously claim that in fact they do so fail. It also doesn't follow, from the claim that scientific methods are the best refinements to date of certain everyday methods for acquiring knowledge, that everyday claims about the world shouldn't be taken seriously unless they have been vindicated by the procedures of institutional science. For, in addition to the last point, everyday methods of inquiry, without being the *best* methods we have, may still be at least somewhat reliable.

I am inclined, then, to reject RLS's conclusion—that 'With respect to anything that is a putative fact about the world, scientific institutional processes are absolutely and exclusively authoritative'—as unjustifiably strong. I also doubt that any such conclusion can be established by means of the sort of global argument that RLS offer. Instead, one must argue

piecemeal, by evaluating concrete considerations for and against whatever particular methods of inquiry might be proposed as supplements to those of science. For example, the deliverances of intuition concerning certain factual claims could be evaluated for coherence with one another, both at a time and over time, both within subjects and between subjects; and for external coherence, that is, coherence with the deliverances of other sources of evidence already accepted as legitimate. Such deliverances can also be evaluated by seeking a theoretical account of their origins and reliability. In practice, RLS do argue in this piecemeal way, as when they point out that intuitions are often influenced by variable cultural factors or superseded scientific theories, and that common-sense claims have often turned out to be wrong or unproductive (10–12).

My *third* question about RLS's conception of naturalized metaphysics is closely related to the second. What scope does it allow for metaphysics, and indeed for philosophy more broadly, to *correct* our best current science? The question matters rhetorically as well as substantively. It matters substantively because, as I've hinted already, a *prima facie* tension exists between the naturalist attitude of deferring to science on all factual questions and the hope that metaphysics can nonetheless contribute to our knowledge of what the world is like. It matters rhetorically because naturalists are in constant danger of appearing to be science sycophants, and they would reduce this threat if they could point to ways in which, in principle, metaphysicians could correct science.

Now when RLS write that 'With respect to anything that is a putative fact about the world, scientific institutional processes are absolutely and exclusively authoritative,' they certainly appear committed to allowing no scope at all for metaphysics to correct science. But the appearance is misleading. Suppose that the methods of properly naturalized metaphysics *are* (some of) those of science; this involves supposing that properly naturalized metaphysics has (or could be made to have) its own 'institutional filters on errors' (28), comparable to those of today's science. Then, in principle, no obstacle prevents such metaphysics from correcting our best current science, and all sorts of possibilities are opened up. For example, properly naturalized metaphysics might be able to show that parts of our best current science are imprecise (as I suggested above), or confused, or needlessly agnostic; that these defects can be corrected in such-and-such a way; and that, once they have been corrected, we will

therefore have *added* to our current best science.[10] Properly naturalized metaphysics might also be able to show that parts of our best current science are *unfounded*, because they are supported by faulty modes of reasoning; in this case, properly naturalized metaphysics would presumably need to draw upon properly naturalized epistemology. More generally, practitioners of properly naturalized metaphysics might be able to advance our best current science indirectly, merely by helping scientists to think things through, without their contribution amounting to a precisely identifiable, localized addition to anything that we take ourselves to know.

II

I turn now to RLS's elaboration of their conception of naturalized metaphysics. In a section devoted to formulating 'some proper principle which distinguishes what we regard as useful from useless metaphysics' (27), they endorse a 'non-positivist version of verificationism' (29). They state the first of the two elements that make up this 'verificationism' as follows:

> no hypothesis that the approximately consensual current scientific picture declares to be beyond our capacity to investigate should be taken seriously. (29)

RLS make it clear in their glosses that 'capacity' should be read as 'capacity in principle'; and that not to take a hypothesis seriously is to treat the hypothesis as one whose investigation is not worthwhile if one's (sole) goal is to advance 'objective inquiry' (30). Note, too, that the sentence I have quoted is an exhortation, and not a hypothesis, so that no problem can arise from its applying to itself.

But why call this exhortation an element of *verificationism*? The answer is that classical verificationism sought a way to identify claims that are cognitively meaningless, claims that can for that reason safely be ignored, that is, left uninvestigated. And RLS, too, seek a way to identify hypotheses that can safely be ignored—not because they are literally meaningless, but because they are beyond our cognitive powers to investigate. A second query: what does RLS's exhortation have to do with metaphysics? The answer is everything, since 'no hypothesis' is clearly meant to cover all

[10] Indeed, this is just what will happen, I suggest, if the arguments of Ch. 3 of *Every Thing Must Go* (that according to current physics there are no fundamental individuals) are successful.

metaphysical theses. The exhortation is therefore closely linked to a certain familiar usage of the word 'metaphysical' (chiefly among scientists) in which to call a claim metaphysical is just to say that its truth can't be known, one way or the other, even in principle. Just how many traditional metaphysical claims should not be taken seriously, according to RLS, is a question they don't take up at this point in their discussion; but their earlier section, 'Neo-Scholastic Metaphysics' (7–27), can with the benefit of hindsight be read as having argued precisely that a good many such claims are indeed 'beyond our capacity to investigate', given the 'approximately consensual current scientific picture' insofar as it characterizes human cognition. Thus, as I noted above, RLS observe that intuitions are often influenced by variable cultural factors or superseded scientific theories, and that common-sense claims have often turned out to be wrong or unproductive (10–12). Hence, to the extent (i) that certain metaphysical theses could only be supported by appeal to intuitions and to what seems commonsensical and (ii) that RLS's observations discredit support of these kinds, those theses should no longer be taken seriously, according to the first element of RLS's verificationism.

For myself, I am not yet ready to endorse (ii). The evidence that RLS cite against appeals to intuitions and common sense is too general. A great diversity of phenomena has been subsumed under the heading of 'intuitions and common sense,' and it is open to defenders of the appeals to intuitions and common sense that are made in contemporary metaphysics to insist that the sort of appeals to intuitions and common sense that *they* make are legitimate, even though RLS are right to say that many other appeals that fall into the same very broad category are worthless. In my view, an adequate case against the appeals to intuitions and common sense that are made in contemporary metaphysics must be based on the results of further research into metaphysical intuitions in particular (e.g., those invoked in the dispute between endurantism and perdurantism). Such research would seek, first, to discover whether metaphysical intuitions are consistent across, say, cultures, genders, and variations in intelligence and education; in light of the results, it would seek, second, to confirm hypotheses about where these intuitions come from and what factors influence them; it would seek, finally, to draw conclusions as to the reliability or otherwise of these intuitions.

Even when the 'approximately consensual current scientific picture' doesn't characterize human cognition, it can still reveal a hypothesis to be 'beyond our capacity to investigate'; it can do so by revealing certain

questions to have false presuppositions. Thus RLS see much contemporary analytic metaphysics as assuming the correctness of what they call the 'containment metaphor' (3). 'On this doctrine,' they write,

> the world is a kind of container bearing objects that change location and properties over time. These objects cause things to happen by interacting directly with one another. Prototypically, they move each other about by banging into one another. At least as important to the general picture, they themselves are containers in turn, and their properties and causal dispositions are to be explained by the properties and dispositions of the objects they contain (and which are often taken to comprise them entirely). (3)

According to the balance of *Every Thing Must Go*, however, this doctrine is entirely mistaken; most fundamentally, of course, there are no objects, that is, no substances in the philosophical sense—every thing must go! But if this is correct, then, I take it, many traditional metaphysical questions simply lapse, such as questions about what substances are, how they continue to exist through time, whether some of their properties are essential, and perhaps what properties are (if substance and property are inter-defined). For RLS, in that case, naturalized metaphysics *cannot* mainly consist in addressing traditional metaphysical questions, albeit in a non-traditional way; for them, the change that metaphysics must undergo if naturalized is more than a change in method.

Let me end this section with a word about the rationale for the first element of RLS's 'non-positivist version of verificationism.' Why, exactly, should 'no hypothesis that the approximately consensual current scientific picture declares to be beyond our capacity to investigate . . . be taken seriously' if one's (sole) goal is to advance 'objective inquiry' (29–30)? Though left unstated, the answer, I presume, is that—to a first approximation—one should not attempt to pursue a goal that one knows one cannot achieve. A more sophisticated answer would need to take into account the low but surely non-zero probability that one *can* achieve the goal in question, *pace* the 'approximately consensual current scientific picture,' which is, after all, fallible. Perhaps, then, despite the very low probability of success, if some people want very badly to know whether, for example, endurantism or perdurantism (or neither) is true, they *should* continue to investigate them as best they can. But RLS can happily concede this, for their main points stand: (i) it is sometimes irrational for most people to continue certain investigations because the game is not worth the candle, given their utilities and the

low probability of discovering, or even approaching or approximating, the truth, and (ii) contemporary metaphysics may well be an investigation of this kind.[11]

III

The second of the two elements that make up RLS's 'non-positivist version of verificationism', once developed and refined, is what they call their 'principle of naturalistic closure' or 'PNC' (27) and formulate canonically as follows (37–8):

> Any new metaphysical claim that is to be taken seriously at time *t* should be motivated by, and only by, the service it would perform, if true, in showing how two or more specific scientific hypotheses, at least one of which is drawn from fundamental physics, jointly explain more than the sum of what is explained by the two hypotheses taken separately, where this is interpreted by reference to the following terminological stipulations.

These stipulations explain the intended senses of 'scientific hypothesis' and 'specific scientific hypothesis.'

RLS clearly intend the PNC as an elaboration of the general idea with which they begin their chapter, that 'a radically naturalistic metaphysics . . . [is] a metaphysics that is motivated exclusively by attempts to unify hypotheses and theories that are taken seriously by contemporary science' (1). So my earlier comments on the general idea apply to the PNC as well. But the PNC differs from the general idea in two striking ways. First, it includes mention of a particular branch of science, fundamental physics. Second, it appears no longer to mention unification. Let me begin by discussing the fate of unification in the PNC; on my interpretation, it's still there, but it's harder to see.

What exactly do RLS mean when they say that 'a metaphysical claim' could perform a service 'in showing how two or more specific scientific hypotheses . . . jointly explain more than the sum of what is explained by the two hypotheses taken separately'? If the quoted formulation of the PNC were read out of context, its talk of jointly explaining 'more' would most naturally be construed as talk of jointly explaining a greater *number* of

[11] In my view, certain exegetical questions that have been discussed by historians of philosophy for literally (two) thousands of years may also fall into this category.

explananda. But RLS see themselves as borrowing from Philip Kitcher's well-known account of explanatory unification (30–2). So their talk of jointly explaining 'more' should be construed instead as referring to a gain in explanatory power—something that does not necessarily require a greater number of explananda. Thus RLS paraphrase Kitcher's account, with endorsement, as follows (roughly, argument patterns are multiply-applicable explanatory schemata that consist of schematic sentences):

> We have a unified worldview to the extent that [i] we use a smaller rather than a larger number of argument patterns in science, and to the extent that [ii] what get used as schematic sentences in these argument patterns are themselves derived from other non-ad hoc argument patterns. (31; interpolated numerals mine)

Given this account, if two hypotheses 'jointly explain more than the sum of what is explained by the two hypotheses taken separately', then, I suggest, this must be because the two hypotheses 'jointly' constitute 'a smaller rather than a larger number of argument patterns'; and presumably the two hypotheses 'jointly' constitute 'a smaller rather than a larger number of argument patterns' because the argument patterns of one of the hypotheses 'are themselves derived from other' argument patterns that belong to the other hypothesis. I further suggest that 'a metaphysical claim' could perform a service in showing *how* two hypotheses 'jointly explain more than the sum of what is explained by the two hypotheses taken separately' by showing *how* the argument patterns of one of the hypotheses 'are themselves derived from other' argument patterns that belong to the other hypothesis; and showing this would presumably require affirming some substantive connection between the two hypotheses and/or their respective domains.

As noted above, the PNC requires that one of the two (or more) hypotheses be 'drawn from fundamental physics.' At first sight, this requirement seems too strong: one might have thought that unifying 'two or more specific scientific hypotheses,' even if *neither* of them was 'drawn from fundamental physics,' could still be one step on the path to a later unification that *did* involve a hypothesis 'drawn from fundamental physics.' But RLS insist upon the requirement, writing as follows:

> a hypothesis that unified specific hypotheses from sciences other than fundamental physics, but unified them with no specific hypotheses from fundamental physics, would not be a metaphysical hypothesis. It would instead be a hypothesis of a special science of wider scope than those it partially unified. (37)

The reason why it wouldn't be 'a metaphysical hypothesis' is that—if I have it right—naturalized metaphysics should 'share . . . the maximum scope of fundamental physics' (37); and it should 'share . . . the maximum scope of fundamental physics' because of an important principle that RLS call the 'Primacy of Physics Constraint' (37).

I shall make just one comment on this argument before I turn to the Primacy of Physics Constraint (or PPC). Let me grant that naturalized metaphysics should 'share . . . the maximum scope of fundamental physics.'[12] I still don't see why the unification of a specific scientific hypothesis with a specific hypothesis from fundamental physics *would* be metaphysical, whereas the unification of two specific hypotheses *not* drawn from fundamental physics would *not* be. *Neither* unification *actually* achieves maximum scope; and *both* seem equally good candidates to be *precursors* to the achievement of maximum scope, namely, the unification of all science.

IV

Here is how RLS formulate the PPC:

> Special scientific hypotheses that conflict with fundamental physics, or such consensus as there is in fundamental physics, should be *rejected* for that reason alone. Fundamental physical hypotheses are not symmetrically hostage to the conclusions of the special sciences. (44; my italics)

Why do RLS accord fundamental physics this special epistemic status? Because, they say, the history of science from the nineteenth century onwards 'has been widely taken to support two complementary arguments for the primacy of physics' (42–3). According to the first argument,

> in the history of science a succession of specific hypotheses to the effect that irreducibly non-physical entities and processes fix the chances of physical outcomes have failed. (43)

But so what? I agree that the history of science provides inductive evidence that there are no irreducibly non-physical influences on the chances of physical outcomes. But it doesn't follow that the special sciences should always yield to physics in the event of a conflict. If, in defiance of the PPC,

[12] I grant this only *arguendo*, since I don't see why naturalized metaphysics should 'share . . . the maximum scope of fundamental physics,' even if the PPC (explained below) is endorsed.

we treat a conflict between a special-scientific hypothesis and the consensus view in fundamental physics as evidence that the *physics* is in error, we're not thereby committed to irreducibly non-physical influences on the chances of physical outcomes. Rather than explaining the conflict by supposing that physicists have overlooked certain irreducibly non-physical influences on the chances of physical outcomes, we could instead explain it by supposing that they have misunderstood some of the *physical* influences on the chances of physical outcomes.

According to the second argument for the primacy of physics,

> Over the history of science a succession of processes in living systems, and in the parts of some living systems dedicated to cognition, have come to be largely or entirely understood in physical terms. (43)

But this argument falls to the same objection as the first argument did. Let's agree that the history of science provides inductive evidence that *all* processes in living systems can in principle be entirely understood in physical terms. If we treat a conflict between a special-scientific hypothesis and the consensus view in fundamental physics as evidence that the physics rather than the hypothesis is in error, we needn't be assuming that some processes in living systems *can't* be entirely understood in physical terms. The conflict could have arisen because physicists have misunderstood the *physical* factors in terms of which processes in living systems can in principle be understood.

A page or two later, RLS offer a different (but consistent) rationale for the PPC. They claim that the PPC

> is a regulative principle in current science, and it should be respected by naturalistic metaphysicians. The first, descriptive, claim is reason for the second, normative, one. (44)

How exactly is the reasoning here meant to go? Perhaps as follows. As we saw above, RLS think that 'scientific institutional processes are absolutely and exclusively authoritative' (28). If this view is correct, and if respect for the PPC is one of the *components* of 'scientific institutional processes', then every reasonable person should respect the PPC. But is it true that respect for the PPC is one of the components of 'scientific institutional processes'? The evidence that RLS cite is inconclusive, since it doesn't discriminate between the hypothesis that scientists hold themselves to the PPC and the rival hypothesis that they hold themselves to a logically weaker relative of the PPC, the weaker relative claiming that conflict between a

special-scientific hypothesis and such consensus as exists in fundamental physics is *defeasible evidence* against, albeit perhaps *strong* defeasible evidence against, the special-scientific hypothesis. What makes this relative weaker, of course, is that it allows for the possibility that the evidence *for* the special-scientific hypothesis might outweigh the evidence *against* it that is constituted by its conflict with fundamental physics—in which case, contrary to the PPC, the special-scientific hypothesis should *not* be rejected. Scientists who clearly wish their special-scientific hypotheses not to conflict with physics might be implicitly endorsing not the PPC but its weaker relative.

Let me conclude this section with a comment about the practical employment of the PPC. In order for the PPC to recommend the rejection of a special-scientific hypothesis, a special-scientific hypothesis must be capable of *conflicting* with some claim of fundamental physics. Now if physicalism is assumed, then such a conflict is certainly possible, because, if physicalism is true, then a complete description, in the language of physics, of the physical way things are, plus all the true a posteriori identity claims, entails all the positive truths expressible in the languages of the special sciences, which truths have the potential to be contradicted by claims generated by the actual special sciences. But RLS deny the thesis of physicalism in its commonest formulations, and refuse to commit themselves to physicalism in any formulation (38–41). So, for them, how can it happen that a special-scientific hypothesis conflicts with some claim of fundamental physics?

I am not suggesting that RLS's position (that physical hypotheses might conflict with special-scientific hypotheses, even though physicalism is false) is incoherent. Indeed, it is plainly coherent. For if a complete description, in the language of physics, of the physical way things are, plus all the true a posteriori identity claims, entailed some *but not all* of the positive truths expressible in the languages of the special sciences, then physicalism would be false, but the entailed truths would still have the potential to conflict with claims generated by the actual special sciences. However, this possibility doesn't help much, because it still assumes that a correct physical description of the way things are entails *some* of the positive truths expressible in the languages of the special sciences, and even this weaker assumption, I think, is one that RLS would wish to withhold commitment to. So they still owe an explanation of how a special-scientific hypothesis could conflict with some claim of fundamental physics, and that is all I wished to note.

V

I have argued, amongst other things, that the core of RLS's position—the PNC—is too restrictive, and that their deference to institutional science is exaggerated. So I don't think that metaphysics can be naturalized in exactly the way that they propose. But I am cautiously optimistic that metaphysics can be naturalized. First, the optimism. In order for metaphysics to be naturalized, there have to be some outstanding questions that (i) we would like to answer but that (ii) apparently don't fall within the province of the sciences (as traditionally understood). There look to be such questions, including (but not limited to) the question of how to unify the sciences.

Second, however, the caution. In order for metaphysics to be naturalized, these questions have to be ones that creatures like us are capable in principle of answering. But if creatures like us really are capable of answering these questions, then, since a priori methods have a good track record only with regard to the mathematical and logical domains, our ability must derive from the application to the questions of empirical methods. But how far empirical methods can be applied to these questions is not clear to me. If a metaphysical question can be put into the 'What is__?' form (e.g., 'What is causation?'), then in principle it can be answered by assembling empirical evidence for the relevant a posteriori identity claim.[13] And the same approach can be used to address the question of how to unify the sciences, since, at least on my view, unification is achieved by discovering cross-scientific a posteriori identity claims.[14] So far, so good. But what if our question is, say, whether there are any fundamental substances? On the face of it, the only possible approach to such a question requires scrutinizing our best current physical theories and working from there—which is exactly what Ladyman and Ross do in Chapter 3 of *Every Thing Must Go*. Here, however, I have a concern, and it is one that RLS explicitly note: 'science, usually and perhaps always, underdetermines the metaphysical answers we are seeking' (9). Perhaps, then, one can get from the science only as much metaphysics as one puts in. Perhaps. But it's best not to meet one's troubles halfway. If

[13] For defence, see the third section of my 'Conceptual and Linguistic Analysis: A Two-Step Program' (2008).

[14] This is controversial, of course; RLS would deny it.

metaphysics cannot be naturalized, let us discover the fact naturalistically—by trying our best to do it and failing nonetheless.[15]

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[15] An ancestor of this paper was presented at a session of the Society for the Metaphysics of Science held at the annual meeting of the Pacific Division APA in San Diego in April 2011. I owe thanks to those present for their useful comments.